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# THE INNOVATIVE ACTIVITY OF ENTERPRISES AS A PREREQUISITE FOR SUSTAINABLE ECONOMIC DEVELOPMENT

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**Abstract.** In terms of exacerbation of crisis processes in the economy, hindering trends in upgrading technologies are observed, which leads to a certain lag from modern needs for the reproduction of productive forces. In order to solve this problem, it is necessary to consider the innovative activity as a factor and a consequence of hierarchical changes in related levels and fields that allows a researcher to deepen into the selected area and develop it in more detail from the chosen position. The presence of innovative activity leads to technological shifts that are carried out by using technologies of another technological mode. In such conditions, the innovative activity of enterprises, which serves a basis for sustainable development of the economy, is an important component and prerequisite for sustainable economic development. *The purpose of the article* is to analyse the nature of the innovative activity of enterprises, study issues of providing sustainable economic development by developing a mechanism of innovative activity of an enterprise, taking into account its innovative space. To achieve this purpose, there are the following *tasks*: to analyse trends in innovative processes and innovative activity of enterprises by corresponding directions; substantiate factors of innovative activity by levels of the economy and determine their effect by components; propose a mechanism of innovative activity by levels of the economy in order to stimulate enterprises to introduce innovations for ensuring increased capacity of activities. *Methodology.* The methodological basis of the article is methods of scientific cognition, which allow revealing the nature of the innovative activity of enterprises, the main laws of innovative development of the economy, priority ways to ensure their financial firmness. In particular, the following methods are used: analysis and synthesis – when studying the innovative activity of enterprises in 2001–2016; systematization – for revealing factors hindering the innovative activity of enterprises; scientific abstraction – in order to form a theoretical generalization and conclusions. *Results.* There are substantiated factors of influence on the innovative activity of all economic levels per unit of influence that is proposed to be considered a business process, which stipulate for the operation of the effective mechanism of business process management that contributes to the intensification of the enterprises' innovative activity. The proposed mechanism of innovative activity by levels of the economy allows forming it aimed at creating an active innovation space, which establishes feedback with the innovative climate, which creates information capabilities for its adaptation to changing conditions of the environment in the aspect of development and introduction of modern innovative equipment. Further research directions are aimed at deepening the interconnection of innovative climate in Ukraine and innovative space and its characteristics, which is an integral component of intensification of innovative activity. *Practical implications.* Practical implications are related to the possibility of using the proposed mechanism of the increase in innovative activity of enterprises, providing the efficiency of managerial influences when introducing modern technology, and improving the production quality. *Value/originality.* Originality lies in the substantiation of relevant factors that influence and determine directions of innovative activity of enterprises, which allow combining the study of active business processes and financial planning and creating information support for compliance.

**Key words:** sustainable development, mechanism, innovative activity, factors, compliance, levels of economy, business process.

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## 1. Introduction

In terms of exacerbation of crisis processes in the economy, hindering trends in upgrading technologies are observed, which leads to a certain lag from modern needs for the reproduction of productive forces. There is the development of innovative processes aimed at activation of knowledge use for the increase in social production based on innovative potential and the maximum satisfaction of consumer needs in innovative products. In order to solve this problem, it is necessary to consider innovative activity as a factor and a consequence of hierarchical changes in related levels (mega-, macro-, meso-, and micro-levels) and fields (as a source of orders for qualitatively new raw and other materials, semi-finished products, services) that allows a researcher to deepen into the selected area and develop it in more detail from the chosen position. The presence of innovative activity leads to technological shifts that are carried out by using technologies of another technological mode. In such conditions, the innovative activity of enterprises, which serves a basic prerequisite for the formation and a basis for sustainable development of the economy, is an important component of sustainable economic development.

## 2. Literature review

Modern fundamentals of innovative development were studied in works of such domestic scholars as: Bielikova (2014), Vakhovych (2012), Melnyk & Shkarupa (2011), Yurkevych (2010) and others.

Growing interest of scholars to the issue of management of innovative processes at enterprises is determined by the improving role of innovations in their activities, namely, in scientific works of the following authors: Boichuk, (2016); Varfolomiieva, (2009); Voloshchuk, (2015); Demydenko, (2015); Doroshuk, (2010); Illiashenko, (2008); Shypulina, Illiashenko, Pererva & Kosenko (2012); Polinkevych, (2011); Sotnyk, & Shevtsov, (2013); Uvarova, Hnylobokov & Boiakova, (2010); Yurkevych, (2010); Yastremska & Dourtmes, (2016).

Along with that, a large number of works in the field of innovative activity of enterprises require its further disclosing as a prerequisite for sustainable development of the economy and remain unsolved from the viewpoint of system multilevel approach and based on the engagement of knowledge economy. This is what will contribute to the formation of changes in the functional imperative of management at all levels during the transition to innovative development model.

## 3. Goals and tasks of the article

The purpose of the article is to analyse the nature of the innovative activity of enterprises, study issues of providing sustainable development of the economy by

developing a mechanism of innovative activity of an enterprise, taking into account its innovative space.

To achieve this purpose, there are the following tasks: to analyse trends in innovative processes and innovative activity of enterprises by corresponding directions; substantiate factors of innovative activity by levels of the economy and determine their effect by components; propose a mechanism of innovative activity by levels of the economy in order to stimulate enterprises to introduce innovations for ensuring increased capacity of activities.

## 4. The main material of the research

In the era of knowledge economy, innovations become a driving force of development; they, on the one hand, are a result of innovative activity and, on the other hand, are a component of formation of the enterprise's strategy, changing market condition and a basic component of development, which is evidenced by characteristics of corresponding technological modes. By using a process approach as an essential characteristic and technology for conducting the innovative activity, enterprises will be able to achieve the necessary innovative activity. It is innovatively active economic entities that should be the basis for qualitative changes in industries that are able to introduce innovative technology and products for the productive and personal consumption and to develop innovative potential.

It should be noted that innovative activity is not widespread yet in Ukraine as the share of enterprises engaged in innovations in 2016 was 18.9%, i.e. almost 2-2.5 times less compared to developed countries. However, total research-and-development spending and costs of modern equipment purchasing more precisely characterise innovative processes in the national economy; so, in 2014, this sum amounted to 7695.9 million hryvnias (at dollar's market value of 12-13 hryvnias), and in 2016 – 23229.5 million hryvnias (at dollar's market value of 26-27 hryvnias) (Table 1), which testifies about negative tendencies in the innovation sphere and hindering development on qualitatively new basis of technical and technological support.

The innovative activity of an enterprise (economic entity) requires additional consideration and interpretation from the position of system multilevel approach, which will allow intellectualizing its potential in whole, and competencies, in particular, since it is based on knowledge and awareness of this activity's participant. As a result, an innovative capacity of the enterprise is created, which ensures implementation of changes in production technologies and labour organization, managerial innovations that make an influence on the selection of organizational structure model and its adaptation, its functionality and corporate culture, capacity of workers to think outside of the box and produce ideas.



Table 1

**Innovative activity, million UAH**

Year	Share of enterprises engaged in innovations, %	Total costs	Including by directions						
			research and development <sup>1</sup>	including		acquisition of other external knowledge <sup>2</sup>	preparation of production for introducing innovations <sup>3</sup>	acquisition of machinery, equipment, and software <sup>4</sup>	other costs
				internal R&D	external R&D				
2001	16,5	1979,4	171,4	X	X	125,0	183,8	1249,4	249,8
2002	18,0	3018,3	270,1	X	X	149,7	325,2	1865,6	407,7
2003	15,1	3059,8	312,9	X	X	95,9	527,3	1873,7	250,0
2004	13,7	4534,6	445,3	X	X	143,5	808,5	2717,5	419,8
2005	11,9	5751,6	612,3	X	X	243,4	991,7	3149,6	754,6
2006	11,2	6160,0	992,9	X	X	159,5	954,7	3489,2	563,7
2007	14,2	10821,0	986,4	793,5	192,9	328,4	X	7441,3	2064,9
2008	13,0	11994,2	1243,6	958,8	284,8	421,8	X	7664,8	2664,0
2009	12,8	7949,9	846,7	633,3	213,4	115,9	X	4974,7	2012,6
2010	13,8	8045,5	996,4	818,5	177,9	141,6	X	5051,7	1855,8
2011	16,2	14333,9	1079,9	833,3	246,6	324,7	X	10489,1	2440,2
2012	17,4	11480,6	1196,3	965,2	231,1	47,0	X	8051,8	2185,5
2013	16,8	9562,6	1638,5	1312,1	326,4	87,0	X	5546,3	2290,9
2014 <sup>5</sup>	16,1	7695,9	1754,6	1221,5	533,1	47,2	X	5115,3	778,8
2015 <sup>5</sup>	17,3 <sup>6</sup>	13813,7	2039,5	1834,1	205,4	84,9	X	11141,3	548,0
2016 <sup>5,7</sup>	18,9	23229,5	2457,8	2063,8	394,0	64,2	X	19829,0	878,4

<sup>1</sup> sum of internal and external R&D since 2007; <sup>2</sup> acquisition of new technology until 2007; <sup>3</sup> since 2007 the indicator is included with other costs; <sup>4</sup> till 2007 acquisition of machinery and equipment, related to the introduction of innovations; <sup>5</sup> data is provided without including temporarily occupied territory of the Autonomous Republic of Crimea, Sevastopol, and a part of Anti-Terrorist Operation Zone; <sup>6</sup> in relation to changes in organization and conduct of state statistical survey on innovative activity of an industrial enterprise, a direct comparison of data for 2015 with analogous data of previous years is incorrect; <sup>7</sup> data is provided according to results of the state statistical survey on form № IHH "Investigation of Innovative Activity of Enterprises for 2014–2016" (by international methodology).

Source: (Official site of the State Statistics Service of Ukraine)

Sofar as an innovative activity not only changes qualitative characteristics of the economy, industry, enterprise but also creates new qualities of consumption that are based on needs of the people who conduct this activity. This is what enables creating a multiplicative effect both in production and non-production sphere by requiring using the latest technology, creating preconditions for the innovativeness of management at all levels, and basing on the prediction of transformation changes.

The increase of disproportions in the economy is explained, first of all, by different vector directions of regulatory influences on the innovative activity of enterprises, which is a prerequisite for sustainable economic development (Fig. 1). This is especially reflected in the system-forming industries, which are construction, engineering, transport, agro-industrial complex, and some others.

Therefore, it should be noted that the blocking of any element (at levels) of the economy as a socio-economic system leads to the destruction of links between the elements over the discrepancy of the pace of innovation and investment activity of more than 30%, violates the adaptability of resources use and the organization of functional systems. Moreover, a set of factors that hinder the innovative activity of enterprises can be distinguished:

- the high cost of research and development work, as well as their duration, limit the number of business entities capable of carrying them out and releasing for this purpose funds from circulation sufficient to ensure the continuity of such works and minimizing financial threats to business;
- limited state support and budget funding for the development and implementation of innovative products. Thus, on average for 2005–2013, the share of budget financing of innovations in total expenditures in Ukraine was within the range of 1.0-1.6% (Ilnytska-Hykvachuk, 2015), and in 2016 – 0.8%;
- the imperfection of the implementation of the stimulating function of taxation of innovative products over the lack of appropriate privileges and underdevelopment of mechanisms for accelerated depreciation when updating fixed assets for this;
- the lack of diversification of banking lending because of high-interest rates of venture projects, due to their duration and high risks of non-repayment of funds due to non-predictability of results;
- high depreciation of the active part of the capital of enterprises, which does not allow to find the technical and technological basis for their testing and introduction into the production process on qualitatively new grounds, as well as the need to train the personnel of

the appropriate qualification and capable of perceiving innovations;

- impossibility to reliably determine the demand for innovative products, which is characterized by flexibility, high costs of researching the market, informing and stimulating demand, taking into account psychological peculiarities, based on changing consumer requirements.

The pace of innovation is slowed down by the lack of experience in managing innovation at all levels, based on internal motivation for action through entrepreneurial activity, which is based on a creative initiative. Therefore, in order to stimulate innovation activity of an enterprise, it is necessary to select the unit of influence, which should be considered business process and structured. So, N.Ya. Boichuk believes that the main stage in the enterprise organization is the classification of business processes. They are divided into four categories. The first category is the main business processes, which are focused on production. They provide acquisition of income. The second category is providing business processes. They

provide all processes that take place in the enterprise with resources and services. The third category is managerial business processes. They cover business management functions. The fourth category is business development processes. They are business processes of innovation (Boichuk, 2016). Such an approach to the division of business processes in the enterprise activity is based on the principles of functional and cost analysis as a way to save costs in production and consumption of the product, within which the gradation of the processes itself as a function is made, and the cost of its implementation is determined, which may become the basis to form a mechanism for managing business processes for the development of innovation activity, which meets the requirements of the current stage of development of the economy as a whole, and industry, in particular.

It should be noted that (Chekulyna, 2011) proposed the following main stages of the business process management mechanism:

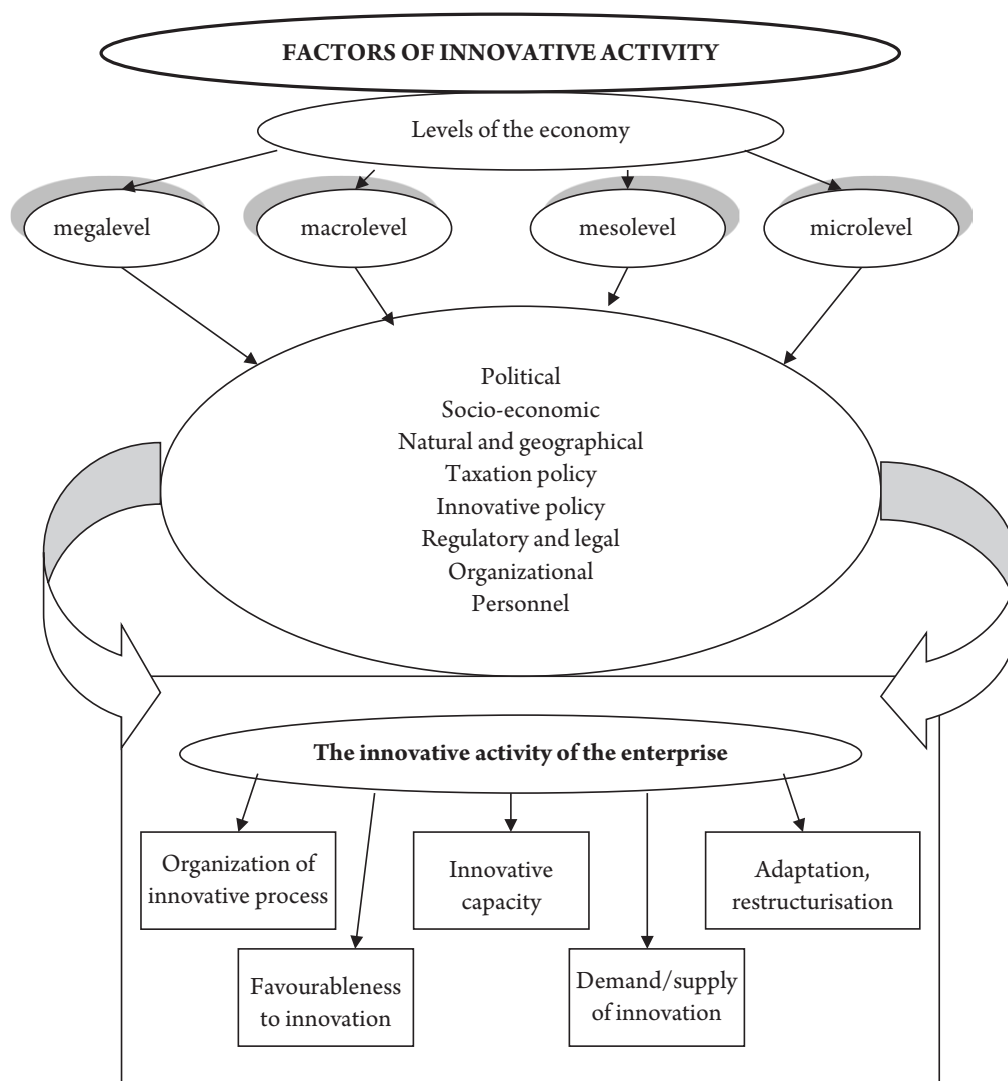


Fig. 1. Factors of innovative activity by levels of the economy (own development)

- determining the significance of the influence of management levers on business processes;
- identification of priority indicators for improving the effectiveness of the business process;
- definition of measures to improve business processes at the enterprise by the chosen indicator;
- analysis of the influence of innovation activity on the general activity of the enterprise;
- assessment of the efficiency of the operation of the enterprise management mechanism (Chekulyna, 2011), which should be carried out in accordance with its potential regarding the improvement of methods and technology, as well as the modern innovation

- and investment trends of the economy and industry's development;
- development of compliance of the qualitative and quantitative activity of the enterprise from the standpoint of efficient use of resources and reserves; control elements embedded in business processes to maintain their compliance with external and internal standards;
- management of the tax system at certain levels of the economy in order to optimize cash flows, which stimulates innovation activity and optimizes the tax burden of the enterprise and creates preconditions for applying the methods and elements of compliance;

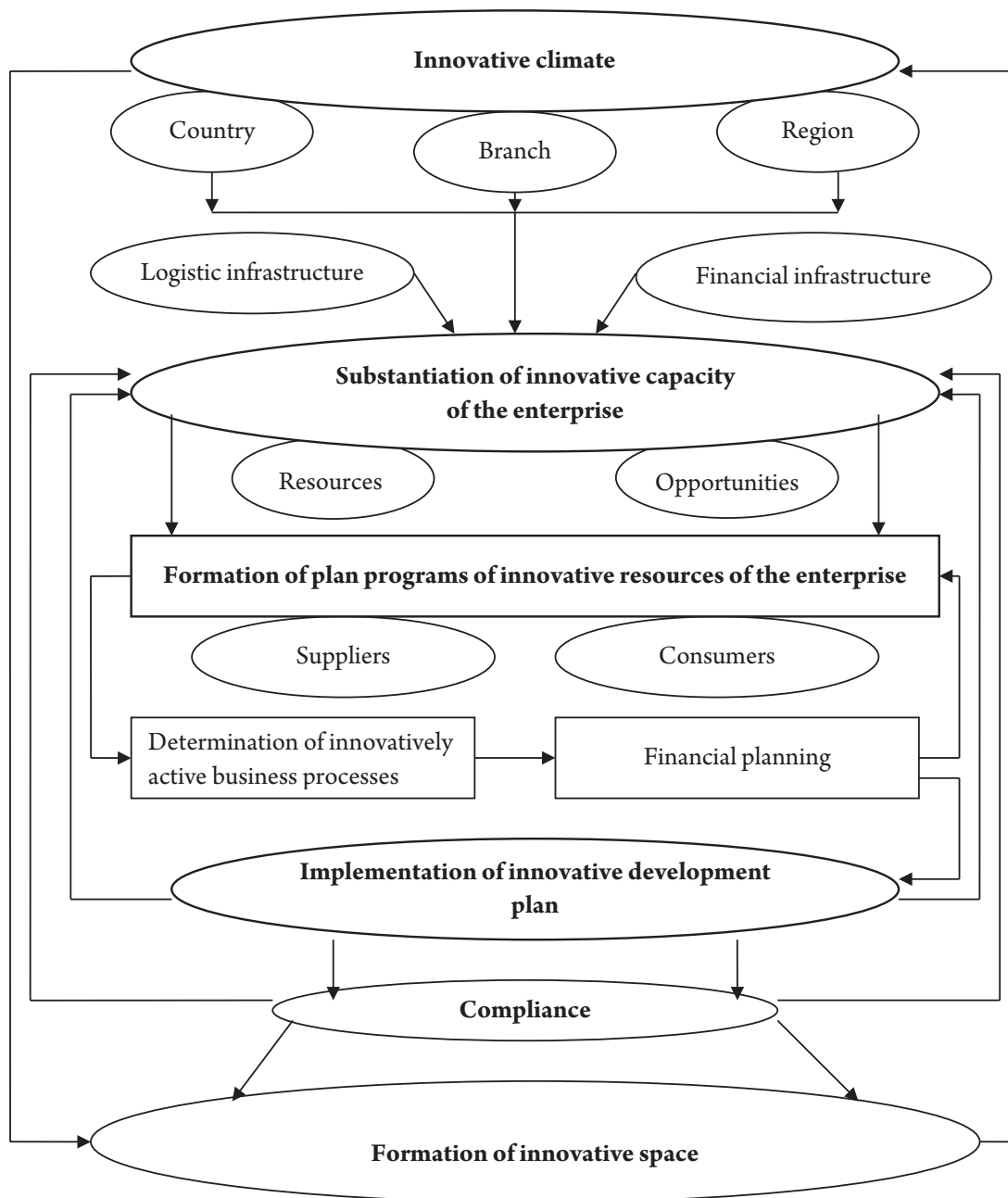


Fig. 2. The mechanism of innovation activity by levels of the economy (own development)

- formation of stimulating influences of innovative activity of employees, which provides technological development and use of the updated potential of the enterprise due to the formation of innovation space.

It should be noted that the profitability of the enterprise, provided by the continuous implementation of organizational and technological innovations, depends on the synchronization of stages of the lifecycle of various products, when the excess of funds from profitable products or services provides the costs for the development of innovation, the maturity of which compensates for the reduction of profitability of already developed and "worked" products or services. This will smooth out "big waves" of financial results, caused by cyclical fluctuations of cash flows from the sale of a product or service at different stages of its lifecycle (Ilnytska-Hykvachuk, 2015).

Since innovative development should be aimed at ensuring the competitiveness of the enterprise-producer both in the domestic and foreign markets through the creation of greater consumer value for the consumer, which is the main precondition for its competitive advantage. In our opinion, the establishment and strengthening of this cost-and-value production direction form the essence of transformations of innovative enterprises that are capable of creating their higher added value.

To activate and intensify components of the innovation process, an appropriate mechanism (Fig. 2), which is based on a combination of the innovative climate at all levels of the national economy as a prerequisite for the use of logistics and financial infrastructure, is proposed.

A separate stage includes the justification of the innovative potential of the enterprise, which allows forming planned programs of its innovative reserves and is based on the study of the market of consumers, suppliers, and the identification of innovative business

processes, which in the vast majority are conditioned by the quality of financial planning.

The distribution of financial costs for the production and sale of product or service innovations should be consistent with the target priorities for the stage of the life cycle of a particular innovation and ensured by the methods of compliance. In relation to this, it can be argued about the alternation not only of the stages of the product lifecycle but also the stages of functioning of the organizational mechanism for the implementation of innovations: strict regulation of activities aimed at compliance with product (service) standards at initial cost stages and encouraging cooperation between management and subordinates to provide internal initiatives to improve production activities at the stages of increasing the profitability of existing services.

## 5. Conclusions and recommendations for the further research

There are substantiated factors of influence on the innovative activity of all economic levels per unit of influence that is proposed to be considered a business process, which stipulate for the operation of the effective mechanism of business process management that contributes to the intensification of the enterprises' innovative activity. The proposed mechanism of innovative activity by levels of the economy allows forming it aimed at creating an active innovation space, which establishes feedback with the innovative climate, which creates information capabilities for its adaptation to changing conditions of the environment in the aspect of development and introduction of modern innovative equipment.

Further research directions are aimed at deepening the interconnection of innovative climate in Ukraine and innovative space and its characteristics, which is an integral component of intensification of innovative activity.

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# FOOD SECURITY INDICATORS IN UKRAINE: CURRENT STATE AND TRENDS OF DEVELOPMENT

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**Abstract.** The *purpose* of the paper is to study the current state of food security of Ukraine in order to identify the problem areas forming the system of food security in the country. *Methodology.* Assessment of the current state of the food security in Ukraine is carried out according to the Test Method for determining key indicators of food security, approved by the Cabinet of Ministers of Ukraine on 05.12.2007 № 1379 “Some Issues of Food Security” (as amended on 21.10.2011). *Results.* The article deals with the current state of food security in Ukraine for the next indicators: the daily energy value of the human diet, sufficiency consumption of certain products, the adequacy of supplies of grain in state resources, economic availability of food, differentiation value of food by social groups, market capacity of individual products, food self-sufficiency for a certain product. The study found that the state of Food Security in 2015 in Ukraine satisfied the set threshold values and rules by the majority of indicators. *Practical implications.* The value of particular indicators, calculated according to 2015 and compared to 1995, positively characterized the dynamics of food security in Ukraine. However, there is a necessity for a balanced state policy of the internal market and the agrarian sector’s regulating. *Value/originality.* It is an obvious fact that it is needed to respect the objectives set out in the Strategy for Sustainable Development “Ukraine-2030” in the directions of development, security, responsibility, and pride.

**Key words:** food security indicators, diet, grain food resources, economic availability of products, market capacity, food independence, differentiation value of food.

**JEL Classification:** O13, P46, Q18

## 1. Introduction

The issue of food security is concerned with providing the population with the key food products in sufficient quantity and adequate quality, creation of state reserves and stocks of food and agricultural products of long periods of storage, as well as the timing of their safe export and import. Addressing these issues requires an integrated management of agriculture and the consumer market, application of modern tools and incentives, and improvement of the system of foodstuffs continuous quality control.

The formation of food security should be accompanied by monitoring organized by the nature of changes and their quantitative and qualitative assessments for the preparation of the appropriate guidelines and management decisions. As a result of monitoring, authorized executive authorities have to decide on changes in the food basket of basic social and demographic groups, and executive authorities have to decide on the changes and approve food kits to basic social and demographic groups (rada.gov, 2011).

In terms of European integration, providing transparency of internal and external food markets, constant monitoring of the indicators of food security becomes more and more necessary. Also, this will allow quickly respond to changes and generate corresponding public policies.

Talking about the monitoring indicators of food security, it should be allocated to the level where it is held: international, national, macro and micro level of households.

The monitoring of food security indicators at the international (global) level is exercised by FAO. Information on the evaluation methodology and indicators mentioned directly on the FAO’s official site (FAO, 2017), which the organization brought together in a single database to provide an open access to information and creating a food security volume information system. Indicators classified by measuring four components of food security – availability, access, utilization, and stability. FAO is currently creating indicators for food safety and nutrition monitoring

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(GSD 2) (FAO, 2016) under the new Global Agenda “Goals of Sustainable Development for 2016–2030”.

The authoritative foreign researchers on the food security problems are Zhengxia Dou (2016), Kathryn J. Fiorella (2016), Sarina Macfadyen (2015), John Wilkinson (2015), Jessica Fanzo (2015), and others. However, these researchers did not conduct investigations of food security in Ukraine.

By the Cabinet of Ministers of Ukraine, the Resolution “Some Issues of Food Security” № 1379 dated 05.12.2007 (rada.gov, 2007) contained a list of tasks to the executive power to monitor indicators of food security of Ukraine at national, macro, and micro levels:

- 1) To the Ministry of Health, to determine every five years recommended by rational standards of consumption of basic products an average per one person;
- 2) To the Ministry of Agriculture and Food, the Ministry of Social Policy, and State Statistical Service, to provide within its authority submission to the Ministry of Economic Development and Trade every year until July 31, the information necessary to calculate basic indicators of food security;
- 3) To the Ministry of Economic Development and Trade, to prepare and publish each year before 1<sup>st</sup> September of the next period report on food security state in Ukraine.

On the official website of the Ministry of Economic Development and Trade of Ukraine, there is no report on food security in Ukraine for any period. Regarding food security published only the balance of demand and supply of meat and meat products, sugar, milk and dairy products, vegetable oils refined on 01.04.2015, the estimated balance of supply and demand of grain in 2014/2015 marketing year by all categories of farms.

Over the last five years on the public domain (the official website of the Vernadsky National Library of Ukraine), there are more than twenty scientific works devoted to the study of indicators of food security of Ukraine. But, only three works of P. Sukhoi (2016), Krypa O., and Golikova K. (2013) analysed the most of the indicators of food security at the national level. Other authors, such as: Lisak M. (2013), Kotvytska N. (2012), Olefirenko T. (2013), Hryshova I. (2014), Chorna N. (2013) explore the dynamics of consumption of basic foodstuffs.

Some indicators of food security, according to the Methodology for Determining the Key Indicators of Food Security, approved by the Cabinet of Ministers of Ukraine “Some Issues of Food Security” (rada.gov, 2007), are available on the website of the State Statistics Service of Ukraine, but they are in different

information sources, not structured and not are required interpretation to the public.

The monitoring of food security indicators at the households' level in Ukraine is not created.

## 2. Materials and methods

Assessment of the current state of food security in Ukraine performed according to test methods of basic indicators of food security, approved by the Cabinet of Ministers of Ukraine “Some Issues of Food Security” (rada.gov, 2007): the daily energy value of the human diet, sufficiency of consumption of certain products, the adequacy of supplies of grain in state resources, economic availability of food, differentiation value of food by social groups, market capacity of individual products, food self-sufficiency for a certain product.

The indicators of food security are:

- 1) daily energy value of the human diet, defined as the sum of products unit multiplications of certain types of foods that people consume during the day, and their energy value as follows:

$$EV = \sum m_i z_i$$

where  $EV$  – energy value of the daily diet of a person;  $i$  – a kind of foodstuff;  $m_i$  – a mass of the  $i$ -product, consumed by a single person;  $z_i$  – energy value per unit of mass of the  $i$ -product;

- 2) ensuring human diet with the main types of products, defined as the ratio between the actual consumption of the individual product and its rational norm by the formula:

$$C = \frac{C_f}{C_r}$$

where  $C$  – consumption sufficiency indicator of a particular product;  $C_f$  – actual consumption of single product per person per year;  $C_r$  – rational individual product intake per person per year, agreed with the Ministry of Health;

- 3) the adequacy of supplies of grain in state resources, defined as the ratio between the amount of food grain in the state food reserve and volume of domestic consumption of bread and bread products in grain, equivalent to the following formula:

$$G = \frac{H}{X}$$

where  $G$  – the indicator providing food grain resources;  $H$  – availability of food grain in the state food reserve;  $X$  – the average annual domestic consumption of bread and bread products in terms of grain<sup>1</sup>;

- 4) economic availability of products, defined as the share of total food expenses in the total aggregate household spending according to the formula:

$$E = \frac{B_x}{B_c}$$

where  $E$  – an indicator of the economic availability of products;  $B_x$  – expenditure on food per year;  $B_c$  – total expenditure for the year<sup>2</sup>;

<sup>1</sup> limit (threshold) criterion for this indicator is its 17% level corresponding to 60 days of consumption

<sup>2</sup> limit (threshold) criterion for this indicator is its 60-percent level

5) differentiation of the value of food at social groups that monitored in dynamics and calculated as the ratio between the cost of food in 20 percent of households with the highest incomes and the cost of food in 20 percent of households with the lowest incomes according to the formula:

$$D = \frac{D_b}{D_m}$$

where  $D$  – food value differentiation indicator;  $D_b$  – index of value consumed in 20 percent of households with the highest income;  $D_m$  – index of value consumed in 20 percent of households with the lowest incomes;

6) market capacity of certain products that tracked in dynamics and determined in terms of quantity as the product of a particular product consumption and the average population according to the formula:

$$V_i = F_i N$$

where  $V_i$  – the capacity of the domestic market of the  $i$ -product;  $i$  – a type of the  $i$ -product;  $F_i$  – annual average consumption of the  $i$ -product; and  $N$  – average annual population;

7) food self-sufficiency for a certain product, defined as the ratio between the volume of imports of a particular product in terms of quantity and capacity of its domestic market by the formula:

$$P = \frac{I_i}{V_i}$$

where  $P$  – the share of food import of the  $i$ -product;  $i$  – a type of the  $i$ -product;  $I_i$  – import of the  $i$ -product;  $V_i$  – the capacity of the domestic market of the  $i$ -product<sup>3</sup>.

### 3. The daily energy value of the human diet

Since 1990, the average daily calorie intake of food by the population of Ukraine per capita constantly exceeded the threshold. In 2015, average daily nutritional intake of average Ukrainian was 2799 kcal, which is 11.2% higher than the threshold criterion (2500 kcal). Compared to 1990, calorie intake by the population of Ukraine decreased by 22.2% (Figure 1).

However, since 1990 the average daily calorie consumption of plant products exceeded the threshold, and the average daily calorie intake of animal products constantly observed deficit. Instead, only 28.3% of the average daily diet is provided by the consumption of animal products, which is 21.7% below the set threshold criterion (55%). Thus, according to the proposed by O. V. Kochetkov and R. V. Makarov (2002), the classification of food security of the population in Ukraine meets the third minimum level (2300-2800 kcal per capita), which provides for such volumes of food resources that make impossible the emergence of hunger, and that should be considered within planning the provision of population with food in emergency (crisis) conditions.

It is obvious replacing of “expensive” calories by “cheapest one”, which allows satisfying energy demand but does not ensure intake of all essential trace elements, vitamins, and minerals. As a result, there is another problem of food security – overeating and obesity.

Deficient food diets can lead to the growth of obesity and diet-related, non-communicable diseases that are increasingly distributed among the poor people. It was found that obesity is associated with the lack of food security in a number of adults’ groups and is associated

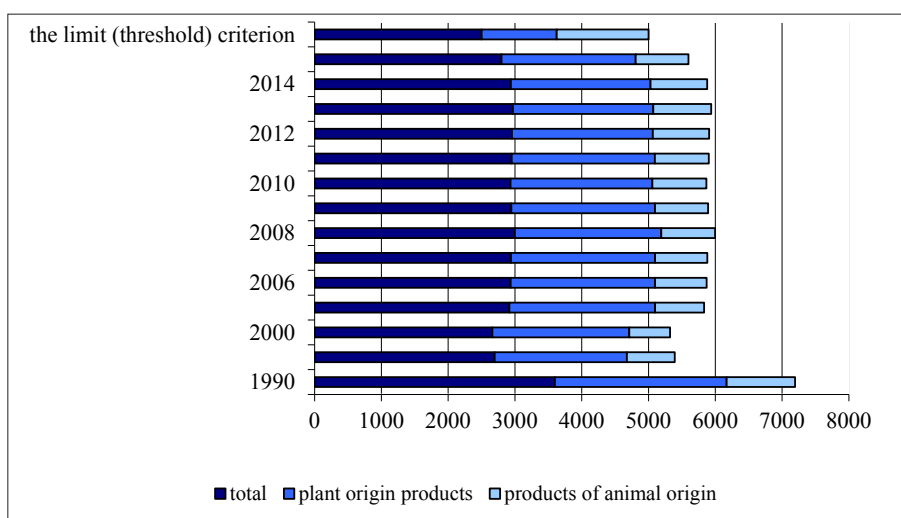


Figure 1. Dynamics of the average daily calorie intake of food in Ukraine per capita, kcal per day

Source: own calculations based on data from ukrstat.gov.ua

<sup>3</sup> limit (threshold) criterion for this indicator is its 30-percent level



with poverty. The coexistence of malnutrition and excessive eating significantly affected the countries that conduct rapid transformation and lay them on the double burden of malnutrition (FAO, 2014). These countries, in particular, include also Ukraine.

#### 4. Sufficiency of single product consumption

Optimum is a situation where the actual consumption of food by a person during the year matches a rational norm (tentative set of basic food commodities and food security in average per capita in Ukraine for 2005–2015), to wit the ratio between the actual and rational consumption is 1.

In 2015 in Ukraine, compared to 2013–2014 years, the actual consumption of major products by 20% position was located above or at the level of rational norms. Stable positive dynamics is only in two product groups: grain products and potatoes (except in 1995) (Table 1).

As in previous years, actual consumption lags behind the rational norms consumption of animal products: milk and dairy products – by 44.8%, meat and meat products – by 46.4%. It should be noted that the discrepancy between actual consumption of animal products (except eggs) and norms of rational consumption is primarily due to a decrease in livestock production per person.

In 2015, as in previous years, the deficit of fruits, berries and grapes (43.4%), fish and fish products (57.0%), sugar (6,1%) consumption is set. In addition, in 2015, in contrast to the 2013–2014 years, there is found insufficient, compared with rational norms, consumption of eggs (3.4% lower), vegetables and melons food crops (0.1% lower), and vegetable oil of all kinds (5.4% lower).

The deficiency of basic food groups' consumption particularly has a negative impact on children. If

the child is faced with food insecurity, most likely, it will lag in the growth and suffer on disorders of the digestive system, which often precede irreversible consequences lag in growth (FAO, 2016; Fram, 2015). Regarding the links between personal experience of food insecurity and overweight among children, the evidence compelling enough, although a range of other harmful consequences of food insecurity for children, including less healthy diets and negative psychosocial consequences have been well studied (IOM, 2011).

#### 5. The adequacy of supplies of grain in state resources

At the beginning of 2015, the state intervention fund accounted for 516.1 thousand tons of grain and leguminous crops (Agrarian Fund, 2016), the amount of average annual domestic consumption of bread and bread products in terms of grain, according to statistics, amounted to 5897.0 thousand tons (ukrstat, 2016). Accordingly, the indicator of sufficiency of grain reserves amounted to 8.6%, which is inconsistent with the provisions of the Law of Ukraine "On State Support of Agriculture of Ukraine" (rada.gov, 2004), Article 9 of which stipulates that the state intervention fund should be formed in the amount of at least 20 percent of domestic consumption. In addition, this indicator is less for 8.4% of the limit (threshold) criterion for these indices (according to test methods of basic indicators of food security) in 17%, corresponding to 60 days of consumption.

#### 6. Economic availability of food

According to the State Statistics Service of Ukraine in 2015, total expenditure of households on food amounted to 2207.23 UAH per month against 1766.14 UAH in 2014 (Table 2).

Table 1

#### Calculation of the adequacy indicator of food consumption per person per year, kilograms

Type of product	Rational rate*	Actual consumption					Indicator of adequacy of consumption				
		1995	2000	2013	2014	2015	1995	2000	2013	2014	2015
Bread products	101,0	128,4	124,9	108,4	108,5	103,2	1,271	1,237	1,073	1,073	1,022
Meat and meat products	80,0	38,9	32,8	56,1	54,1	50,9	0,486	0,410	0,701	0,686	0,636
Milk and milk products	380,0	243,6	199,1	220,9	222,8	209,9	0,641	0,524	0,581	0,586	0,552
Fish and fish products	20,0	3,6	8,4	14,6	11,1	8,6	0,180	0,420	0,730	0,540	0,430
Eggs (pcs.)	290	171	166	309	310	280	0,590	0,572	1,066	1,072	0,965
Vegetables and melons food crops	161,0	96,7	101,7	163,3	163,2	160,8	0,601	0,632	1,014	1,013	0,999
The fruits, berries and grapes (excluding wine)	90,0	33,4	29,3	56,3	52,3	50,9	0,371	0,326	0,626	0,600	0,566
Potato	124,0	123,8	135,4	135,4	141,0	137,5	0,998	1,092	1,092	1,169	1,109
Sugar	38,0	31,6	36,8	37,1	36,3	35,7	0,832	0,968	0,976	0,961	0,939
Vegetable oil of all kinds	13,0	8,2	9,4	13,3	13,1	12,3	0,631	0,723	1,023	1,062	0,946

\* calculation of the Ministry of Health of Ukraine

Source: own calculations based on data from ukrstat.gov.ua

Table 2  
**Expenditures on food and non-alcoholic drinks,  
 UAH per month**

Indicator	2014	2015	2015 to 2014 (%)
An average per household	1766,14	2207,23	125,0
in % to consumer expenditures	52,9	54,0	1,1
in % to monetary expenditures	47,8	49,6	1,8
In urban areas	1960,21	2432,01	124,1
in % to monetary expenditures	49,4	51,3	1,9
- in big cities	2093,19	2628,29	125,6
in % to monetary expenditures	49,1	50,9	1,8
- in small towns	1761,59	2157,30	122,5
in % to monetary expenditures	50,0	51,9	1,9
In rural areas	1375,64	1747,34	127,0
in % to monetary expenditures	43,7	45,4	1,7

Source: own calculations based on data from ukrstat.gov.ua

However, there was set a fluctuation of this indicator in terms of households' categories in urban and rural areas – respectively 51.3 and 45.4%. This is explained by the fact that in most of the rural settlements, households produce food by their own, and therefore – do not spend money on its purchase. On the contrary, the vast majority of the rural population is trying to get additional revenue due to the implementation of food received in their own household.

In the regions of Ukraine, there is also observed heterogeneity share of monetary household expenditures

on food and non-alcoholic drinks: the lower in Zakarpattia Region, higher – in Dnipropetrovsk Region. Relatively low level of the expenditure on food (by their share in the total amount of monetary expenditures) is observed in Zakarpattia Region, Chernivtsi Region, Sumy Region, Ivano-Frankivsk Region, and Luhansk Region; critical level – in Dnipropetrovsk Region, Odesa Region, Kherson Region, and Lviv Region (Figure 2).

Moreover, both increase and decrease of the expenditure on food proportion can have both positive and negative reasons and consequences. On the one hand, reducing expenditure on food share, which in itself reflects the positive momentum of indicator, may mean that consumers in the region produced a greater share of food by themselves (subsistence) or households' income is higher (*ceteris paribus*), or food in the region is cheaper. On the other hand, such dynamics may indicate the lowest adequacy of an indicator of basic food kinds' consumption in the region.

Thus, the indicator of the availability of food last year was 49.6% at its 60 percentage limit criteria. Compared to the previous year, this figure declined by 1.9 percentage points.

It should be noted a significant influence on the choice of certain food of preferences and traditional habits of certain types of products eating. Comparison of the provision of basic food products indicator with the share spent on them in total food expenditures shows that almost the highest and lowest unit costs in

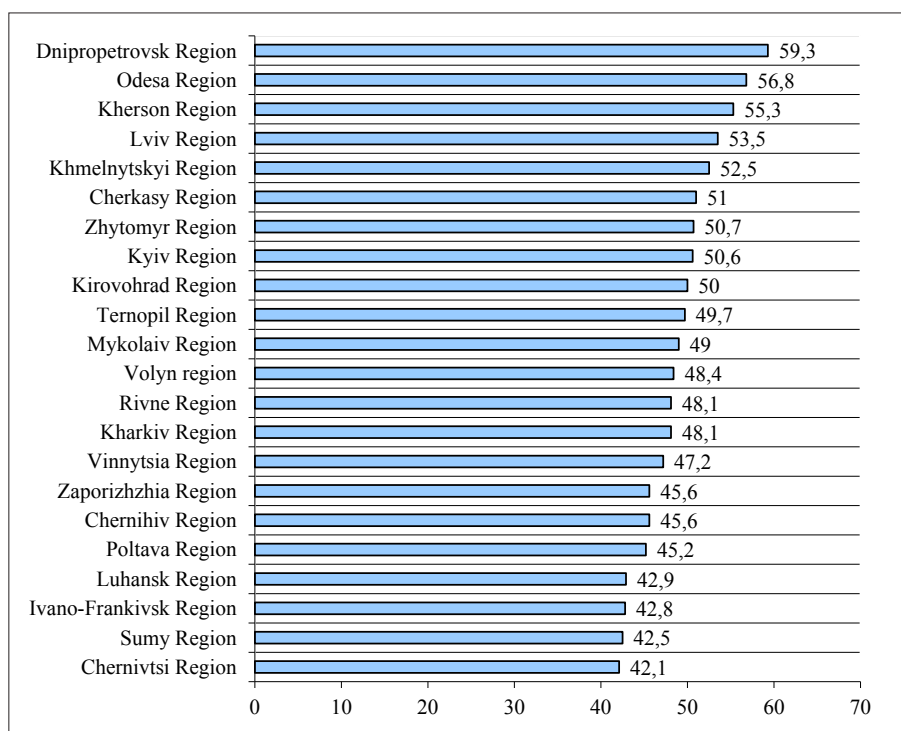
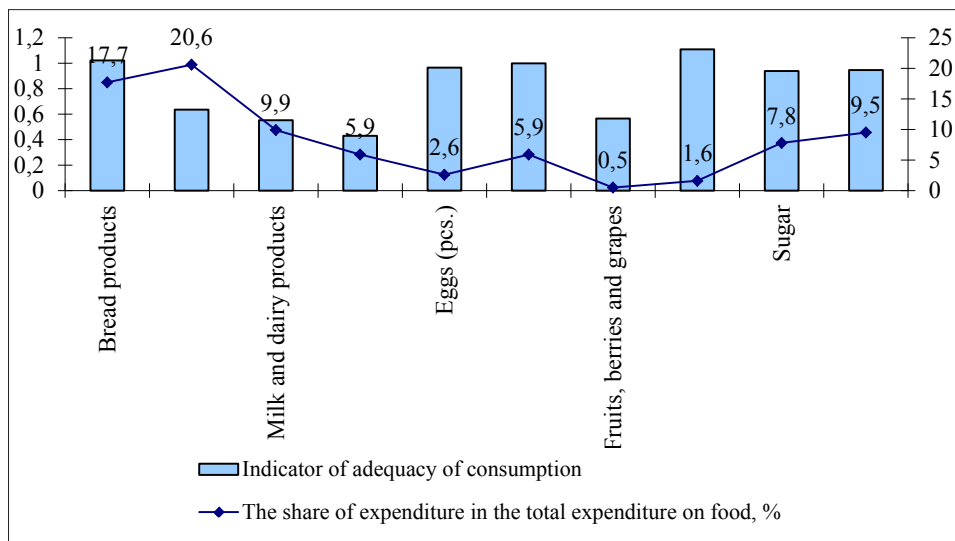


Figure 2. The share of monetary household expenditures on food and non-alcoholic beverages by the region of Ukraine, %

Source: own calculations based on data from ukrstat.gov.ua



**Figure 3. Comparing the share of expenditure in the total expenditure on food sufficiency indicator of consumption in 2015**

Source: own calculations based on data from ukrstat.gov.ua

accordance to grain products (17.7%) and potatoes (1.6%). That is, exactly, those kinds of products on which rational consumption rates achieved, while the consumption of potatoes rational rate 22.8% over the bread products indicator. The same applies to the food, which is almost the worst (except fish) consumption adequacy indicators: the proportion of spending on meat and meat products and fruits, berries and grapes are respectively 20.6 and 0.5% (Figure 3).

### 7. Food cost differentiation for social groups

According to the State Statistics Service of Ukraine in 2015, 10 percent of households with the highest incomes on average spent on food 2822.06 UAH per month, and 10 percent of households with the lowest incomes – 1653.68 UAH.

Food cost differentiation factor for social groups was 1.71 versus 1.48 in 2014, i.e., during the study period, there was a slight decrease in the differentiation of social groups in terms of food spending.

### 8. The capacity of the domestic market of certain products

Compared with 1995, in 2015, there was an increase in capacity of the domestic market in the following food groups: meat and meat products – by 8.3%, fish and fish products – by 97.2%, eggs – to 35.9%, vegetables and melons food crops – 37.7%, fruits, berries and grapes – by 26.1%, oil – by 23.8% (Table 3).

At the same time, the largest deviations between actual and estimated market size for the rational consumption norms are established by groups of such food as meat

Table 3

#### Assessment of the capacity of the domestic market, ths. tons

Type of product	Domestic market capacity						
	actual				subject to rational consumption norms		
	1995	2000	2015	2015 in % to 1995	1995	2000	2015
Bread products	6641,9	6173,8	4422,8	66,6	5224,6	4992,4	4318,8
Meat and meat products	2012,2	1621,3	2178,7	108,3	4138,3	3954,4	3420,8
Milk and milk products	12601,0	9841,5	8995,0	71,4	19656,8	18783,3	16249,0
Fish and fish products	186,2	415,2	367,2	197,2	1034,6	988,6	855,2
Eggs	510,8	473,9	694,0	135,9	868,2	827,8	684,2
Vegetables and melons food crops	5002,1	5027,0	6889,8	137,7	8328,3	7958,2	6884,4
Fruits, berries and grapes (excluding wine)	1727,7	1448,3	2178,9	126,1	4655,6	4448,7	3848,4
Potato	6404,0	6692,8	5891,5	99,0	6414,3	6129,3	5302,3
Sugar	1634,6	1819,0	1527,6	93,5	1965,7	1878,3	1624,9
Vegetable oil of all kinds	424,2	464,6	525,1	123,8	672,5	642,6	555,9

Source: own calculations based on data from ukrstat.gov.ua

Table 4

**Calculation of dependence on imported food groups**

Type of product	Import of products, thousand tons					Dependence on imported food, %				
	1995	2000	2013	2014	2015	1995	2000	2013	2014	2015
Bread products	200	1010	242	263	190	3,0	16,4	4,9	5,6	4,3
Meat and meat products	19	38	332	201	158	0,9	2,3	13,0	8,6	7,3
Milk and dairy products	58	50	548	357	78	0,5	0,5	5,4	3,7	0,9
Fish and fish products	5	2	-	-	-	1,0	0,4	-	-	-
Eggs	41	29	5	7	11	0,8	0,6	0,6	0,9	0,2
Vegetables and melons food crops	309	179	237	225	95	17,9	12,4	3,2	3,2	1,4
Fruits, berries and grapes (without reprocessing into wine)	126	11	1172	856	588	2,0	0,2	45,7	38,1	27,0
Potatoes	123	177	23	40	17	7,5	9,7	0,4	0,7	0,3
Sugar	-	-	11	7	4	-	-	0,7	0,4	0,3
Vegetable oil of all kinds	-	-	296	223	160	-	-	48,9	39,7	30,5

Source: own calculations based on data from ukrstat.gov.ua

and meat products – 36.3%, milk and dairy products – 44.6%, fruits, berries and grapes – 57.1%, sugar – 6.0%.

### 9. Food self-sufficiency for a certain product

Meeting the needs of the population for food, within its purchasing power in 2014, as in previous years, is carried out mainly by domestic products (Table 4).

The most vulnerable positions in terms of dependence on imported positions are “fruits, berries and grapes” and “all kinds of vegetable oil”, the share of imports by these groups in the total consumption is respectively 27.0 and 30.5% at 30 percentage threshold criteria for this indicator.

### 10. Conclusions

The state of Food Security in 2015 in Ukraine by most standards satisfies set thresholds and rules. The values of individual indicators, calculated according to 2015 compared to 1995, positively characterize the dynamics of food security of Ukraine:

- found a significant increase in diets of Ukrainians of those types of food, consumption of which is lagging behind most rational norms (meat and fish products), almost all types of products improved adequacy of consumption;

- needs of the population in food carried out mainly by domestic agricultural products;
- in Ukraine, there is a high self-sufficiency of population for the main types of food.

At the same time, the state of food security of Ukraine cannot be characterized as stable positive:

- for products of animal origin, decreased average daily caloric intake of the population;
- worsened the accessibility of food for the population;
- adequacy levels of the grain supplies in state resources is lower compared to the maximum prescribed limit;
- set high level of food dependency (in terms of the rational norms of consumption) for meat, milk and fish products, fruits, berries and grapes;
- greatly exceeds the threshold percentage of import dependence of Ukraine on fruits, berries and grapes, and compared to 1995 given indicator increased by 25.0 percentage points.

Ukraine with available resources, according to various researchers, can “feed” about 100-150 million people (Kotykova, 2010). Instead, there is a paradoxical situation, when country for export of raw materials (sunflower) is consistently among the top five world leaders and still has 40% of the value indicator depending on imported oil. Obvious is the need for a balanced state policy regulating the domestic market and the agricultural sector.

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# STRATEGIC PRIORITIES FOR THE INTERNAL MIGRATION PROCESSES REGULATION IN UKRAINE

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**Abstract.** As the result of the annexation of the Crimea and Donbass military conflict, there was an emergence of forced migration. It ought to be emphasized that today issues related to addressing problems of internally displaced persons (IDPs), are relevant and require an integrated approach. The increase in the number of IDPs in the country raises the issue of identifying the strategic priorities of the state policy. The *purpose* of this research is to formulate strategic priorities of the state policy of support for IDPs. The subject of the study is theoretical and methodological principles of the state policy to support IDPs. The research *methodology* includes a set of scientific research methods that provide identifying the strategic priorities of the state policy for IDPs' support, developing effective mechanisms for these priorities achievement, and conceptual vision of solving IDPs' problems. In the course of investigations, the following methods are used: analysis while studying the main problems of internally displaced persons; logical synthesis and synthesis while drawing conclusions. *Results.* Scientific novelty of the article. In the article, the conceptual foundations of the IDPs support have been formed, an attention has been focused on the feasibility of using a strategic approach, which involves the formation and implementation of a set of strategically oriented measures aimed at solving the most acute issues and matters related to internal forced migration, directing the IDPs potential and internally displaced businesses to strengthen local communities and social and economic development of the resettlement territories. The main stages and conceptual foundations for the Strategy formation on the IDPs support have been proposed. The strategy is based on an integrated approach to addressing IDPs and internally displaced businesses, taking into account the interests of host communities. *Practical implications.* The result of the Strategy implementation ought to be approved by the strategic migration model for Ukraine's internal migration aimed at promoting the implementation of the basic IDPs and internally displaced businesses rights; ensuring the social and economic integration of the IDPs into the host society; promotion of country territories' social and economic development; reducing the level of social and psychological tension in host communities; creating new jobs; improvement of the investment climate; increasing the efficiency of using the country intellectual potential and its human resources. *Value / originality.* Solving the urgent issues associated with forced displacement processes, including integration and adaptation to host communities.

**Key words:** strategic priorities, government policy, internally displaced persons, support strategy, strategic management.

**JEL Classification:** H11, J68, R23, O15

## 1. Introduction

As the result of the annexation of the Crimea and Donbass military conflict, there was an emergence of forced migration. It ought to be noted that the category of internally displaced persons (IDPs), who were forced to leave their place of residence due to the war, was first recorded in Ukraine in 2014, forming a new type of migration for Ukrainian population.

As of the end of 2017, 1.5 million citizens were forced to leave their places of residence and sought refuge in

other parts of the country, which led to the redistribution of population between the territories (Official site of the Ministry of Social Policy of Ukraine, 2018).

The increase in the number of IDPs in Ukraine requires the formation and implementation of a modern, integrated, balanced state policy aimed at solving the issues associated with internal forced migration, including the adoption of long-term solutions that can create effective national instruments of public administration for overcoming the negative

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consequences for both the IDPs and host communities, the integration of IDPs into the life of the host society in the areas of displacement for further comfort living, realizing the IDPs' potential on a new place and strengthening local communities.

The issues of IDPs' difficulties are studied by such scholars as O. Balakireva (Balakireva, 2014), T. Doroniuk, A. Solodko (Doroniuk & Solodko, 2015), E. Libanova (Libanova, 2014), O. Malinovskaya (Malinovskaya, 2015), and others.

The problem of IDPs' integration and adaptation in Ukraine is very relevant and contains a significant number of unresolved issues that require active research.

Within this framework, the issue of identifying the strategic priorities of the state policy for IDPs' support, developing effective mechanisms for these priorities achievement and conceptual vision for IDPs' matters solving have been actualized.

The purpose of the article is to formulate strategic priorities of the state policy of support for IDPs.

## 2. Strategic component of internally displaced persons' support

The results of the research allowed stating that the undeniable positive feature of the current social development in Ukraine is to raise the attention of politicians, scientists, and ordinary citizens to the issues of strategic priorities formation and achievement, strategic principles for management enhancement in various spheres of the economy and public administration development.

Strategic management in the field of IDP support, aimed at a long-term perspective, creates favourable

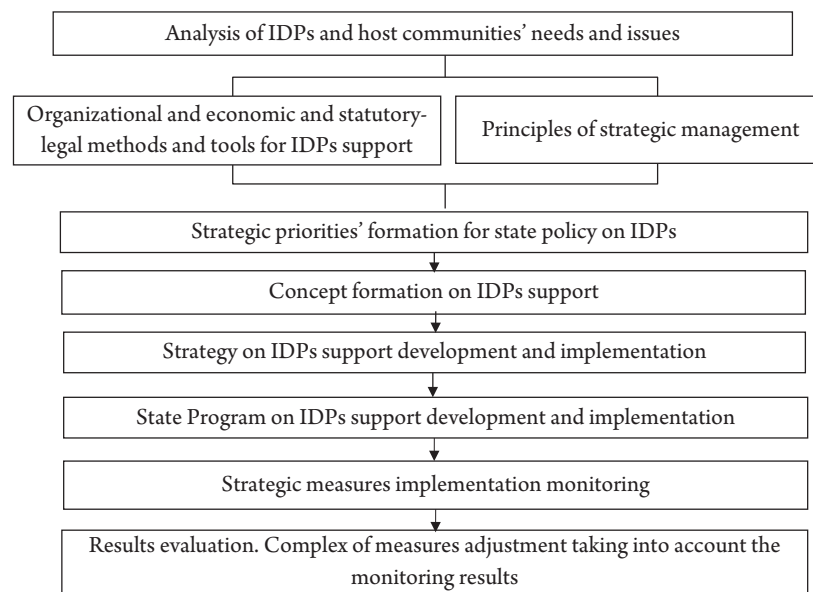
conditions for the further development of civil society in Ukraine, the introduction of an effective mechanism for the interaction of its institutions with the executive and local self-government bodies on the basis of partnership and mutual responsibility, ensuring the implementation and protection of rights and human freedoms, and is aimed at involving IDPs into the economic, social, cultural, and political spheres of life in host communities.

It ought to be emphasized that the readiness for the development and adoption of a state policy on internal displacement is an essential indicator for the recognition by the national authorities of the relocation and related responsibilities issues, and of the fact that they regard this issue as a national priority. UN resolutions encourage state governments that are faced with relocations within the country to take government programs aimed at IDPs protecting and assisting.

It is necessary to pay attention to the fact that in management theory, there is an integration of strategy and corresponding mechanisms, which mutually determine each other.

It should be noted that the effective state policy implementation concerning IDPs is appropriate on the basis of the organizational and economic mechanism formation for ensuring strategic management in this area. It represents a set of organizational and economic methods and tools that, based on legal norms, allow the state and local governments to provide support for IDPs, taking into account the interests of host communities.

The structure of the organizational and economic mechanism for providing strategic management in the IDPs' support direction is presented in Fig. 1.



**Fig. 1. The organizational and economic mechanism structure for providing strategic management on IDPs support**

Source: developed by the authors

It ought to be noted that the organizational and economic mechanism for providing strategic management on IDPs support is a complex and consists of separate elements: financial mechanism, institutional mechanism, investments attraction, a public-private partnership, state regulation and support mechanism. This complexity enhances its effectiveness.

The authors of the article emphasize that the lack of a strategic component in the modern management of internal forced migration leads to an increase in the social isolation of citizens, increases the vulnerability to various forms of their rights violation.

### 3. Strategic priorities for internally displaced persons' support

It should be emphasized that the strategic priorities of the state policy on IDPs are the most important directions aimed at solving the issues of this category of citizens and host communities connected with internal forced migration, which carry out a number of particular actions that the state or an authorized subject of management should take for the realization and protection of the IDPs rights, taking into account the interests of host communities in the short and long terms.

The priorities of the state policy in this area are determined on the basis of the IDPs and host communities' needs and priorities analysis, which in turn allow clearly defining the goals and strategy for their achievement.

In the methodological framework, when substantiating priorities, the following principles need to be taken into account:

- the democracy principle means the activities openness to form a policy on IDPs support, the involvement of the scientific community and society in its development;
- the adaptability principle is realized through the policy on IDPs support formation taking into account possible changes in the external environment, which may result in the strategic objectives correction, priority measures for the IDPs protection and support, as well as mechanisms for its implementation;
- the purposefulness principle determines the directions of the state policy on IDPs support in order to achieve the common goal of all actors;
- the balance principle is manifested in the balance of interests of all subjects of state policy, displaced persons and population in the territories of displacement in relation to strategic goals and priorities; the balance of economic, social, and other goals; balancing the use of the resource base necessary to the goals' accomplishment;
- the humanism principle expresses a system of views that determine the value of man as a person, his/her right to freedom, happiness, development, the identification

of his/her abilities, which considers the benefit of a person as that for assessing social institutions;

- the synergy principle is synchronization of the major reforms implemented in the country and affect the formation of national tools on IDPs support and, at the same time, the coordination of the municipalities support directions in regional development;
- the subsidiarity principle involves the decentralization of power and the competence accomplishment in order to protect and support IDPs at the level of governance where they can be implemented more effectively. Interaction of public authorities and local self-government with civil society institutes;
- the conceptual approach to IDPs support and protection principle should be based on the adoption of a basic document that would lay the main directions on IDPs state policy, aimed at formulating a concept of their support, socio-economic and psychological adaptation, integration into the host society, that would be followed both by government and private structures while choosing their further activities.

It cannot be but mentioned that the strategic priorities of the state policy concerning IDPs are the basis for the IDPs support Concept formation, as well as the relevant State Program.

According to the results of the research, IDPs face certain problems and obstacles when moving to the new place that affects the level of integration into host communities and often hinder the adaptation processes. Among the main ones, the following should be noted: the employment; housing; material issues caused by difficulties with the employment and housing, loss of property and the need to adapt into a new city; cases of discrimination because of IDP status, the existence of legal and administrative barriers that impede their rights realization.

Generally, it ought to be noted that forced displacement of citizens is associated with a number of challenges for many local communities, which are manifested in the growing burden on local labour markets, the issues of placement, employment, medical care, access to education, cultural and social reintegration, and can also become the cause of a social conflict.

The authors emphasize that the crucial factor for the IDPs integration and stability is solving problems (for example, employment) for both the IDPs and local residents within the territorial community. Therefore, the issues of integration and cooperation of local residents and IDPs, confidence building, mutual respect and partnership relations, that is, social cohesion enhancement of the population, are urgent.

Speaking about the problems associated with forced internal migration, one should pay attention to the difficulties faced by the displaced business as a result of hostilities. According to the results of the conducted research, among the main ones, the following can be noted: the difficulties associated with the evacuation



of capital equipment and property; limited access to financial and credit resources, difficulties in obtaining a loan; unfavourable regulatory policy; complication with the enterprise or an individual entrepreneurship registration.

In general, the internally displaced business has some potential to partially solve the issue of additional jobs creation (including for IDPs), and the local communities' development.

Addressing the acute issues encountered by IDPs, internally displaced businesses and local residents within the territorial community requires systematizing the strategic priorities of the relevant state policy with the further development of applied mechanisms for their achievement.

Consequently, the formation of the main strategic priorities of the state policy regarding the IDPs ought to be directed in two ways: IDPs and internally displaced businesses encouragement; host communities support for the effective resolution of IDPs problems. Within the framework of these strategic priorities, it seems advisable to develop measures that can ensure the realization of the IDPs' basic rights.

#### 4. IDPs Support strategy

It ought to be noted that in the generally accepted context, the management strategy, aimed at supporting the IDPs, is a system of conceptual provisions on the most effective directions of the migration policy development in the field of internal forced migration, solving the urgent issues associated with forced displacement processes, including integration and adaptation to host communities.

Strategy development is carried out stepwise, each of which is in its own way important, and therefore requires the creation of prerequisites for its successful implementation.

The formation process of the IDPs Support Strategy consists of successive steps, namely:

- definition of the purpose and the main tasks, the realization of which will allow achieving the strategy;
- definition of criteria and factors of influence on the strategy formation and implementation process;
- definition of the tool, which provides the strategy main provisions implementation;
- definition of the resource base: financial, information support;
- substantiation of a group of acceptable generalized alternatives, their analysis, determination of the predicted environment condition;
- the choice of the most acceptable alternative;
- substantiation of standards and evaluation criteria, for which the analysis of results is planned;
- analysis of the achievement degree of the obtained results and their comparison with the planned ones.

The authors emphasize that this strategy should be integrated with existing national strategies and programs aimed at IDPs support.

Using the positive world experience, a set of issues related to forced domestic migration in the country and established strategic priorities for the IDPs support, the main criteria to be met by the IDP Support Strategy ought to be formulated (Table 1).

Table 1

#### The main criteria to be met by the IDP Support Strategy

Criteria	Criterion characteristic
Systemic influence on the national economic development	Raising the national economic competitiveness level, stimulating economic growth, the existence of a significant inter-sectoral multiplier, contributing to strengthening macroeconomic stability
Efficiency	Long-term implementation and duration of the achieved effect
Social orientation	Tangible results of the project in order to improve the quality of citizens' life
Focus on the economic, social, legal systems modernization	Achieve the Strategy goals through the reforms in these areas implementation
Use of national resource	Strategy orientation to strengthening national economic independence, decreasing dependence on fluctuations of the world economic situation
Integration	Integration possibility within the framework of the Strategy implementation with the state and business efforts
Promotion of territorial development	Impact of the Strategy on the economic and social situation in the regions of Ukraine, the attraction of regional economic potential, development of interregional cooperation.

Source: developed by the authors

The IDPs support strategy provides a systematic solution to the IDPs and host communities' issues associated with the internal displacement of citizens and businesses, the promotion of social and economic integration and the IDPs adaptation and the realization of their potential in a new place for the resettlement areas development and local communities strengthening in order to overcome the negative consequences associated with these processes, the growth of country social and economic potential and the national economy development.

Within the general objectives of the IDPs Support Strategy, the following should be singled out:

- forming a common understanding of the changes taking place in migration policy, in particular, in the field of internal forced migration, and a united position on this issue; definition of the state policy directions in this sphere, and the influence of the internal forced migration processes on the resettlement territories development and the national economy as a whole;

- clarification in the course of discussions and information exchange of the most likely state, public, and private organizations actions in the field of IDPs support;
- the creation of a framework for the joint work of local communities, non-governmental organizations and enterprises in the field of IDPs support, aimed at strengthening the country's economic and demographic potential;
- assistance to economic policy subjects in making their specific decisions, which allow increasing the focus and coordination of actions aimed at IDPs support.
- It ought to be emphasized that the IDPs conceptual Support Strategy provides:

- the realization of the basic rights of IDPs and citizens according to the Constitution and in accordance with the international law principles;
- the implementation of a systematic approach that will ensure the maximum use of synergistic effects due to the presence of combined results, interdependent goals in the implementation of Strategy individual system components;
- realization of economic, investment potential of internally displaced business and resettlement areas (Fig. 2).

The strategy is based on an integrated approach to address IDPs and internally displaced businesses, taking into account the interests of host communities. Its formation and realization should be carried out

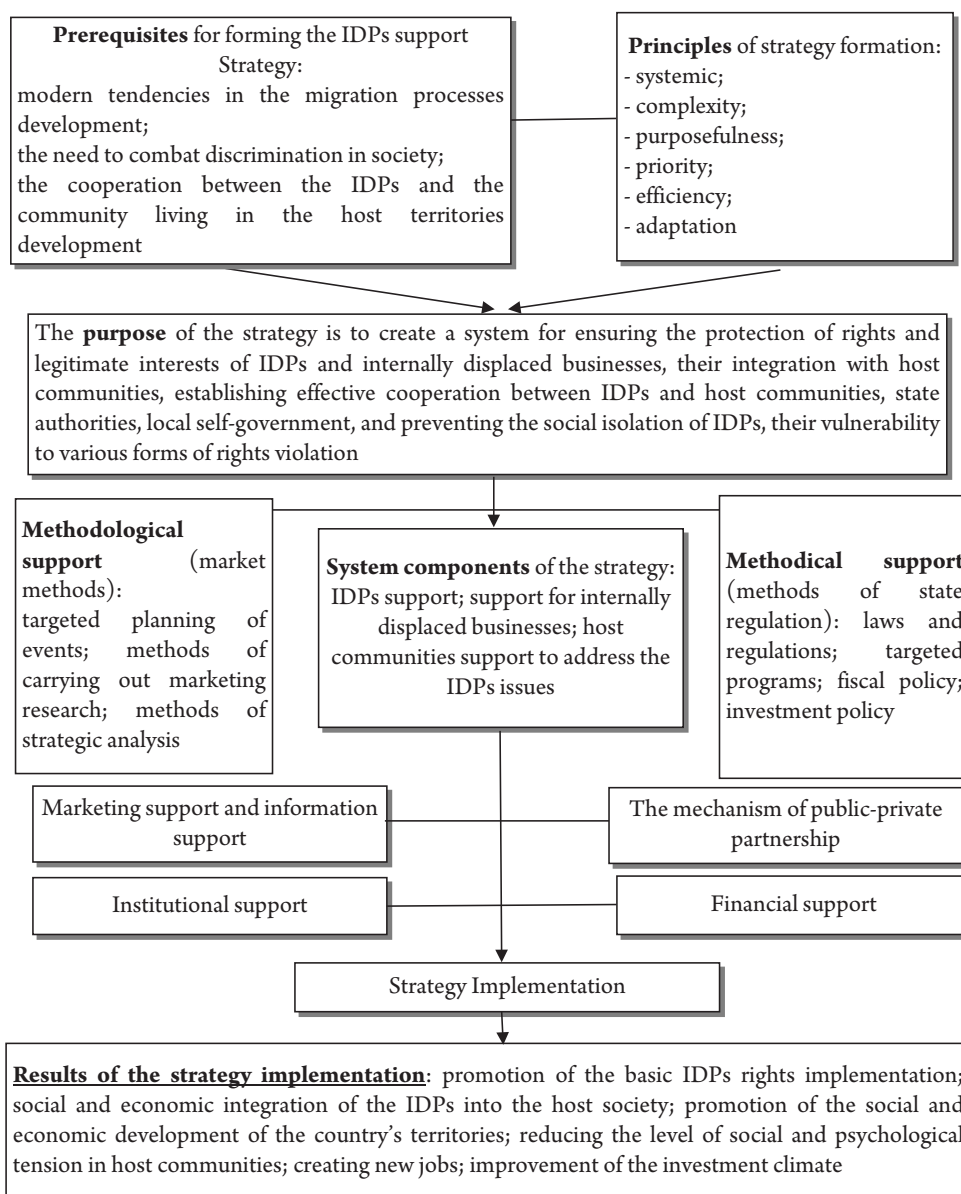


Fig. 2. The conceptual basis for the IDP Support Strategy formation

Source: developed by the authors

according to certain system components, in compliance with which the complex measures are formed.

It should be noted that the prerogative of management in the field of migration, including domestic one, is carried out by the government. However, it ought to be combined with a partnership involving a wide range of other actors. At the general level, taking into account the specifics of domestic forced displacement, this includes the IDPs and social partners: employers, trade unions, IDPs associations, public organizations, international organizations and foundations.

The effectiveness of the Strategy is determined by the goals achievement, namely:

- creation of conditions for the IDPs basic rights realization, which will overcome the negative consequences associated with the internal forced migration processes, to avoid social isolation of IDPs;
- creation of conditions for the social and economic integration of the IDPs into the host society through the full involvement of this category of citizens in the economic, social, cultural, and political spheres of the host communities; increasing their capacity at the local level, raising awareness of how to solve social and economic issues within host communities;
- promotion of the social and economic development of the country's territories due to the realization of the IDPs' potential and internally moved the business in a new place (taking into account regional peculiarities) and strengthening of local communities;
- reducing the level of social and psychological stress in host communities, building effective communicative interaction between IDPs and the local population, involving the IDPs in the local community life, thus avoiding conflict situations between IDPs and local residents;
- creating new jobs that will help reduce social tensions and unemployment;
- improving the investment climate and attracting foreign and domestic investors in order to implement housing construction projects.

The main areas of practical implementation of the Strategy (based on the identified systemic components) are the following:

1. IDPs support: presupposes a solution to a set of tasks, the main of which are the following:

- 1.1. Realization of the right to work. This requires:
- the introduction of a programmatic approach to the comprehensive problem-solving of the IDPs' issues, the formation and implementation of a State Program aimed at IDPs protection and support, increasing the possibilities of IDPs employment, including through the implementation of joint projects with international organizations;
  - introduction of tax incentives for employers and enterprises that have hired IDPs;
  - creating opportunities for self-employment, retraining, advanced training. Enhancing employment

opportunities for IDPs and their adaptation to the regional labour market by reducing their retraining time in compliance with specific employers' needs, direct internships at enterprises, institutions and organizations, individual and distance learning, and recognizing the results of non-formal vocational training;

- informing the IDPs about employment opportunities, available employment support programs, trainings, round tables, grants to open their own business;
- disseminating information and working out the experience of the National Business Cooperation Platform, which aims to promote networking and cooperation between IDPs and members of local communities – entrepreneurs from different fields – in order to build a business, create new jobs and, in the long run, improve the business environment in Ukraine.

1.2. Realization of the right to housing. This requires: the creation of a reserve fund of housing (in communal property), to provide temporary accommodation for the most vulnerable categories of IDPs;

- introducing a system of preferential taxation for landlords who provide accommodation to IDPs, which enables them to enter into lease contracts and issue subsidies and encourage tax payments in accordance with current legislation;
- elaboration and implementation of the state mortgage lending program for the housing purchase on the primary or secondary market for a long time, the formation of the financial and legal mechanism of IDPs preferential crediting (with the mechanism elaboration for obtaining compensation for lost housing in the occupied territories);
- development and implementation of a state program aimed at the construction or purchase the affordable housing for IDPs with partial compensation of the construction (purchase) cost by the state (as an instrument of state housing policy, which implements the mechanisms of state support to IDPs, it is expedient to consider the potential of the State Fund for Youth Housing Assistance);
- consideration of the possibility to cooperate with non-governmental donor and investment organizations in the field of international housing projects implementation.

- elaboration of an organizational and legal mechanism for the losses and compensation assessment of lost housing and IDPs property as a result of hostilities and temporary occupation of the territory of Ukraine.

1.3. Overcoming the legal and administrative barriers that hinder the realization of the IDPs' rights, impede access to livelihood facilities. This requires:

- development of measures set (including using marketing potential) aimed at effective communication interaction between IDPs and state authorities. Improving the quality and accessibility of public services, as well as services working with the population;

- maximum simplification of the procedure for obtaining administrative services for IDPs (for example, registration of property rights, liquidation of legal entities, obtaining the necessary documents, etc.);
- creation of effective information and legal support of the internal forced migration process, objective, correct coverage of its main tendencies in order to form a positive image of the IDPs in society;
- preparation, publication, and dissemination of information materials for migrants on their rights in education, social welfare, and health. Informing the IDPs regarding their rights, opportunities for realizing these rights, sources and resources for assistance receiving;
- formation and implementation of an effective system for the dissemination of information on IDPs by state authorities, expression of the position as for the interaction;
- use of libraries, social institutions, trust phones, etc. in order to inform and counsel the IDPs;
- provision of tax, levy, and other payments to enterprises and organizations involved in sponsoring, sponsorship, charity activities aimed at IDPs support;
- simplification of the procedure for pension issuing, proof of the right to pension payment;
- creating the state support of the educational online platforms work for obtaining Ukrainian education for children from the temporarily occupied territory or from separate districts of Donetsk and Luhansk regions;
- development and implementation of teacher training programs for participation in distance education. Workout the mechanism of material stimulation of teachers in connection with additional workload related to working with students on an online platform;
- taking into account the actual amount of IDPs when distributing a medical subvention to the relevant local budgets;
- assistance from the Ministry of Education and Science to obtain licensing by the relevant educational institutions for conducting educational activities for the most demanded by labour market professions and specialties in order to conduct the professional training for IDPs;
- formation of an organizational and legal mechanism aimed at solving the IDPs discrimination issues in the banking sphere over the inability to independently choose a banking institution for servicing card accounts (pensions, social payments) and fully use the Savings Bank cards;
- encouraging banking institutions to provide loans when opening their own business.

2. Support for internally displaced businesses. A solution to a set of tasks is foreseen, the main of which are the following:

- implementation of a programmatic approach to the integrated problem solving of internally displaced businesses, the formation and implementation of a State program aimed at its protection and support;
- introduction of mechanisms for the opening and support the IDPs' business;
- introduction of preferential financial and credit mechanisms for supporting small and medium-sized businesses that will promote the social and economic development of host communities;
- development of a unified national base of production (commercial) areas and real estate by regions, which has to contain information on the availability of specialized premises by activity type, operational capacity, equipment, and an initial assessment of the retrofitting and commissioning costs;
- formation and implementation of the organizational and economic mechanism of the displaced business support in rural areas and peripheral districts;
- development of start-ups and youth entrepreneurial initiatives;
- promotion of local authorities on sales distribution of entrepreneurs and enterprises products made by IDPs (implementation of projects for holding exhibitions and fairs to promote products, information support for such projects).

3. Host communities support in addressing IDPs issues. For this purpose, it is expedient to implement the following set of measures:

- studying the IDPs and local communities issues and needs in the areas of resettlement;
- providing local budgets of host communities with appropriate support from the state budget, taking into account the actual number and needs of IDPs living in these communities;
- formation of a positive image of the IDPs, building the mutual understanding between the inhabitants of the host communities and the IDPs;
- highlighting issues faced by IDPs, focusing on the common problems of settlers and residents of host communities;
- support the social dialogue in communities with the participation of host communities, IDPs, public associations;
- communicative interaction between the IDPs and the local population, the involvement of the IDPs in the local community life; encouraging IDPs to participate in community life, using the IDPs' potential for community development by informing about opportunities for cooperation and partnership with civil society institutions, local authorities and host communities, community participation, public hearings, etc.;
- creation of a platform for public organizations, state bodies, etc., which deal with the IDPs issues for the systematization of their activities, development of joint projects;

- realization of projects on the social cohesion of the population: holding concerts, festivals, exhibitions, master classes, clubs of interests, sports events, seminars, round tables, environmental initiatives, etc.
- formation and implementation of an effective communication system for the information exchange between the IDPs, community, and executive authorities;
- attracting international assistance for the social and economic development of local communities and increasing their ability to respond to the need to address the IDPs' urgent problems;
- community support in expanded networks of educational establishments, taking into account the IDPs' needs, moved to such communities, and the existing needs of local inhabitants.

The experience of foreign countries shows that to resolve IDPs' issues, a special legislative base, administrative bodies for its implementation, coordination of the efforts of various departments, as well as proper financing from the state budget are necessary. Given the limited resources available in conflict situations, international organizations can be of great help, and cooperation with them should take place within the framework of the policy of IDPs protection.

The source of resources for the Strategy implementation should be the combination of budget funds and the targeted financial and technical assistance provided by Ukraine to international organizations and foreign countries, as well as attracting funds from private domestic and foreign investors.

It should be noted that the Strategy is proposed based on models of public-private partnership. It is proposed to use the following forms and models: joint activities (in parts of the Strategy for the construction of infrastructure objects); leasing (in parts of the support Strategy of IDPs); a contract (public order) for the construction of social infrastructure, housing, etc.

It is necessary to emphasize the need for widespread dissemination of information about strategic and practical decisions taken within the framework of the Strategy, provided with appropriate informational support of strategic measures integrated with marketing. Taking this into account, it seems advisable to form a marketing program aimed at creating conditions for the full involvement of the host societies in the economic, social, cultural, and political life of the host communities, and is based on the analysis of the IDPs' matters and the obstacles that affect the integration level into host communities and hinder adaptation processes; attracting public attention to them; studying and analysing public opinion on IDPs,

forming effective communication channels with target groups.

In the process of changing the social and economic, political situation in the country and taking into account the effectiveness of the measures implemented, the adjustments are to be made into the developed Strategy (in particular, regarding its goals or implementation mechanisms), aimed at eliminating new challenges and maximizing the use of available opportunities.

It is worth to be underlined that the Strategy should become a fundamental document when developing and implementing programs on specific systems of IDPs and internally displaced businesses support and country social and economic development.

## 5. Conclusions

The increase in the number of IDPs in the country raises the issue of identifying the strategic priorities of the state policy on IDPs. It is advisable to target their formation in two directions: IDPs and internally displaced businesses support, and host communities support for the effective resolution of IDPs matters.

The strategic priorities of the state policy on IDPs are the basis for strategy further development, an action plan for the state, regional, and other programs.

In the article, the conceptual foundations of the IDPs support have been formed, attention has been focused on the feasibility of using a strategic approach, which involves the formation and implementation of a set of strategically oriented measures aimed at solving the most acute issues and matters related to internal forced migration, directing the IDPs potential and internally displaced businesses to strengthen local communities and social and economic development of the resettlement territories.

The main stages and conceptual foundations for the Strategy formation on the IDPs support have been proposed. The strategy is based on an integrated approach to addressing IDPs and internally displaced businesses, taking into account the interests of host communities.

The result of the Strategy implementation ought to be the approved by the strategic migration model for Ukraine's internal migration aimed at promoting the implementation of the basic IDPs and internally displaced businesses rights; ensuring the social and economic integration of the IDPs into the host society; promotion of country territories' social and economic development; reducing the level of social and psychological tension in host communities; creating new jobs; improvement of the investment climate; increasing the efficiency of using the country intellectual potential and its human resources.

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# EXTERNAL EXPERIENCE FOR THE EXECUTION OF EXCHANGE REGULATION AND POSSIBILITIES OF ITS APPLICATION IN UKRAINE

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**Abstract.** *The aim of the article* is to conduct a comparative legal study of statutory legal acts, which define the legal framework for the implementation of currency regulation in some foreign countries and in Ukraine and which determine on this basis ways to improve domestic legislation in this area. *The subject of the research* is the experience of currency regulation in some European countries, USA, China, and Ukraine. *Methodology.* The research is based on a comparison of foreign exchange regulation in Ukraine and in foreign countries. Advantages and disadvantages of different modes of state control over currency circulation are determined, on the basis of the analysis of peculiarities of the state regulation of currency circulation in the United Kingdom, Germany, France, Poland, the USA, China, and in some other countries: from floating rate regime to rigorous state control. On the basis of the comparative legal study of certain provisions of the administrative legislation of Ukraine, the possibilities and limits of the application of positive foreign experience in this field are determined. *The results* of the study have shown that in order to implement foreign exchange management experience, it is necessary to postpone the final transition until establishing a floating rate regime. It is possible to make it by reinforcing state interference. At the same time, it is necessary to strengthen currency control not only over the implementation of foreign exchange operations but also over the activities of subjects that determine the state policy in the field of currency regulation, as well as over those, who directly carry out the corresponding activity using the tools specified by provisions of the current legislation. *Practical impact.* The positive experience of the formation of the foreign exchange market in foreign countries shows that the gradual transition from a fixed to a floating exchange rate is the beginning of a natural market exchange rate and the equalization of the balance of payments and the gradual release of the national economy from the pressure of administrative and corruption restrictions. *Value/originality.* Conducting the comparative analysis of foreign exchange regulation in foreign countries is the basis for developing the most promising directions for the development of domestic legislation in this field.

**Key words:** foreign experience, currency regulation, exchange rate, currency control, EU countries.

**JEL Classification:** F31, F33, O24

## 1. The problem statement

Today, the Ukrainian government faces an important task: to provide a stable hryvnia exchange rate, to strengthen the national economy of the country, to raise the level of well-being of each individual citizen. One of the main ways to solve these problems is the implementation of the effective currency regulation. However, it is sad to note that the state of currency

regulation in our country leaves much to be desired, which can be proved by: firstly, the constant fluctuation of the exchange rate; and secondly, high inflation and depreciation of the hryvnia; thirdly, a sharp increase of the poverty, a decrease in its purchasing power; fourthly, the weakening of Ukraine's position in the international market. The issue of improving the legal framework for the implementation of currency regulation is

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particularly acute under such conditions. We should pay a special attention to foreign exchange regulation experience in this context. If we will analyse the positive experience of the leading countries of the world, it will help to identify weaknesses in domestic legislation and suggest solutions to these problems.

## 2. The state of research

V.I. Mischenko, A.S. Galchinskyi, Yu.M. Bezditko, O.I. Kabanets, V.D. Kolga, O.V. Boryshkevych, I.V. Krasnov, V.S. Biloshapka, O.O. Manuilenko, O.A. Kostiychenko, E.O. Alisov, L.K. Voronova, Yu.V. Vashchenko, S.V. Mochernyi, O.V. Dziublyk, V.I. Harkavenko and many other scientists studied some of the problematic issues of currency regulation.

However, despite a large number of scientific researches, there is no single comprehensive study, which is devoted to foreign experience in the implementation of currency regulation.

That is why the aim of the article is: to consider foreign experience in the implementation of currency regulation and to determine possibilities for its application in Ukraine.

## 3. Statement of the basic material

Considering the foreign experience of currency regulation, in our opinion, it is necessary to draw attention to three aspects: first, the experience of the EU; and second, we need to consider how currency regulation takes place in the United States; thirdly, it is necessary to pay attention to the countries of the east and, in particular, to China. Among the countries of the European Union, first of all, we want to talk about Great Britain, who left EU and it was one of the most acute and debated issues in 2017. But, actually, the official secession of the kingdom from the EU should take place on March 29, 2019, at 23:00 London time, and only after the UK will fulfil all the necessary conditions.

The active development of currency regulation in Britain began after the end of the Second World War. The devaluation of 1949 did not solve problems of the English currency. The progressive deterioration in the balance of payments, which began in 1964, had led to the fact that neither foreign lending nor the raising of the discount rate by the Bank of England could stop the decline in official gold and foreign currency reserves. Every time, when the state of the balance of payments deteriorated, there were mass transactions involving the sale of pounds sterling, which worsened the currency position of the country even more. In November 1967, a second post-war devaluation was held at 14.3%. The pound sterling to the dollar had fallen to 2.4 dollars. This devaluation was supplemented by credit and financial constraints, the impact of which reflected the balance of payments situation after 1.5 years.

In 1969-1971 years, England had a positive balance on current operations. Therefore, in December 1971, the pound sterling was revalued against the dollar. The new rate was \$2.6. But this stabilization was short-lived (Shamova, 2007). The sharp deterioration of the balance of payments in 1972 forced the British government to establish a floating exchange rate regime for its currency. From this period began a sharp decline in the rate. In 1976, it dropped by 40% compared with 1971. The crisis of confidence in the pound sterling had led to the fact that since 1976, the government had a policy of restricting its role as a reserve currency, which accelerated the final disintegration of the sterling zone, which by the end of the 70s stopped to exist. Since mid of 1977, the pound sterling strengthened against the dollar. It was connected with the wave of capital into the country due to the start of oil production in the North Sea during the oil crisis. But due to the economic crisis of the 1979-1982 years, the outflow of capital from the country began and a tendency to depreciate the pound sterling appeared again. In recent years, one of the reasons why Britain did not join the countries, which introduced the euro to the non-cash circulation since 1 January 1999, was the increase in the rate of this currency (Shamova, 2007). The Bank of England used various instruments in its fight with the inflation. The neo-Keynesian approach to currency regulation prevailed by the end of the 1970s. Three methods were used: the change in the interest rate of the Bank of England, the change in the provisions of the reserve, and the direct selective methods of controlling the bank loans to the private sector. The main instrument of selective regulation was the so-called credit limits, that is, the establishment of quantitative limits on loans to the private sector. Such limits were added with the instructions from the Bank of England, about categories of borrowers, to whom should be given benefits in lending. Besides, various restrictions on the purchase of commercial bills by commercial banks and discount companies were introduced, the terms of consumer credit were regulated, etc. (Shamova, 2007).

Starting from May 11, 1999, the Bank of England publishes a daily index of the exchange rate efficiency, taking into account the volume of trade in the Eurozone. It is necessary to note that the main feature of Great Britain is that the currency control system does not exist in it, so you can actually buy back or return as much money as you want. You just need to declare about the import of foreign currency in your customs declaration but there is no legal prohibition to physically move money to and from the country. Due to the fact that the United Kingdom is still a member of the European Union, there is still no control or obstacle to the transfer of money beyond its borders because each EU member state is governed by the same European laws, that is, it does not hinder the movement of the currency. The main regulatory act in the field of currency regulation in



the UK is the Law "On Currency Control". Provisions of this law provide authority and impose obligations and restrictions in the field of currency exchange. The currency control bodies include the Treasury, the Bank of England and authorized banks that have a currency license, as well as customs and excise authorities. The British Treasury is the main body of currency control. However, most of its powers, it has delegated to the Bank of England, which directly exercises currency control. The Bank of England manages its affiliates and authorized representative offices in most commercial banks (both domestic and foreign), which are located in the UK and which execute a wide range of transactions with its permission. Customs and excise authorities control the movement of capital and currency across borders (Shmyreva, 1999).

We need to note that the UK legislation lacks the rules that oblige participants in currency relations to ensure the receipt of foreign exchange earnings from non-residents on their bank accounts. If the price of the imported goods is not established in the British national currency, the conversion of other types of currencies to the British is made according to the average monthly rates. It should also be noted that on the UK Government website, there is information that, in the case of payments for goods exported in foreign currency, exporters may experience a currency exchange difference due to exchange rate fluctuations. Besides, on this website, you can find recommendations about how to avoid or minimize potential losses during conversion.

Talking about German experience of currency regulation, we should point out, first of all, that this country has an open and attractive attitude towards foreign direct investment. The legal framework for FDI in Germany contributes to the principle of freedom of foreign trade and payment transactions, as it is provided by the Law "On Foreign Trade and Payments" (Außenwirtschaftsgesetz). This legal act allows you to set restrictions on foreign direct investment both externally and abroad due to the reasons of foreign policy, foreign currency or national security. However, in practice, such restrictions are rarely imposed. We should note separately that, in cooperation with other EU members, Germany has an impressive arsenal of rules and institutional procedures aimed at the implementation of currency regulation.

In fact, in Germany, currency regulation is carried out by the European Central Bank, which is in Frankfurt, and it is headed by a multinational commission of delegates from the central banks of the participating countries. The German central bank, Deutsche Bundesbank, is responsible for the coinage of deutschemarks in circulation. It also sends representatives to the Board of Directors of the European Central Bank. Within Germany, it exercises various supervisory functions in the banking system, acting jointly with the Federal Financial Supervision Authority. Considering the

experience of Germany in the field of currency regulation, we should also pay attention to the system of currency control. The system of currency control in Germany is based on such legislative acts as: the Federal Law "On the German Federal Bank" (Bundesbank), the Federal Law "On Foreign Exchange Turnover and Control of Goods" (Foreign Exchange Act) (Khamaganova, 2001). According to German legislation, the exclusive competence in the field of capital movements and the operation of foreign exchange operations is owned by the Federal Bank. It should be noted that although there is the presence of a free movement of capital in Germany, there is also control in the form of accounting for capital, which crosses the state border. Information on the movement of capital across borders is collected and transmitted through banks and lending institutions to the Bundesbank, where a data analysis is conducted. This analysis allows developing specific measures for the regulation of the foreign exchange market (Platonova, 2006). As a result of the liberalization of currency control in Germany, the issue of organizing counteraction to the use of financial systems for the purpose of money laundering, which was received by criminal means, became acuter. The Federal Law "On the Identification of Revenues Gained as a Result of Serious Criminal Offenses" was adopted in 1993 in order to solve this issue. In accordance with this Law, the function of controlling financial operations is assigned to the Federal Bank of Germany. Thus, the system of currency control in Germany serves as a control over financial transactions with foreign currency, counteracting the legalization of criminal proceeds (Lisovol, 2017).

France is another EU country that we will focus on. It should be noted that the general principles for the implementation of currency regulation are determined by the European Central Bank. Besides, the currency control in France was introduced in accordance with the Law on Currency Regulation and Control in September 1939. So, it was the beginning of the Second World War, when France had significant problems in the monetary and financial sphere, foreign exchange controls covered all types of foreign exchange operations. The currency control bodies in France at that time were: the Ministry of Finance, in whose structure the Treasury Department was engaged in the development of strategic directions in the field of currency regulation and control, and the Main Customs Office exercised control over currency transactions of a "commercial" character, as well as non-trading operations, which are connected with the movement of currency values across the border; National Bank of France, which regulated and controlled financial transactions in foreign and national currency (credits, loans) (Luchkovska, 2005).

Another country, which experience can be useful, is Poland because this state simultaneously with Ukraine is on the way of democratization of its society. In Poland, a fixed exchange rate regime was introduced

with the beginning of the reform process – first to the US dollar, and then to the “basket” of five leading currencies, in order to curb inflation. In May 1995, the regime for fixing the exchange rate was changed to “currency corridor”, the limits of which were gradually expanding from  $\pm 7\%$  to  $\pm 15\%$ . Since April 2000, as a result of the introduction of free floatation of the exchange rate, different market factors are beginning to affect the Polish zloty course. In the mid-90s of the XX century, the National Bank of Poland began to use actively exchange rate policy in the fight against inflation. The strengthening of the zloty’s exchange rate in 2000–2001 was the result of large revenues from privatization and a consistent restrictive monetary policy of the Polish government, as well as the inflow of foreign capital (Honcharuk, Matsko, Shparhalo, 2010). On July 27, 2002, a new Law “On Foreign Currency” was issued in Poland, which regulated the execution of foreign exchange transactions. This law abolished all restrictions on the movement of funds between Poland and the EU countries. At the same time, the law provides some restrictions regarding the movement of funds from non-EU countries. Currency restrictions can be removed by obtaining currency permits. These permits can be of two types: general and private. The general currency permits are issued by the Ministry of Finance, and private ones – by the National Bank of Poland (Sorokivska, 2013).

The main measure of currency regulation was the transition to a flexible exchange rate and the introduction of the “free-swimming” regime in 2000. This regime can be characterized by the fact that in the process of establishing a currency exchange rate in the currency market, there is an influence of the central bank of the country, which aligns the sharp short-term, and sometimes medium-term fluctuations of the rate in order to make it more predictable and stimulating foreign trade (Khamaganova, 2001; Harbinska-Rudenko, 2011). Currency exchange rate systems in the country are often characterized by the simultaneous diversity of exchange rates, each of which is used for another set of transactions. Multi-rate regimes can be applied when more than one course is claimed for the purchase and sale of currencies or when the purchase and sale rates differ by more than 2% (the smaller difference between the purchase and sale rates is used to cover the cost of transactions with foreign currency and it does not involve the presence of multiple rates). Poland’s move to the euro was planned in 2007, but now Polish politicians support the introduction of the European currency as later. The country’s path towards a single European currency will depend on whether the government can able to effectively reform the public financial system (Harbinska-Rudenko, 2011).

The policy of currency regulation in Poland is realized through the mechanism of currency restrictions and currency control. The purpose of currency control is

to ensure compliance of residents and non-residents with currency legislation (Ivanov D., 1998; Harbinska-Rudenko, 2011). The system of currency control in Poland is carried out on the basis of the Law “On Foreign Exchange Regulation and Currency Control in Poland”. The National Bank of Poland is the main body that determines the currency policy of the country. The main component of foreign exchange policy is the introduction of a mechanism for adjusting the country’s balance of payments, which is one of the most important macroeconomic aspects of the NBP’s activities. In order to determine the strategies of currency exchange and monetary policy and the reform of the external sector of the economy, the National Bank of Poland also develops the forecast of the balance of payments, which can be used as a basis for negotiations with international organizations on the provision of financial assistance to the country (Yurhelevych, 2000).

In the context of this scientific study, we need to draw attention to the experience of the United States of America. The US government uses various currency regulation means that are implemented by the Central Bank of the country. So, one of the first means is to change the exchange rates when the Bank raises or decreases the rate of accumulated funds. For example, if a bank reduces the rate, it leads to a reduction in the interest rate throughout the US banking system, which reduces the supply of money, affects the value of loans, that is, makes these loans more expensive. All this, in turn, makes the dollar stronger and more stable in comparison with other currencies. At the same time, assets in dollar equivalent provide greater profitability. A similar situation creates more demand for the dollar, bringing it out of circulation. The laws of supply and demand show that a smaller supply and more demand increase the price. When it comes to the dollar, it makes it possible to buy more foreign currency in the forex markets.

The next is the Treasury Department of the United States, which is a government agency that also indirectly affects the exchange rate. It prints more money, which increases the offer, weakening the dollar. The department can also get a loan from other countries, which can be done through the sale of gold reserves from the state treasury. This not only increases the offer of money but also increases the debt. The third government instrument for the currency regulation in the United States is an expansionist (stimulating) fiscal policy. Such a policy weakens the dollar by increasing the money supply but, at the same time, it generally has a positive effect on the country’s economy, ensuring economic growth, and contributes to the increasing confidence in the country’s economy from the investor’s side. Sometimes this demand is so high that investors do not notice low-interest rate that they will receive by investing money in the economy. Quite often there are cases where demand is even greater than the offer.

When considering currency regulation in the USA, it is necessary to pay attention to the fact, how the Government regulates foreign exchange trade. So, the Chicago Chamber of Commerce regulates activities of brokers in the forex market. The Chamber supervises all American forex brokerage companies, establishes its rules, and conducts criminal proceedings in case of violation of the rules of the current legislation. The power of the Chamber was strengthened in 2010 by the Dodd-Frank Wall Street Reform Act. Approximately 95 percent (which is almost \$5.3 trillion) traded daily in the forex markets are currency transactions, not futures. Brokers should register as Trade Advisers, or as futures trading dealers, and become members of the NFA (National Futures Association). The American National Futures Association is a self-regulating association. The purpose of the association is to protect the integrity of the US markets and protect investors from fraud. But this is not related to the value of any particular currency.

In the conclusion, we want to say that changes in the exchange value of the dollar are an important factor for monetary policy since such an activity affects economic activity and prices in the United States. In addition, it should be noted that although the US monetary policy is not aimed at establishing a certain level of the dollar, however, taking into account the importance of the dollar's impact on US prices and economic activity at the international level, this business direction is important both for the United States of America itself and for many other countries in the world.

A special attention, in our opinion, we should pay to the experience of China. Today the leading economists of the world recognize the economy of this state as one of the most powerful in the world, and its currency is perhaps the most stable one. There are currently two main provisions in China that define the key principles for the currency regulation and control over the foreign exchange market and other financial institutions. The following legal rules are: "Rules of the People's Republic for the Implementation of Currency Control" and "Administrative Provisions on Currency Settlements, Sales and Payments".

If we talk about the rules, they include 12 chapters, which are connected with the foreign exchange market and financial institutions. Six of these chapters are aimed at regulating currency transactions of financial institutions. Other provisions are aimed at regulating the exchange rate of the yuan and the foreign exchange market. Thus, Articles 33 and 36 regulate the exchange rate of the yuan and the corresponding control over foreign currency borrowing by banks. These two articles assume that the exchange rate of the yuan is floating and is based on the market demand and supply. Dealers in the interbank foreign exchange market are special banks and other financial institutions involved in foreign currency transactions. They can set purchase and sale rates for their clients and trade in foreign currency. It

should also be noted that Article 27 of the Rules defines the principles for the functioning of the currency business of financial institutions in China. It stipulates that financial institutions require from SAFE approval to conduct transactions with foreign currency, as well as to require a license for such transactions. Neither organization nor individual can operate foreign currency without the approval of SAFE. Financial institutions have all the necessary tools to be able to earn a foreign currency but they cannot operate outside the approved scope. When considering "Administrative Provisions for Currency Settlements, Sales and Payments", it should be noted that this package of Provisions is applied to regulate the retail trade market between yuan and foreign currencies. Article 35 of the mentioned legal act defines the principles for the control of the exchange rate, and Articles 2, 34, and 39 define the principles for exercising control over the activities of authorized financial institutions.

Besides, special provisions on the exchange rate of the yuan should be defined, in particular:

- A circular on Exchange Rate Management and Exchange of Operational Information, issued March 23, 1995.
- A circular on the foreign exchange market and the participation of a foreign investment enterprise in the system of bank replacement and sale on a currency exchange, issued on June 28, 1996. This legal act provides that foreign companies are allowed to participate in the currency market of China, where you can sell and buy yuan at the official rate. Also, enterprises have an opportunity to constantly sell and buy yuan in the currency market. This Provision also regulates the distribution of the exchange rate of yuan with 13 foreign currencies, which are listed in the business plan of currency banking supervision;
- Official response of the State Currency of the Exchange Administration to the Chinese currency trading system about the beginning of the exchange of currencies in the foreign exchange market of Ukraine in the interbank foreign exchange market, issued on January 14, 2002.

Separately, in our opinion, it is necessary to indicate the provisions defining the main principles of the activities of authorized financial institutions, in particular: 1) Provisions on the foreign exchange business of banks, issued on September 27, 1997; 2) Provisions on the definition of operations of foreign exchange business of banks, issued on May 16, 1996; 3) Provisions on currency exchange business of financial institutions purchasing money, issued on January 1, 1993; 4) "On Definition of Foreign Currency Transactions for Non-Bank Financial Institutions", issued on May 16, 1996; 5) Provisions on foreign financial institutions of the People's Republic of China, which was originally issued on April 1, 1994; 6) Detailed rules for the regulation of foreign financial institutions of the People's Republic of China, issued on January 30, 2002; etc.

Thus, currency regulation in China is characterized by rigorous control from the state's side. Besides, it is important to mention a rather wide list of normative legal acts that define both the legal basis for the implementation of currency regulation and the principles of the activity of authorized state authorities. The effectiveness of currency regulation in China also proves the rapid growth of the economy of this country over the past and a half decades.

#### 4. Conclusions

At the end of the submitted scientific research, we want to say that Ukraine is a young state, which stands on the way of carrying out deep reforms not only in the field of currency regulation but also the whole economy in general. The legislator in order to implement the foreign experience of currency regulation in Ukraine, it is necessary to do such things as:

- wait with the definitive establishment of the floating rate regime, by intensifying state interference. In this regard, we note that in fact in Ukraine, there has already

been a transition from a fixed to floating exchange rate, which ideally should become the beginning of a natural market exchange rate, equalization of the balance of payments, and the gradual release of the economy from the pressure of administrative and corruption restrictions. However, practice has shown that such a situation: first, allows earning officials, who are not honest; second, the country's population is not yet ready for such changes, because at the first fluctuation of the currency, there is some kind of panic, which in turn has a negative impact on the economy as a whole;

- it is necessary to strengthen currency control not only for the implementation of foreign exchange operations but also for the activities of entities, which determine the state policy in the field of currency regulation, besides, which directly carry out the relevant activity using the instruments specified by the norms of the current legislation;

- it is necessary to improve the relevant legislation, which would correspond to the realities of today and the market conditions, which have developed in Ukraine and in the world.

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# IDENTIFICATION OF ECONOMIC AND LEGAL PRECONDITIONS FOR RENT ACCOUNTING

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**Abstract.** The urgency of the research consists in the existence of challenging issue regarding the equitable distribution of existing natural resources between existing and future generations, the question of formation, distribution, and use of rent. The economic theory clearly identifies features of rental relations at the government level, but there is no information on accounting reflection of rent as one of the types of income of an economic entity in bookkeeping. Level of information content about rental income remains problematic. This leads to a targeted reduction in the availability of information on income from the use of rental resources since none of the forms of existing types of reporting provides any information on any type of rent. *The purpose of the research* was to specify the accounting component of rent as an economic category, as well as to determine legal and economic preconditions for rent accounting. *The methodological basis of the research* is the dialectical method of knowing the essence of the rent and rental relations; general scientific methods of scientific knowledge (analysis, abstracting, synthesis, generalization), bibliographic method of transformation of economic essence and legal content of rent and rental relations, analysis of legal acts in the part of implementation of the contract of rent, method of grouping of economic and legal preconditions for establishing an effective segment of rent accounting. *Scientific results.* It was established that transformation of the modern mechanism of fragmentary regulation of rental should occur systematically, with obligatory improvement of accounting methods of rent resources and development of a method for calculating rental income, as well as a taxation system of extra profits taking into account specific sources and conditions for the formation of various types of rent. With the purpose of transformation of rental relations in the part of the improvement of accounting of income including rents, legal and economic preconditions for rent accounting are identified. In particular, it was established that the legal basis for accounting of the results of rental relations is the identification of the entity, to which the object belongs (rent-forming factor (resource)); of the entity that uses the object (rent-forming factor (resource)); of the mechanism of implementation of rental relations; of an indisputable reason for calculating the rental factor (resource), – a contract of rent or other legal instrument regulating rental relations. The main economic preconditions necessary and sufficient for the organization and keeping of rent accounting by the economic entity are as follows: an object, – the rent-forming factor (resource), which the economic entity-rent payer uses (exploits); economic benefit from the use (operation) of such an object; income of the entity that uses (exploits) such an object that includes the rent; rent estimation for determining rental income, a share of rent in income from a certain type of activity and subsequent implementation of rent payment; documenting and accounting of rent accounts (rental income) and rent payment, followed by their reflection in the financial statements of the business entity-rent payer. *The practical significance* of the research is to identify preconditions for the formation of a rent accounting methodology, as well as to form information support for analysing the competitiveness of business entities and determining their financial stability.

**Key words:** rental relations, rent, rent resource, contract of rent, rent accounting.

**JEL Classification:** M41, P4, Q2

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## 1. Introduction

The concept of sustainable development is aimed at harmonization of economic, social, environmental components of social development and allows overcoming the consequences of the economic crisis, increasing social development of society, solving the problems of preservation of the environment. One of the problematic issues of the fair distribution of existing natural resources between existing and future generations is the issue of formation, distribution, and use of rent.

Rental relations are one of the important components of the market economy and, in general terms, are relations that arise between social and economic agents regarding the distribution of rental resources. The theory of rent has undergone a long-term evolution in the development of economic science, in the process of which approaches to the definition of the rent itself have changed.

In the most general sense, rent is defined as a special type of stable fixed unearned income, not directly related to any form of entrepreneurial activity, obtained by the owner of limited resources or rights as a result of their exploitation. It is an economic form of enforcement of the property right in its pure form (Hurovska, 2011).

The economic history of human development testifies that rental relations arose along with private ownership of land. In the process of social development, rental relations have undergone significant transformations, as well as new types of rent have arisen. The above changes testify that issues of rent and rental relations have not lost their urgency, because with the development of modern civilization, the results of redistribution of property objects, including objects that can be rentable.

The economic theory clearly identifies features of rental relations at the government level, but there is no information on accounting reflection of rent as one of the types of income of the economic entity in bookkeeping, with the exception of individual publications, in particular, monographs (Osadcha, 2016).

Level of information content about rental income is enough problematic. This leads to a targeted reduction in the availability of information on income from the use of rental resources since none of the forms of existing types of reporting provides any information on any type of rent.

Lack of attention to rent significantly increases the risk of an inadequate estimation of the financial condition of business entities and affects the objectivity and effectiveness of management decisions. As a result, it is necessary to develop theoretical and methodological provisions and develop organizational and practical provisions of rent accounting, which will enable the formation of comprehensive and reliable information for managing income of the enterprise.

## 2. Review of recent issues

Some aspects of the transformation of rental relations in post-socialist economies are analysed in the issues of S. Arkhiyereyev, V. Basilevych, A. Hrytsenko, V. Dementiev, B. Kvasniuk, B. Kuzyk, D. Lvov, O. Nosova, A. Oleynyk, O. Paskhaver, V. Polterovych, P. Sabluk, V. Tambovtseva, Y. Yakovets, and other scientists.

However, despite the undeniable achievements of domestic and foreign economic thought in the development of the theory of rent, the problems of the formation and development of rental relations in the economies of the post-Soviet countries, imperfect functioning and governmental regulation of rental relations remain not developed enough.

Another important problem that should be finally solved is the essential identification of rent in the system of accounting concepts since it is impossible to estimate its value and determine the impact of rent on the formation of income of social and economic agents without this aspect. In recent years, issues of accounting as an information source for managing a particular type of rent were raised. Thus, the issue of particular types of rent was studied by such authors as S. Vehera, V. Zhuk, I. Zamula, S. Zdan [Melnyk], T. Ostapchuk, D. Pankov. Highly appreciating the researches of these and other scientists in the field of accounting, it should be recognized that rent as an economic category, with the exception of rent payments, remains outside the conceptual framework of accounting.

**The research purposes and objectives** are to clarify the accounting component of rent as an economic category, as well as the definition of legal and economic preconditions for accounting rent.

## 3. The statement of basic results

Permanent transformation of economic relations causes a change in views as to the understanding of rent as an economic category. After analysing a number of scientific works (Bodnar; Hurovska, 2011; Dvihun, 2008; Meshcherov, 2006; Paskhaver, 1972) devoted to the genesis of the theory of rent, it was established that the views of scientists on the essence of rent in a certain way have evolved. Thus, the representatives of classical political economy, in particular, W. Petty, A. Smith, D. Ricardo, J. Mill suggested that rent was a product of nature adjusted to the expenditures of resources and labour; accordingly, the natural resource rent had a double understanding of the natural resource rent as a product of nature and product of labour. D. Ricardo's doctrine of rent acquired a theoretical and practical character based on the definition of the value given by A. Smith and the views on private ownership of land. According to a number of researchers (A.G. Zeldner (Zeldner, 2003), R.P. Kudiyashova (Kudriashova, 2003), V.A. Meshcherov (Meshcherov, 2006)), from the D. Ricardo's time up to the present, virtually no significant

development in the aspect of the synthesis of the theory of value and rent (Bodnar) has occurred, because he defined rent as an economic category and insisted on the mistakes of the mixing of rent with the lease payment, by which he derived rent from the categories of everyday life in the category of economic theory.

K. Marx and later V. Lenin considered rent as added value, which is caused by an excess of the cost over the price of production. Rent was considered as a transformed form of value-added, similar to profit, wages, and interest. K. Marx saw the emergence of rent as an economic category not in the sphere of production, but in the sphere of distribution, where profit is transformed into rent (Bodnar).

Thus, in the context of the labour theory of value and under the conditions of the market capitalist economy, rent was considered as one of the forms of value added, and as its excess above the average profit in the industry.

Representatives of the neoclassical school (A. Marshall, E. Böhm-Bawerk, L. Walras) considered rent as the excess profit of the resource over the alternative cost of its use. Accordingly, representatives of institutionalism, in particular, J. Buchanan, G. T. Tolleason, A. Krueger consider rent as a result of competition-restricting in order to obtain monopoly rights (Moshenets, 2009).

In the vast majority of countries of the post-Soviet area, which adhered to the doctrines of the command and administrative economy in their social and economic life and did not recognize the private ownership of the means of production, the idea of rent understanding was somewhat different from the views of scientists from other countries since rent was seen as "income from capital, land or property that their owners receive on a regular basis without engaging in entrepreneurial activity. ...The growth of the number of capitalists who receive rent in the era of imperialism is one of the manifestations of parasitism and decay of capitalism at its monopolistic stage" (Economic Dictionary, 1973).

During the time of independent Ukraine, the concept of rent has not changed significantly, since the latter has been considered as:

- a special type of stable unearned income received from capital, land, property, securities etc., not related to entrepreneurial activity (Economic Encyclopaedic Dictionar, 2006);
- any income, regularly received from real estate, land, bonds, which does not require entrepreneurial activity from its recipients (Modern Legal Encyclopaedia, 2009);
- a fee that is established for the use of land and other resources that are the property of other economic entities, provided that their offer is limited (Bazylevych, 2008);
- periodic payment in the form of cash payments or their natural equivalent, carried out in place of the received property (Anomalies in the civil law of Ukraine, 2007);

- surplus income, which should be considered as a part of the economic effect of using the economic resources of society (Hurovska, 2011);

- additional profits that the user of natural resources encounters due to the legal use of resources owing to their rarity, restriction and different approaches to the efficiency of use (Zakharchuk, 2011).

To outline the existing pluralism of thoughts as to the essence of rent, some results of the study set forth in the publication (Moshenets, 2009) deserve attention, according to which rent is considered as:

- the price for the use of land and other natural resources, the quantity of which is limited;
- any payments to the owner of rights to resources that exceed the income, which can be obtained in the non-monopoly use of these resources, that is, under conditions of market competition;
- the level of payment for a factor of production that exceeds the minimum payment required to obtain the necessary offer of this factor within the specified method of its use;
- the fee for any resource, the offer of which is maintained at a constant level without costs, but cannot be increased and, accordingly, does not depend on the price;
- the form of expression of excess profits received as a result of the exploitation of limited resources not uniform in quality.

At the level of modern researches of rental relations, according to T. Hurovska (Hurovska, 2011), it is possible to distinguish various types of rent, combining them into two groups according to resource sources: 1) natural rent resource is excess (additional) profit, which arises when using limited natural resources not uniform in quality (Kuzyk, 2004); 2) unnatural (economic) rent is an additional profit obtained without the entrepreneurial efforts and labour costs arising from the use of resources that do not belong to natural wealth (natural resources) – financial, intellectual, and administrative (power) resources. However, it is difficult to agree with the view as to the economic rent, which, according to the author of the paper (Hurovska, 2011), is income earned without entrepreneurial efforts because the use of, for example, intellectual resources causes certain entrepreneurial efforts and forms certain labour costs.

Therefore, analysing the above definitions, it should be noted that rent is considered simultaneously as the payment for use of limited resources (some factors of production); surplus income, additional income from the use of a certain resource in the field of management; passive income, which does not require entrepreneurial activity from its recipients.

The presented polymorphism of the essence of rent – the lack of a single approach to the definition of rental income – stipulates the fact that rental nature of income was almost not considered until now in the accounting,

because, as S. Zdan (Melnyk) correctly states, this is a rather complex aspect of the income part of the enterprise, so it is very difficult to determine the size of rent, and as a result, to reflect it in the accounting (Zdan (Melnyk), 2011).

It is worth paying attention to the fact that rent is also considered as a legal concept, namely:

- risk (aleatory) transaction, according to which the ownership of the property is transfer as a security of future needs of the recipient (Anomalies in the civil law of Ukraine, 2007);
- the generalized concept of the contract of rent, the type of independent civil-law obligation, with its general and specific features (Anomalies in the civil law of Ukraine, 2007);
- a form of payment as a certain amount of money or other provision provided by the contract of rent (Anomalies in the civil law of Ukraine, 2007).

The latter definition according to the thought set forth in the publication (Anomalies in the civil law of Ukraine, 2007) should be regarded as a narrow understanding of rent, which itself was reflected in separate legal regulatory instruments. The confirmation of this position is an overview of the legal regulatory documents, according to which rent is an established (fixed) amount paid to the individual periodically during the specified period of the lifetime or for a specified or established period of time in accordance with the obligations to make payments in exchange for an adequate and full remuneration (Convention between the Government of Ukraine and the Government of the Italian Republic...; of the Republic of India...; of the Federal Republic of Brazil; Agreement between Ukraine and the Republic of Tajikistan...).

Without excluding a narrow understanding of rent as a legal concept from the scope of considerations, we consider as non-alternative the statement that: "Any rent is a form of enforcement of the right of ownership for the respective resource. All types of ... rent are a kind of income received by economic agents by including a monopoly or exclusive right to use a limited resource and, at the same time, limiting access to it by other agents, which is caused by peculiarities of origin, involvement, and use of the resource itself" (Hurovska, 2011).

Thus, implementation of rental relations is carried out through a special economic mechanism for creation and distribution of value added, which is a set of market, legislative, organizational, administrative, and other measures that affect the behaviour of participants in the field of economic relations and form a material interest in participation in the production process. In such an interpretation, A.O. Dvihun (Dvihun, 2008) states, the economic mechanism of realization of rental relations can be defined as a separate rent mechanism, which should be understood as a set of production and organizational structures, a system of legal regulations, a set of forms and methods of management, through

which the process of creating, distributing, assigning, and withdrawing income from the use of resources is used in accordance with property rights and other resources involved in the production process.

Consequently, in the broad context, modern rental relations appear as a combination of economic, legal, and psychological (economic and non-economic) relations between participants in agreements on the formation and use of rental resources and income. At the moment, one should agree with the statement that one of the specific features of modern rental relations is "... dependence on institutional principles of enforcement of property rights on the rent-producing resources. Modern rental relations appear as a complex system of interactions of agents of a market economy associated with the appropriation of special forms of income from enforcement of exclusive property rights to rental resources (Hrazhevska, 2015). Taking into account that an important precondition for the effective functioning of rental relations is the control of access to these resources on the basis of clearly defined and protected property rights, the only effective tool for achieving the goal is an accounting of the consequences of rental relations.

Consideration of the possibility of rent accounting as one of the consequences of rental relations will remain incomplete without considering their legal aspects, in particular, the form of documentary registration of rental relations, the definition of the subject and the subjective composition of rental relations. A significant contribution to the formation of legal regulation of rental relations was made owing to the researches of such scientists as M. Apanasiuk, V. Baliuk, M. Braginsky, V. Vitryansky, N. Zolotko, R. Maidanyk, I. Timush, E. Yarygin, and others.

The importance of legal aspects of rent accounting is that the identification of counteragents becomes relevant, one of which will pay a rent payment from the income/profit, and the other will receive a rent – income (passive or active depending on the circumstances and type of resource). It is also worth remembering that payments will be made only on the basis of legal instruments, in particular, the contract of rent – a civil law contract, according to which one party (the rent recipient) transfers property to the other party (the rent payer), and the rent payer is obliged, in exchange for the property received, to pay periodically to the recipient rent in the form of a certain amount of money or provision of funds for its maintenance in a different form (Part 1 of Article 371 of the Civil Code of Ukraine) (Kharytonov, Kalitenko, 2004).

In the context of this research, the issue of the subject of rental relations becomes particularly relevant: in particular, what exactly can cause a rent. It should be noted that among the experts in jurisprudence, there is no unity on this issue, as the subject of the contract of rent (*rental relations*) can be:



- any individually determined property not removed from civilian circulation, which has both generic and individual identifiable characteristics, the use of which in the business activity or in order to meet the own needs of the payer of rent contributes to the formation of property income ... except for inalienable intangible benefits, such as personal non-property rights, ideas, intangible results of intellectual activity, services (Civil law of Ukraine: a series of lectures, 2006);
- property rights, information, results of intellectual activity, including rights to them, the performance of works and provision of services for the same purpose (Sukhanov, 2005);
- property (not only things and their aggregate, but also property rights and obligations, including information, results of intellectual activity and exclusive rights to them, performance of works and provision of services), which is transferred for the payment of rent, as well as rent itself (as in the form of money and by providing things, performing works or providing services) (Civil law of Ukraine: study guide, 2005);
- just the things, because ... the contract of rent differs from other agreements, which are also aimed at the alienation of property to ownership by the fact that its subject cannot be property rights, as well as the right to claim (Baliuk);
- things (including money and securities), an aggregate of individual objects (*universitas rerum distantium*), as well as property rights, since in the relevant articles on the contract of rent of the Civil Code of Ukraine, there are no restrictions as to what is meant under the property for this type of contract, and also on the basis of the definition of the property stipulated by Article 190 of the Civil Code of Ukraine (Pospolitalak, 2010).

To determine preconditions of rent accounting, and hence rental relations, the identification of their subjects is important. According to Articles 731, 733 of the Civil Code of Ukraine, which should be applied in conjunction with other articles of Chapter 56 of the Civil Code of Ukraine, such entities are:

- the rent recipient on the one hand – the property owner, who transfers this property to another person in exchange for receiving periodic rent payments in cash or in kind;
- the rent payer on the other hand – the person acquiring the property rights transferred by the rent recipient in exchange for the obligation to pay rent to the recipient in the form of a certain amount of money or other provision.

From the perspective of the right, essential for the realization of rental relations under the terms of the contract of rent is that the rent recipient must be the owner of the property, which is transferred under the rent payment, since this contract is aimed at the transfer of ownership of the property. In case of transfer of property rights under the rent payment, the alienator

must be endowed with these rights (that is, they have the right to exercise them) (Pospolitalak, 2010).

Important is the fact that the codified law does not limit the subject structure of the participants in the contract of rent. At present, according to Article 733 of the Civil Code of Ukraine, parties to the contract of rent may be natural or legal entities. The Civil Code of Ukraine also determines that the payer and the recipient of rents may be both natural and legal entities possessing civil legal capacity and capability, which can in full without any restrictions, act as payers or recipients of rent.

Some scientists are of the opinion that “The social nature of the contract of rent implies that the recipient of rent must be an entity who does not engage in entrepreneurial activity” (Civil Code of Ukraine, 2004). However, an analysis of the regulations of Chapter 56 of the Civil Code of Ukraine, as well as general provisions on obligations and contracts, taking into consideration the basis of formal logic carried out by V. Pospolitalak and R. Khanyk-Pospolitalak, gave to the researchers sufficient grounds to conclude that there was no restriction on the subject composition of the rent recipients under the Civil Code of Ukraine (Pospolitalak, 2010). At the moment, it should also be taken into account that both commercial and non-commercial legal entities can be the rent recipients. The fact that rent is considered as an income, which is not related to entrepreneurial activity, does not prevent it from being received by business entities, such as commercial banks (Apanasiuk, 2004). Natural entities-business entities are actually equated with legal entities in their status. According to Article 51 of the Civil Code of Ukraine, legal regulatory instruments regulating the business activity of legal entities are applied to the entrepreneurial activity of natural entities, unless otherwise provided by law or does not follow from the essence of relations. The above is another argument in favour of the fact that individual entrepreneurs can be parties to a contract of rent (Pospolitalak, 2010).

As a result of the research carried out by us, it was established that, in accordance with the current legislation and the absence of direct prohibitions, the parties (entities) of rental relations could be:

- natural entity (rent payer) – natural entity (rent recipient);
- natural entity (rent payer) – legal entity (rent recipient);
- legal entity (rent payer) – natural entity (rent recipient);
- legal entity (rent payer) – legal entity (rent recipient).

This position is based on the fact that Article 732 of the Civil Code of Ukraine does not specify which of the parties can be specific natural entities and legal entities under the contract of rent. This gives grounds for asserting that both the payer and the recipient may be legal and natural entities, as well as, as stated in the publication (Pospolitalak, 2010), the state and the territorial communities.

Taking into account the above, for the purposes of rent accounting, the entities of the rental relations will be participants in the management relations, which, in accordance with the current legislation, are obliged to keep accounting records and prepare financial statements. Accordingly, the rent payer will have additional income and expenses associated with the payment of rent, and the rent recipient will have income, which will be subject to tax discharge.

Within the generalization of individual publications devoted to the legal regulation of rental relations, it was also established that the list of objects that can form rent is limited, since from the standpoint of the classical economy as a source of rent factors of production are considered: classical (labour, land (natural wealth), capital; modern (labour, capital, land, entrepreneurial skills, ecology, information, science). Awareness of the complexity, multiple-level system, institutional foundations of development, and important role of rental relations in the modern market economy allows us to depart from the narrow natural-resource interpretation of rent (Hrazhevskaya, 2015).

Rent as a type of income affects directly the optimization of the use of economic resources by enterprises, is important in determining priorities and shaping development plans. Business, focusing on demand satisfaction, defines the prospects, priorities of individual activities in line with potential profits, the size of which largely depends on the existing process of rent identification. The properly constructed process of rent identification contains a number of economic levers of influence on production, through which cooperation between individual links and participants in the production and commercial process, as well as the promotion of technology improvement and resource efficiency, is provided.

Focusing on long-term and stable development is a priority task of optimizing rental relations. An effective rental mechanism creates a prospect of sustainable development for business through a fair distribution of the added value created, namely through an adequate rate of profit on the use of resources that remains by commodity producers. It also impedes the receipt of economic rent by certain categories of market participants, as it leads to lack of income of the required level by others and negatively affects their motivation for efficient management and rational use of resources. Another task of the rental mechanism is the prevention of rent-guided behaviour, when different groups of the market participants, competing for rent, resort to unproductive costs, which can lead to inefficiency of production in general.

Market participants and, consequently, entities of the process of rent identification, are not only direct participants of resource use, namely, owners of resources, entrepreneurs and enterprises of various

forms of ownership, which use these resources, but also intermediary structures and infrastructure organizations, which include wholesalers and exporters of products, banks and stock exchanges and transport companies. Various government authorities are also parties to the process of rent identification, whose role consists in the institutional regulation of rental relations at all levels of the production and commercial process, where creation, distribution, assignment, and withdrawal of rent is made.

The process of rent identification occurs under the influence of a large number of endogenous and exogenous factors, which determine the behaviour of participants in rental relations, affect the process of creation and distribution of income from the use of resources. At that, exogenous factors such as the legislative and regulatory activity of the government have the decisive influence, as a result of which there is the market infrastructure that creates a system of accumulation and appropriation of rent, the allocation and withdrawal of surplus profits.

Alongside with that, an endogenous factor such as an improved accounting system that will perform the below-listed task will play a decisive role:

- formation and provision of complete, timely, and reliable information on rental income for the effective management of the entity's business and its rental payments to the budgets of different levels;
- ensuring control over the use of rental resources (rent-forming factor), received rental income of a business entity;
- creation of sufficient information support for the analysis of rental income.

#### **4. Conclusions and perspectives of further research**

Transformation of the modern mechanism of fragmentary regulation of rental relations should occur systematically, with the obligatory improvement of methods of accounting for rental resources and development of a methodology for calculating rental income; system of taxation of extra profits taking into account specific sources and conditions for the formation of various types of rent; institutional regulation of forms of appropriation and withdrawal of rent by providing a clear specification of property rights; norm setting for production; appropriating, and withdrawal of various types of rent, limiting ineffective and stimulating their effective use in order to increase the competitiveness of the national economy and increase the well-being of the Ukrainian population.

The presented transformation can be realized under the conditions of accounting of results of rental relations. For this purpose, the legal and economic conditions for rent accounting were identified in the carried out research.

In particular, it was established that the legal basis for an accounting of the results of rental relations is the identification of:

- entity, to which the object belongs (rent-forming factor (resource));
- entity, which uses the object (rent-forming factor (resource));
- mechanism of implementation of rental relations;
- undeniable grounds for calculating the rent-forming factor (resource) – the contract of rent or other legal instrument regulating the rental relations.

The economic preconditions necessary and sufficient for arrangement and keeping of rent accounting by the economic entity should include the establishment of:

- object – a rent-forming factor (resource), which is used (exploited) by the economic entity-rent payer;
- economic benefit from using (exploitation) of such object;
- economic advantage from using (exploitation) of such an object;
- income of the entity that uses (exploits) such an object that includes rent;
- rent estimation for determining rental income, the share of rent in income from a certain type of activity and further implementation of rent payment;

- documenting and accounting on the accounts of the rent accounting (rental income) and rent payment, followed by their reflection in the financial statements of the economic entity-rent payer.

Thus, at the economic entity's level, rent accounting is necessary for the effective management by the entity itself. Based on strategic goals, the owner or user of rental resources that receives a significant amount of rent from their particular type may decide to invest additional costs to improve these resources in order to increase the amount of the rent received or spend them for improving other types of resources that are worse by their properties and do not generate income from their use.

So, the introduction of such a category as rent into the accounting system should become one of the topical issues among the scientists-accountants who investigate rental relations in Ukraine.

Prospects for further researches are to improve the mechanism of rent relations on the basis of defined economic and legal preconditions for rent accounting; classification of types of rent, as well as existing proposals as to reflection of rent in the accounting system from the use of existing and innovative rent-forming factors in the economic activity, which will approach to the maximum implementation of the provisions of the concept of sustainable development.

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## FORMATION OF MODERN MODEL OF BUDGET MANAGEMENT BASED ON METHODS OF PUBLIC ADMINISTRATION

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**Abstract.** The review of scientific studies and publications confirms that in Ukraine, the interest of scientists in the theoretical and practical problems of budget management is growing. Domestic and foreign scientists have repeatedly drawn attention to the need for full and timely disclosure of the state of the formation and use of financial resources of society. The foreign experts studied foreign experience and grounded measures that could and should contribute to the achievement of the effectiveness of this process, the methods of ensuring transparency of the state budget and involving the public as the subject of control over the use of budgetary resources, in particular, public hearings, "e-government", are an area public administration. Budget management is an important instrument of state regulation of the activity of authorities. According to the analysis, one can see that today it is necessary to distinguish the following types of budget support as: informational, organizational, methodical, and regulatory. The state implements a policy of budgetary management with the help of management bodies. There is a close interconnection between representative, national, and operational management bodies. The principle of transparency of the budget system (in conjunction with its publicity) is enshrined in Article 7 of the Budget Code of Ukraine. An attention is drawn to the fact that the budget system as a "totality of the state budget and local budgets" is transparent by definition. It is fair to note that insufficient transparency of the budget process is not only a domestic problem. The Board of Directors of the IMF approved one of twelve internationally recognized financial standards – the Code of Good Practices on Fiscal Transparency. An assessment of the state of implementation of the principle of publicity and transparency in the budget management of Ukraine makes it possible to draw the following conclusions:

1. The content of the principle of publicity and transparency in the text of the Budget Code of Ukraine should be amended by formulating it as a principle of the budget process, while it is necessary to specify the ways of its practical implementation.
2. The full implementation of the principle of publicity and transparency of the budget process will increase the level of trust of citizens to the authorities of different levels, which is one of the factors of successful implementation of the state social and economic policy, and will deepen the democratic principles of the formation and development of Ukrainian society.
3. The lack of transparency of budget information at the planning stage significantly impairs the ability to manage budget resources, primarily at the local level, exacerbating the problem of full budget financing, especially at the end of the budget period.
4. Budget information for an overwhelming majority of stakeholders remains inaccessible, inaccurate, untimely, and incomplete in Ukraine, which led to a deterioration of Ukraine's position in the international rating by the Open Budget Index.
5. Improving the transparency of the budget process can be achieved through the use of the above measures. Their implementation will serve not only to improve the quality of the budget process and the effectiveness of budget management but also to establish harmonious social relations.

At the same time, the task of developing further directions of increasing publicity and transparency of the mechanism of functioning of the entire system of public finances in Ukraine remains relevant.

**Key words:** budget management, budget process, local budgets, transparency, Open Budget Index, public administration.

**JEL Classification:** H 530, H750, D730, M100

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### 1. Introduction

The development of democratic processes in Ukraine relates to various aspects of social life, including the functioning of its budgetary system. The financial resources accumulated by it, by definition, should be aimed at satisfying the needs of the entire society and its separate territorially determined components. However, insufficiently high, often unpredictable efficiency of the use of budgetary resources in Ukraine puts on the agenda the task of improving the functioning of the budget management system in general and improving the mechanism of action of its individual elements. One of such potentially effective measures is to ensure transparency of government decisions that are taken at some stage of planning and execution of the state budget. However, despite the passage of the budget system of Ukraine of different stages of its formation and development, the issue of the transparency of the budget process, unfortunately, remains relevant for the third decade (Demyanyuk, 2009; Prozorist byudzhetu, 2017).

The review of scientific studies and publications confirms that in Ukraine, the interest of scientists in the theoretical and practical problems of budget management is growing. Domestic and foreign scientists have repeatedly drawn attention to the need for full and timely disclosure of information on the state of the formation and use of financial resources of society (Yaroshevych, Shpak, Matviyishyn, 2012; Kyrylenko, 2015; Bulhakova, Baranovskyy, Kucher ta in., 2010).

Leading experts studied foreign experience and grounded measures that could and should contribute to the achievement of the effectiveness of this process, the methods of ensuring transparency of the state budget and involving the public as the subject of control over the use of budgetary resources, in particular,

public hearings, “e-government”, are an area public administration (Zhalilo, Moldovan, Shevchenko, 2010).

However, the relevant issues of forming a full-fledged mechanism for the disclosure of budget information remain unresolved. The difficult situation of the financial system of the state, as well as the peculiarities of the socio-political processes taking place in the country, exacerbate the problem of non-transparency of quantitative and qualitative characteristics of monetary flows that are administered by the bodies of national and local authorities in Ukraine. This requires the intensification of scientific research in the field of budget process and the appropriate justification of possibilities for expanding public access to budget information (Demyanyshyn Vasyl, 2008).

The author aims to deepen the content of the transparency of the budget process, to form an adaptive model of budget management using modern tools of public administration.

### 2. The methodology of research

Budget management is an important instrument of state regulation of the activity of authorities. At the same time, the effective organization of the budget control system promotes the realization of goals, timely detection and elimination of deviations, creates a motivation for the effective performance of its duties by state and local authorities, allows detecting negative trends in the management process in a timely manner, reducing the risk of occurrence of negative phenomena during the formation and use of financial resources of the budget, and also maintaining the efficiency of management of financial resources at an appropriate level.

The main objective of budget management is to ensure effective and efficient management of financial

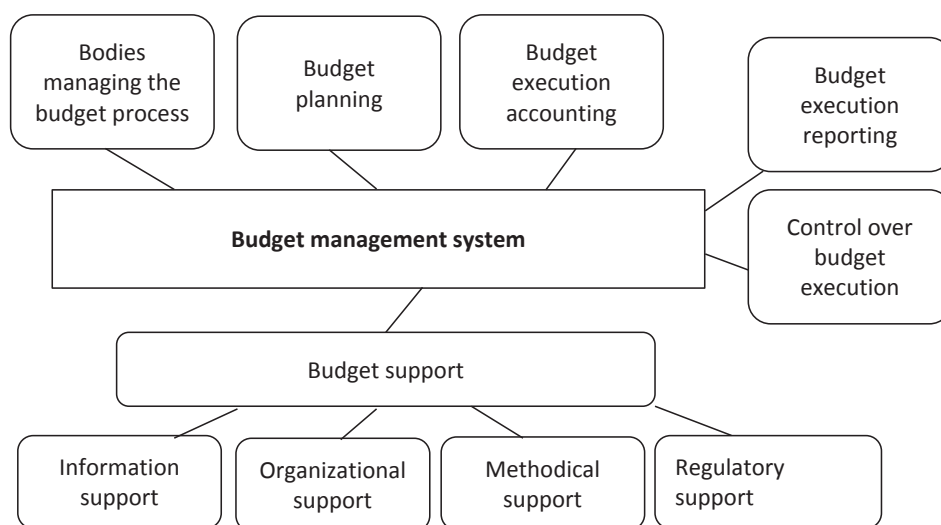


Fig. 1. Component model of budget management

Source: formed by the author

resources in the budget sphere. Budget management is a fairly young industry of the economic science that is rapidly developing. It represents a complex, multilevel system (Fig. 1). In addition to the management bodies, the budget management system also includes other components: planning, accounting, reporting, control, and budget support (Fig. 1).

All of these components are closely interconnected in the budget process, each occupies a very important place, since the execution of the budget means to form its deficit-free part (to ensure the receipt of taxes and payments, in accordance with the current legislation), to effectively finance the expenditures approved in the budget, provide effective management of financial resources in the budget sphere (Babych, 2011).

Extremely important is the budget support that enables to regulate relations of providing the population with the necessary set of knowledge on the formation and use of financial resources of budgets of different levels.

In accordance with Fig. 1, it can be seen that today it is necessary to distinguish the following types of budget support as: informational, organizational, methodical, and regulatory.

Information provision provides a meaningful, reliable, and operational information base, which serves as the basis for making optimal managerial decisions regarding the use of budget funds by authorized bodies.

Organizational support involves the creation (improvement) of existing and ensuring the effective

functioning of individual elements of the organizational system of the budget management, as well as an organizational mechanism for managing budget funds or their aggregate in general in accordance with the chosen strategies in such a way that these organizational elements of the system act as elements of strategic development of the country in general.

Methodical support – a set of documents of organizational, organizational and methodological, organizational and administrative, technical, technical and economic, and economic nature, as well as reference materials and other documents approved by the authorities in accordance with the established procedure for the efficient and targeted use of budget funds.

Regulatory support is a type of support that includes laws and regulations that regulate fiscal relations in Ukraine and helps to find ways to improve existing and emerging new legal regulations necessary for fundamentally new tasks in the field of budget management. Among the most important legislative acts, the Budget Code of Ukraine occupies a special place, which in a complex combines and regulates all stages of the budget process and defines the general principles of management of financial resources.

As can be seen from Fig. 1, the state implements a policy of budgetary management with the help of management bodies. There is a close interconnection between representative, national, and operational management bodies. So, the Verkhovna Rada of Ukraine

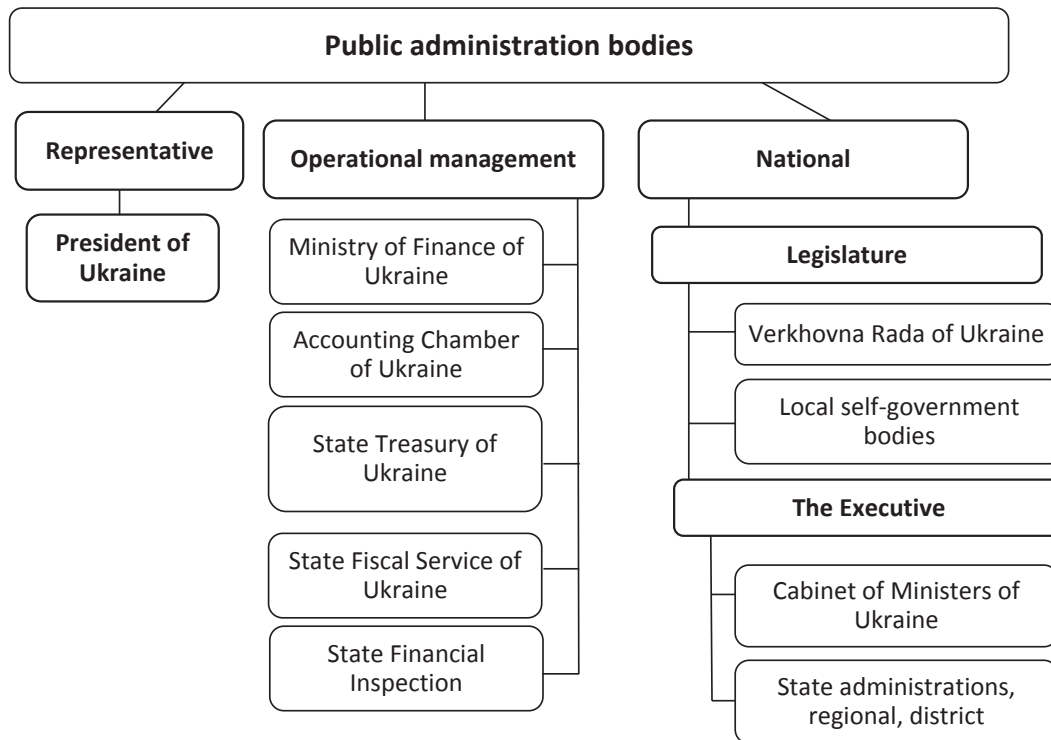


Fig. 2. The organizational structure of budget management

adopts the law of Ukraine on State Budget for the current year, the President of Ukraine signs laws and decrees. In turn, the Cabinet of Ministers of Ukraine ensures the implementation of the budget of Ukraine, and the Ministry of Finance of Ukraine conducts the general organization and management of the execution of the state budget, coordinates activities of the participants in the budget process (Blishchuk, 2011).

We believe that depending on the role and functions, it is worthwhile to distinguish three groups of bodies that carry out budget management (Figure 2): representative; national; operational management bodies.

To date, each management system, including the budget one, consists of two interrelated parts – the object and the subject of management.

The object of budget management is the state and local budgets, and the subject – the system of representative, legislative, and executive authorities, which are endowed with the respective rights and powers in the field of budget process management.

Each part plays an extremely important role. Without an object, the process of managing financial resources in the budget sphere is impossible. And the activity of subjects of management determines the quality and effectiveness of budget management.

Management of public finances is not an end in itself but serves as a mandatory element of the regulatory system, the purpose of which is to identify in a timely manner deviations from accepted standards, violations of the principles of legality, efficiency, expediency, which would allow to make appropriate corrections on a case-by-case basis, strengthen the responsibility of authorized persons, get damages and prevent or, at least, complicate the recurrence of detected violations in the future (Khomutenko, Baranova, Dubovyk, 2014).

### 3. Results and discussion

On the basis of the generalization of the above definitions, it is possible to propose definitions of budgetary management as a system for the development and implementation of managerial decisions in the process of formation and use of centralized cash resources (funds) of the state and its territorial and administrative units. Budget management includes budget forecasting, planning, justification of the draft budget of different levels, consideration of submitted projects, their revision, approval, amendments to approved budgets, budget execution, monitoring, analysis, reporting. In the process of budget management, there is formation (design, review, and approval) and budget execution, control of budget discipline, as well as preparation, consideration, and approval of the report on execution.

It is important to understand that the budget, as the main financial document of the state or a certain

territorial entity, must meet certain criteria (that is, contain legally established parameters). L.I. Didkivska and L.S. Holovko determine the following main parameters of the budget: absolute size; the share of GDP reallocated through the budget; volume and structure of funding sources; volume and structure of budget expenditures; the ratio of revenues and expenditures of the state (Kovalchuk, Kozenkov, Kozenkova, Yakubova, 2011). It should be noted that the budget is a lever of the influence of the state on various aspects of the economic life of society, that is, it acts as a means of economic regulation. With the help of budgetary levers, the income of the population and the corporate sector, inflation, employment, and consumer activity can be regulated. Experts point to significant budget opportunities in implementing state investment and innovation-technology policy. In a modern economy, the budget is one of the main instruments of the state apparatus for the conduct of state policy (primarily in the socio-economic sphere). Thereat, the following levers of fiscal policy are used: taxes, fees, expenditures financing, budget deficits, budget debt, etc. The process of forming budget revenues and expenditures is inextricably linked with the main results of the economic development of the state or its regions, as well as subjects of budget legal relations – taxpayers, managers of budget funds, etc. Organization of budget management in the country depends on many factors: political structure, management traditions, peculiarities of economic and financial development, chosen fiscal policy, etc. Before science, the question arose about the generalization of budget management models, which should be based on certain general principles. “The ideal model of fiscal management, – as rightly stated, – presupposes compliance with the rules for the formation and implementation of the budget on the basis of commonly accepted principles that are in line with the values of a democratic and rule-of-law state, civil society, market economy (Boyarko, Dekhtyar, Deyneka, 2012). These principles, formed in the course of the evolution of financial theory and practice, as the basis for the construction of the budget and the organization of the budget process, include the completeness, unity, and periodicity of the budget, its reality, transparency, and openness” (Demyanyuk, 2009). It is clear that these principles can (and should) be implemented precisely in the process of budget management, that is, the implementation of certain management procedures.

The principle of transparency of the budget system (in conjunction with its publicity) is enshrined in Article 7 of the Budget Code of Ukraine. The fact draws attention that the budget system as a “totality of the state budget and local budgets” (para 2.1.5. of the Budget Code of Ukraine) is transparent already by definition (Stepanova, 2015).



The content of the State Budget and local budgets is obvious; the composition of the latter is clearly regulated by law (para 2.1.34 of the Budget Code of Ukraine). At the same time, there are no differences in the treatment of the State Budget and local budgets, which are fixed by provisions of the financial theory, and their implementation in practice (as is often the case in domestic realities). Therefore, the author believes that the content of the legislatively defined principle of publicity and transparency concerns not the general budget system of the country, that is, immobilized indicators of income and expenditure part of budgets of different levels, their financing, but those decisions and measures that led to the emergence of such indicators. This is precisely about the budget process – an activity involving various actors – “organizations, institutions, and officials with budgetary powers” (para 19.3 of the Budget Code of Ukraine). In this regard, it is advisable to support the proposal of domestic scientists to clarify the place, as well as ways to implement the principle of publicity and transparency in the budgetary sphere on the above principles (Yaremenka, 2016; Zhalilo, Moldovan, Shevchenko, 2010; Frolov, 2018).

The content of clarity (transparency – in foreign terminology) in the budget process needs a deeper understanding. Note that specialists in the state budget used and use different terms, which include informing the public, voters about the planned and actual state of the main financial plan of the state, namely: publicity, transparency, and truthfulness. The last two terms indicate that “all revenue and all expenses, without any futile concealment or secret definitions, should be indicated in the budget” (Frolov, 2018).

Such an interpretation of the transparency of the state budget raises the issue of its degree. Naturally, it is precisely the requirements of ensuring state security that is the determining criterion of the limit, to which information about incoming and outgoing flows of budget resources should be disclosed to the public. Such an approach is found in Article 31 of the Budget Code of Ukraine “Secret Expenditures”. At the same time, the content of the latter, envisaged for the activities of state authorities, in the interests of national security, their potentially possible structure, and size are not defined by law.

This allows the central authorities to manipulate budget indicators in certain political and economic circumstances, artificially narrowing public access to relevant data, primarily about the use of public funds.

Contrary to the above, the concept of “secret expenditures”, regulated by law, does not apply to local budgets, which in fact should mean full and timely disclosure of budget information by local self-government bodies and executive bodies at the local level. However, in many cases, if there is a desire to be informed about the state of income and expenditure

of local budgets, there are artificial barriers, up to the appearance of administrative indications regarding the metered provision of information on budget indicators.

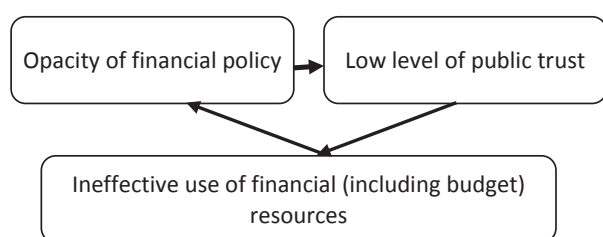
In addition, not only the volume (quantity) but also the quality of the latter often generates more questions than answers to them. Thus, the indicators of the State Budget and local budgets, as a rule, are presented in aggregate, without proper detail and specification on the sources of income and the purposeful allocation of budgetary resources. At the same time, revenue budget information, which would be measured on a scale at least up to 1,0 thousand UAH, is practically inaccessible. Of course, for a financial plan, the balance of which is measured by hundreds of billions of hryvnias, the figure of one or even ten thousand hryvnias is negligible. But such sums reflect financing of not just a separate branch of the national economy or a manager of budgetary funds (that is, one or another budgetary institution). In the end, both the recipients of budget resources and their real producers are specific citizens (objectively, taxpayers), the size of their many needs is often measured by these indicators.

In many developed countries, the situation is the opposite. For example, in Germany, the “price of a line”, that is, the requirement to detail articles of the state budget in amounts is 10 euros. Therefore, German citizens know how the state budget is being formed and what almost every euro is used for (Mykhaylenko, 2010). Unlike them, our fellow citizens have to confine themselves to inadequate budget information. Its low quality is also determined by the fact that the public administration of various levels reveals, as a rule, its own achievements, that is, the positive results of the implementation of budget policy.

Of course, first of all, such data are a reflection of the overall effectiveness of authorities. However, the one-sided presentation of financial, including budget information, on the one hand, is in fact half-truth, on the other hand, does not allow society to respond adequately to the various challenges and threats that are the result of the crisis conditions of the development of the national economy.

In general, there are additional grounds for an extremely critical (often novolescent) assessment of actions of government structures, instead of proper understanding and acceptance of anti-crisis socio-economic measures (painful – in the short term, but productive – over a longer period of time). We believe that knowledge of the real state of affairs in the national economy and the corresponding readiness of society to overcome financial difficulties can become one of the factors of the potential increase of the effectiveness of the state social and economic policy and its budgetary vector. Indeed, this approach is likely to maintain a high level of public confidence in the authorities, which is an important factor in the successful implementation of their financial policy, above all.

Unfortunately, today in Ukraine, there is a low level of institutional trust in such constituents as the state (government and local authorities) and business, while mass media with a high level of trust are often controlled by the state, business or their interrelated oligarchic non-institutional associations, their irresponsible behaviour in relation to the future is not ruled out, which will lead to a recurrence of the crisis, as well as the inappropriate use of natural and social resources through deception (Zaychukova, 2014). This creates a closed circle of negative phenomena, which lead to the failure to fulfil their functions as budgetary management, so the administrative direction of public servants – public administration (Fig. 3).



**Fig. 3. Creating a range of negative phenomena of budget management and public administration**

Source: formed by the author

Particularly, the influence of the factor of trust increases at the territorial level, where the connections between the community members (institutions, voters, administrative apparatus) are significantly stronger than at the state level and, accordingly, at the level of national government bodies. Therefore, confidence in, first of all, mechanisms for using financial resources of the territory, in which local self-government bodies are involved, potentially creates additional opportunities and incentives for direct donors of such funds – taxpayers – to participate in the formation of these resources in the future.

On the other hand, the opacity of the budget process, especially at the local level, is one of the obstacles to, for example, investment activities of local governments, as well as their borrowings to local budgets (recall, the Budget Code of Ukraine provides such a possibility only for the development budget, in others words, primarily for the purpose of investing). After all, any creditor (whether it represents a purely banking sector of the country or an investor in the securities market) needs to minimize the risks of placing its own financial resources.

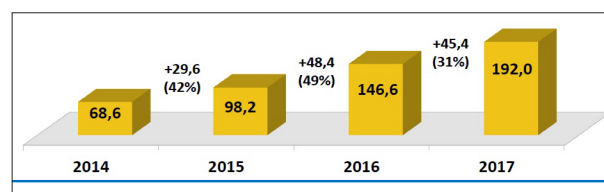
It is to a large extent ensured by the borrower (in our case, a local government), which, among other things, provides for obtaining detailed information on the state of local finances and, in particular, local budgets in the respective territory. In this regard, we note that the principle of transparency implies the disclosure of various components of budget information (indicators of income, expenditure and lending, budget financing),

not only on the basis of the results obtained but also on all other stages of the budget process. Thus, the executive bodies of the state as a whole comply with Articles 58-62, 80 of the Budget Code of Ukraine, forming and publishing reports on the implementation of the State Budget of Ukraine and local budgets. However, the socio-economic indicators that serve as the starting point for planning the indicators of the respective budgets are absolutely inadequate, obscure, inaccessible, and in most cases inaccessible.

This is particularly relevant in the context of the actual cessation of fiscal decentralization policies and narrowing the scope of local self-government in Ukraine, when not that ordinary voters but also local financiers, lack information on the origin of certain numerical data verified by the government from the Ministry of Ukraine's finances as budgetary benchmarks. This situation leads to the ineffectiveness of managing budget resources at the local level throughout the entire budget period: the need for constant changes and additions to budget indicators, permanent search for new sources of income, lobbying central government decisions on providing additional subsidies and subventions, etc.

Particularly significant for taxpayer citizens is administrative pressure on budget funds managers to increase their income from a special fund, which often takes the form of charitable contributions, that is, seizures from individual or family income of consumers of services of such budgetary institutions. For example, in the Odesa region, the indicator of the plan implementation for such own revenues of budget institutions as charitable contributions, in 2014, was executed by 353.7%, and in 2016 – by 490.7%. At the same time, their share in own revenues of spending units exceeded 35.0%. The increase in the weight of own revenues of budget institutions in Ukraine as a whole is reflected in Figures 4 and 5.

During January-December 2017, the revenues to the general fund of local budgets of Ukraine (excluding intergovernmental transfers) amounted to 192.0 billion UAH, which is higher than the Ministry of Finance's estimated figures by 21.3 billion UAH. Compared to 2016, revenues grew by 45.4 billion UAH or by +31%.

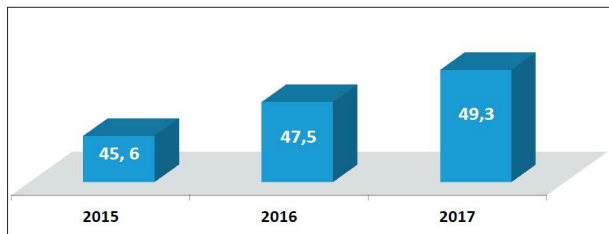


**Fig. 4. Own revenues of local budgets (billion UAH) for 2014–2017**

Source: formed on the basis of *Mistsevi byudzhety: eksperty pidbyly pershi pidsumky 2017 roku*

This indicates an increase in the interest of local self-government bodies in increasing revenues to

local budgets, implementing measures to find reserves for their filling and improving the efficiency of administration of taxes and fees. The share of financial resources receiving local budgets from the state budget reaches 50%, that is, local authorities have a half of the financial resources of the consolidated budget.



**Fig. 5. The share of local budgets (with transfers) in the consolidated budget of Ukraine (%)**

Source: formed on the basis of *Mistsevi byudzhetu: eksperty pidbyly pershi pidsumky 2017 roku*

The share of local budgets in the consolidated budget reaches 50%, that is, local authorities have a significant financial resource to effectively manage and direct them for community development (in relations with the state – 50/50).

Such growth rates of local budget revenues are attributable to government actions aimed at financial decentralization. New conditions have raised the interest of local self-government bodies to increase revenues to local budgets, to take measures to find reserves for their filling, and to increase the efficiency of administering taxes and fees.

In addition, today, local self-government gradually departs from the previously existing consumer position. Today, they are replacing the expectations of subsidies by active actions in creating an effective management apparatus, directing funds for community development, analysing the spending of budget funds, and preventing instances of their inefficient, irrational use.

It is fair to note that insufficient transparency of the budget process is not only a domestic problem. The Board of Directors of the IMF approved one of twelve internationally recognized financial standards – the Code of Good Practices on Fiscal Transparency (Indeks vidkrytosti byudzhetu 2012-2016).

Taking into account its provisions, the International Budget Partnership, established in 1997, initiated an assessment of the Open Budget Index. It determines whether the government provides public access to eight major budget documents and whether they are clear, timely, and useful. These documents are a budget declaration, draft budget, budget, budget for citizens, quarterly reports on budget execution, semi-annual report, annual report, and audit report. According to the Open Budget Index in 2016, Ukraine has occupied a rather high 19th place in a sample of 94 countries. At the same time, it outpaced all other CIS countries and Georgia, as well as some of the member countries of

the European Union. Ukraine's score increased from 55 points in 2008 to 62 points in 2016, largely due to the publication of information on the draft budget (Indeks vidkrytosti byudzhetu 2012-2016).

In addition, as noted in the review, the government of Ukraine published during the year budget reports that meet international standards (Indeks vidkrytosti byudzhetu 2012-2016). However, according to a similar assessment in 2012, Ukraine ranked 35th among 100 countries, having received 54 points out of 100 possible. This figure turned out to be higher than the average score of 43 points for all the countries under study but lower than the neighbouring countries, in particular, Bulgaria, Poland, Russia, Slovakia, and the Czech Republic.

The main claim of the International Budget Partnership to Ukraine is the lack of a so-called civil budget, that is, the government's explanations for articles on income and expenses in a clear form. The concept of a "civil budget" is associated with the fact that its main conceptual provisions are formed as a result of the active participation of individuals and independent non-governmental organizations through broad discussion and provision of appropriate proposals or comments.

The final version of the draft civil budget is presented on the Internet in a generalized way to ensure a simple perception of its content by a broad general population of the country. The method of formation and focus on public awareness determine the corresponding name of such a version of the budget – "civil budget" (Frolov, 2018). As we can see, ensuring a high level of transparency of the budget process is directly linked to the formation of a real, and not declared, civil society in Ukraine. Public hearings on budgetary or tax issues, organized by both central and local authorities, have been repeatedly criticized by specialists.

However, the problem of activating the civic initiative in the budget process, the development of its forms and methods requires additional scientific research. The revealed difficulties in ensuring the publicity and transparency of the budget process objectively require the adoption of effective measures aimed at overcoming them. In January 2011, the Cabinet of Ministers of Ukraine prepared a draft Concept of the State Target Program for Creation and Development of the Integrated Information and Analytical System "Transparent Budget", the fifth (last) stage of implementation of which provided for its final term for the second quarter of 2013 (Concept of the State Target Program, 2013).

Unfortunately, the concept remained the project. Such a participation, probably, also awaits the draft law "On Openness of the Use of Public Funds", introduced to the Verkhovna Rada of Ukraine by a group of people's deputies in May 2013 (Concept of the State Target Program, 2013). In addition, the implementation of such legislative and regulatory documents requires, as their

authors have predicted, proper financial and material security. Thus, the financing of activities related to the creation and development of an integrated information and analytical system "Transparent Budget" provided for by the aforementioned concept required 50.0 million UAH (at current prices of 2011) (Mistsevi byudzhetny: eksperty pidbyly pershi pidsumky, 2017).

According to calculations of the authors of the draft, its implementation is estimated at 0.5 million UAH at the stage of development and testing, and it was planned to spend 3.0 million UAH annually for the maintenance of the web-portal. Of course, an increased level of control over public funds would help to compensate for planned expenditures by additional revenues to the state budget.

For example, according to expert estimates, it would be possible to use 30-40 billion UAH more effectively in the field of public procurement (Indeks vidkrytosti byudzhetu 2012-2016). However, in the context of the crisis of the domestic system of public finances, the permanent deficit of the state budget to find an additional resource for these legislative innovations, of course, it is extremely difficult. This explains why initiatives to improve the transparency of the budget process in Ukraine tend to remain initiatives. It is therefore advisable to pay attention to those proposals that, according to the calculations of the International Centre for Policy Studies, practically do not require significant additional costs for the implementation of the necessary measures, namely:

- publish an annual report, which is currently being prepared only for internal use;
- make and publish a budget for citizens;
- include a detailed description of the macroeconomic and fiscal environment in the current state budget;
- submit the data in the draft state budget:
  - 1) about the actual expenditures for the previous year, in particular, by individual programs, as well as the planned expenditures by economic and departmental classification;
  - 2) about the non-tax revenues of the budget and the state debt for the past fiscal year;
  - 3) on the impact of various macroeconomic assumptions on budget execution;
  - 4) about the relationship of the budget with the declared government objectives of the policy and performance indicators of budget programs;
  - 5) on the use of extrabudgetary funds in both financial and in-kind form (in particular, regarding sources of donor assistance);
- include information at the program level in the current budget;
- to provide information on the structure of public debt in the report on budget execution throughout the year;
- in the annual reports, explain the difference between the planned and actual level of expenditures;

– in the audit reports on the budget, provide information on the actions that the executive authority conducts to implement the audit recommendations.

Expanding the list of mandatory disclosure of budget information, such as the inclusion of planned calculations of indicators of the main items of income and expenditure, is absolutely possible in the current informational environment, which involves simplifying the mechanisms of communication through the use of technical means.

#### 4. Conclusions

Thus, today's budget management can be considered as: the science of management; a budget management system that is represented by a combination of two elements – objects and subjects of management; art that "arm" managers with specific tools in the budget sphere; one of the areas of financial management; multi-level system of budget process management. However, in our opinion, it is expedient to consider that this is a set of interrelated functions, principles, methods, techniques, and procedures used by the authorized authorities.

Using all the components of budget management, the state plans and manages the key budget indicators, which allows taking into account the budget's ability to influence sustained economic dynamics, employment, investment, innovation, and equalization of regional development. Budget management is aimed at ensuring the effective implementation of the procedures for the drafting, review, approval, and execution of the budget to achieve economic and social benefits in terms of the changing environment.

Understanding the essence of the budget and other public financial resources as public funds objectively makes it possible to have information about their state (formation, distribution, and use) by any citizen of the country, especially if he or she is also a taxpayer at the same time.

Assessment of the state of implementation of the principle of publicity and transparency in the budget management of Ukraine makes it possible to draw the following conclusions:

1. The content of the principle of publicity and transparency in the text of the Budget Code of Ukraine should be amended by formulating it as a principle of the budget process, rather than the principle of the budgetary system of Ukraine; herewith it is necessary to specify the methods of its practical implementation.

2. The full implementation of the principle of publicity and transparency of the budget process will contribute to increasing the level of trust of citizens to the authorities of different levels, which is one of the factors of successful implementation of the state social and economic policy, and will deepen the democratic principles of the formation and development of Ukrainian society.

3. The lack of transparency of budget information at the planning stage significantly impairs the ability to manage budget resources, primarily at the local level, exacerbating the problem of full budget financing, especially at the end of the budget period.

4. Budget information for an overwhelming majority of stakeholders remains inaccessible, inaccurate, untimely, and incomplete in Ukraine, which led to a deterioration of Ukraine's position in the international rating by the Open Budget Index.

5. Improving the transparency of the budget process can be achieved through the use of the above measures. Their implementation will serve not only to improve the quality of the budget process and the effectiveness of budget management but also to establish harmonious social relations.

At the same time, the task of developing further directions of increasing publicity and transparency of the mechanism of functioning of the entire system of public finances in Ukraine remains relevant.

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# FORMATION OF MODERN INCENTIVE SYSTEM FOR MANAGERS IN THE CONTEXT OF EUROPEAN INTEGRATION PROCESSES

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**Abstract.** The article is devoted to the research of issues of the formation of the modern system of evaluation of effectiveness and motivation of managers and workers of an enterprise in the context of European integration processes in Ukraine. *The object* is theoretical and practical foundations of creating an efficient motivational profile of an organization with the help of formation of the modern system of employee efficiency analysis and formation of an individual system of employee motivation at the enterprise based on research of incentive systems of developed countries and EU countries. *The main research objectives* are established: determination of key priorities for the formation of the system of valuation and motivation; formation of an algorithm and economic and mathematical model of the system of evaluation and motivation of personnel efficiency, zoning of boundary priorities and formation of a matrix of opportunities, formation of an effective system for improving the system of personnel motivation and evaluation, and a model of the system of improvement of personnel motivation means. *Methodology.* The conducted comparative analysis of various motivation systems existing in the EU countries and the most developed countries allowed developing a hypothesis about the necessity to form a more effective system of personnel evaluation and motivation that would correspond to general European values and criteria. A model of motivation is proposed that is developed on the basis of the Management Functional Assessment Model (MFAM), which is elaborated by researchers of Sheffield Hallam University (Great Britain) and the company "IVA Consulting Group". MFAM is based on six main management functions: Forecasting/Planning, Organization, Motivation, Control, Coordination, and Communication. Its main advantages are the evaluation by three parameters: personnel loyalty; personnel performance; company's attractiveness in the labour market, information about which is available in free and convenient access. Evaluation of the enterprise management system based on the functional model (MFAM) is carried out by questionnaire method. Questions of the express evaluation questionnaire are divided into five groups according to model criteria. By an obtained mathematical model, analytical indicators, and grading scale, we define zones of effectiveness where enterprise management is taking place and build a matrix of opportunities for development of enterprise efficiency. *Result.* The research conducted confirms the methodology's efficiency, its uniqueness, and instrumental suitability. Based on experimental calculations, the algorithm of formation of performance evaluation system is determined, gradients and limits of the enterprise development are identified, the matrix of opportunities is formed, directions to improve the system of personnel motivation and evaluation are formed, and the model of the system for improving personnel motivation means is developed. Results of the enterprise personnel performance evaluation according to the developed system of indicators gave a possibility for managers of the company: to make a separate generalized profile of the appropriate group of the most successful co-workers; to form profiles of ideal co-workers, which are built given the idea of the leadership about the optimal combination of motivating factors, and to form effective directions for improving the motivation system.

**Key words:** European integration motivation criteria, motivation system, MFAM, performance evaluation, matrix of opportunities, motivation system improvement, motivation model.

**JEL Classification:** H87, H89

## 1. Introduction

Prospects of Ukraine's integration into European space provide for the activation of the use of a set of tools, mechanisms, factors aimed at the formation of a socially

oriented value system and the promotion of personnel, the creation of a modern system of personnel motivation.

At the same time, while focusing on pan-European values, it should be noted that the level and quality

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of human resources are an important foundation for development. In particular, the main tasks of the EU regional policy are: creating conditions for the development of viable entrepreneurship; support for economic restructuring; mastering of new production and management technologies; guaranteeing the provision of essential services to the population (training, educational, communal, medical aid); support for a new network and infrastructure; stimulating the development of tourism; restoration of the potential of territories of the country and separate regions.

The most striking differences in the level of economic well-being between Ukraine and the EU countries are observed in the process of comparing the well-being of citizens because the inherent confidence of citizens of the EU countries in the effective functioning of formal institutions and their awareness of a significant number of risks associated with the use of informal institutions are a factor of the openness of economic life and development.

In Ukraine, such institutions include: financial intermediaries and speculators who provide loans at excessive rates; personnel agencies, which reduce labour costs and employ for illegal work abroad; employers who pay low salaries or generally avoid payments. All of the above factors cause limited access to the necessary economic resources, low wages, reduced employment, poor quality of medical and cultural services, and are accompanied by a decrease in the quality of manpower, gaining profit in a dishonest way, the absence of moral order, corruption, bribery.

Such a situation contributes to the emergence of barriers to the adaptation to EU standards, which can be overcome by stimulating competition, developing the social and market infrastructure of the country, and improving the quality of its human resources.

Thus, Ukraine's integration into European space envisages activating the use of a set of tools, mechanisms, factors that are aimed at forming a socially oriented system of motivation and development of management that is an actual direction of research both for Ukraine and for other countries.

The purpose is to create a system for assessing the performance and a system of the motivation of managers

and employees of the enterprise, which would meet modern standards and requirements in the context of Ukraine's European integration.

The main research objectives are: the definition of key priorities for the formation of a system of assessment and motivation; the formation of the algorithm and the economic and mathematical model of the system for assessing and motivating the efficiency of personnel, zoning of the boundary priorities and forming a matrix of opportunities, the formation of an effective system for improving the system of personnel motivation and evaluation and the model of the system for improving personnel motivation means.

## 2. Presentation of the main material

In the presence of limited financial resources, enterprises of various sectors of the economy of Ukraine are looking for ways to enhance the competitiveness of their enterprises by increasing the personnel motivation to work and creating an adequate system of personnel management that can influence the behaviour of personnel, directing it to a more productive work, achieving competitive results of work and goals of the enterprise in the conditions of dynamic changes of the environment (Iliash, Kaperyz, 2011).

Each company has its own individual profile of motivational factors that need to be managed (Larka, Zorina, 2016).

There are a number of requirements that should be guided by the creation of a system of stimulation (Day, Wensley, 1988; Hutorova, 2009; Kozak, 2011):

- 1) objectivity: the size of the employee's remuneration should be determined on the basis of an objective assessment of the results of his work;
- 2) predictability: an employee must know what remuneration he will receive depending on the results of his work;
- 3) adequacy: the remuneration should be adequate to the labour contribution of each employee as a result of activities of the whole team, his experience and level of qualification;
- 4) timeliness: the reward should follow the achievement of the result as soon as possible (if not in the form of

Table 1  
Comparison of motivation systems in different countries

Country	Key signs of labour motivation	Characteristic features of the formation of motivation system
USA	Stimulation of entrepreneurial activity. Quality of execution. High qualification.	Participation in the company's profits and development. A combination of hourly and subcontract payment systems. Premiums for trouble-free work, long-term operation of equipment. Compliance with technological discipline. Dual-track system.
Great Britain	Income. Participation in profits in the form of a distribution of shares positively affects both the company and its employees, improves their attitude to work, creates a favourable atmosphere in the company, and stimulates more efficient work.	There are two profit-dependent types of modification of labour remuneration: cash and equity, which involves partial payment in shares. Work share participation. The employee receives income in three directions: basic salary, the share of income participation on the basis of labour, the share of profit based on the capital invested.



End of Table 1

France	Level of qualification. Quality of work. A number of rational suggestions. Level of mobilization.	Three approaches to individualization of wages: - in each workplace, the minimum wage and salary "brackets" are determined. The assessment of the work of each employee is carried out in relation to the work performed, - the salary is divided into two parts: set and variable, reflecting the efficiency of labour. Additionally paid awards for high-quality work; - enterprises are engaged in profits, sales to employees of the enterprise shares, payment of premiums. Score evaluation of professional skills, quality and productivity, compliance with safety, business ethics, participation in public life, initiative.
Germany	Quality of work. A person with his/her interests as a free personality, aware of his/her responsibility to society.	A harmonious combination of labour stimulation and social guarantees is one of the best models ever known in the history of economic theories.
Sweden	Joint liability and wages based on the following principles: equal pay for equal work, reduction of the gap between the size of the minimum and maximum wages.	The very system of determining the uniform level of wage increases contributes to its alignment: earnings rise for low-paid and restrained for highly-paid employees. The differentiated system of taxes and benefits. Collective social policy.
Japan	Labour effectiveness. Professional skills. Definition of age and length of service.	Flexible incentive system. Salary is established according to the tariff scheme, which determines the conditionally constant part of the salary of the employee as the amount of payments in three sections: for age, for the length of work, for qualification and skills, characterized by category and grade. Synthesized systems, where wages are determined by four indicators – age, length of employment, professional level, and labour productivity. Lifetime employment of a worker.
Ukraine	Labour productivity and efficiency.	The economic connection of goals of the personnel and the enterprise (to achieve the goals, the award is set). The predominant use of non-material and socio-psychological methods of motivation.

(Compiled by the author based on: Kushneryk, 2012)

direct remuneration, then at least in the form of a record for the next reward);

5) significance: the remuneration must be significant for the employee;

6) fairness: rules for determining the remuneration should be clear to each employee of the organization and be fair, including from the employee's point of view.

Comparative analysis of personnel motivation mechanisms at Ukrainian enterprises and enterprises of the developed market economy showed that domestic enterprises in the choice of motivation methods are oriented mainly on the work performance while ignoring the quality of work, professional skills and qualifications of the worker. Participation in capital and profit as one of the most effective motivational methods is almost not used in other countries.

### 3. Methodology

When developing a system of motivation, one must strictly adhere to the following basic principles: to pay for the result or for success; use only the transparent rules governing the difference in incomes between different groups and categories of employees; manage expectations of employees, if the motivation system created does not justify expectations of employees, it will not work; compete in the labour market.

We propose to form a modern model of motivational evaluation based on the evaluation management model

MFAM, which is elaborated by researchers of Sheffield Hallam University (Great Britain) and the company "IVA Consulting Group" (Watson, Maslow, Chileshe, 2004).

MFAM is based on six main management functions: Forecasting/Planning, Organization, Motivation, Control, Coordination, and Communication.

First five functions of management correspond to five evaluation criteria of the model and form a management structure that, in turn, determines the nature of relationships of the organization, that is, its communication.

The efficiency of the proposed motivation system should be evaluated according to three parameters:

1. Personnel loyalty.
2. Personnel performance.
3. Company's attractiveness in the labour market.

Personnel loyalty is estimated within a month after the introduction of new motivational schemes based on the coefficient of fluidity. For example, after the announcement of a new system of motivation in a large retail network, where staff turnover was more than 50%, this figure dropped to zero for several weeks. To estimate performance, more time is required, depending on the motivation system's goals. If employees need to focus on the growth of company value, it will take several years to see the results, and if on the increase in sales – a quarter or six months. Attractiveness in the labour market is assessed on the basis of indicators such as the number of candidates for a vacancy or the percentage of those

employees who agreed with the number of those whom the company made the offer.

It should be noted that redesigning and adjusting the system of motivation is a process, if not continuous, that is, at least cyclic.

Companies are constantly evolving, their market environment is changing, and new tasks are put before business in general and before separate units. Over time, existing incentive mechanisms inevitably reduce relevance and effectiveness. Therefore, it is very important to periodically monitor the performance of the incentive system and its compliance with the business goals and objectives. Then the process of the redesign will be planned rather than an emergency (Watson, Chileshe, Maslow, 2004).

Assessment of the management system of the organization based on the functional model (MFAM) is carried out by the method of questioning. The questions of the express assessment questionnaire are divided into five groups according to the criteria of the model (see Table 2).

Each question has five answers. Recall the scale of assessment (Table 3). The highest score for each of 25 rating categories (questions) is 4 points. Accordingly, the maximum result for each of these five criteria is 20 points.

Table 3  
**The scale of management activity evaluation**

Scale of evaluation	Category status
0	Activities are not conducted
1	Activities are changing from time to time
2	Activities are partly, depending on the situation
3	Activities are conducted on a regular and systematic basis
4	Activities are conducted as efficiently as possible (reference level)

Compiled by the author

It should be noted that this evaluation is carried out not only by managers, specialists of different levels but

Table 2  
**Method of two-way express evaluation by the criteria of MFAM**

Criterion/Category	Maximum	Estimation
1. Planning	(20)	
1.1. Setting goals and strategic objectives	4	
1.2. Collecting and analysing customer and market information	4	
1.3. Detailing the business process	4	
1.4. Collecting and analysing information about competitors and benchmark companies	4	
1.5. Resource planning	4	
2. Organization	(20)	
2.1. Formation of organizational structure	4	
2.2. Distribution of powers and establishment of areas of responsibility	4	
2.3. Conditions for self-education	4	
2.4. Implementation of the main process	4	
2.5. The effectiveness of the process of creating new values for customers	4	
3. Motivation	(20)	
3.1. Leadership and corporate culture	4	
3.2. Conditions for training and professional development of personnel	4	
3.3. The level of employees' needs	4	
3.4. Involvement of employees in the process of improvement	4	
3.5. Satisfaction of employees with the results of their activities	4	
4. Control	(20)	
4.1. Quality control system at every stage of the business process	4	
4.2. Criteria for evaluating the results	4	
4.3. Measuring the degree of consumer satisfaction	4	
4.4. Rational use of resources	4	
4.5. Correspondence of the obtained results to the established goals	4	
5. Coordination	(20)	
5.1. Connection and coordination of the first four functions	4	
5.2. Establishing internal interrelations of the organization	4	
5.3. Conflict resolution system	4	
5.4. Current deviation analysis: view and adjust plans	4	
5.5. Information management	4	
6. Communication (general management assessment = $\Sigma$ criteria 1-5)	(100)	

Compiled by the author based on: Watson P, Chileshe N, Maslow D. A., 2004

also by ordinary employees, that is, those who make managerial decisions. For obtaining objective data, the necessary condition is the survey participation of not less than 80% of managers and not less than 50% of employees. The average score for each of 25 rating categories (questions) is calculated according to the formula (maximum 4 points):

$$I_{cp.n} = \frac{I_{pyk.n} + I_{pab.n}}{2} \quad (1)$$

where:

$I_{cp.n}$  – average score by the category;

$I_{pyk.n}$  – average evaluation of leaders;

$I_{pab.n}$  – average evaluation of employees;

$n$  – evaluation category (question).

An estimate of each criterion is the sum of average scores of the categories corresponding to this criterion (maximum 20 points):

$$I_{krit.} = \sum_{n=1}^5 I_{cp.n} \quad (2)$$

where

$I_{krit.}$  – general estimation by criterion;

$I_{cp.n}$  – average score by the category;

$n$  – evaluation category.

Total Management Estimation (TME) of the organization is determined by the sum of estimations for all five evaluation criteria of MFAM (maximum 100 points):

$$TME = \sum_{n=1}^5 I_{krit.} \quad (3)$$

where:

TME – Total Management Estimation;

$I_{krit.}$  – the estimate for each criterion;  $n$  – estimation criterion.

Adequacy of the management of the enterprise is determined as follows: the advantage of the bilateral assessment system is that it can be determined how the leaders' presentation of the situation in the company is

consistent with the opinion of employees. Evaluation of leaders ( $I_{pyk}$ ) for each of 25 rated categories is compared with the corresponding evaluation of workers ( $I_{pab}$ ). The coefficient of management adequacy (KAM) is calculated using the following formula:

$$K_{AM} = \frac{I_{pyk} - I_{pab}}{4} \quad (4)$$

where: KAM – coefficient of management adequacy;

$I_{pyk}$  – average evaluation of managers;

$I_{pab}$  – average evaluation of employees;

4 – the maximum possible score by the category.

An analysis of the coefficient of management adequacy by individual evaluation categories can be conducted using the graph (see Figure 1).

Adequate estimation zone of management capabilities: from -0,1 to 0,1 (upper and lower points are included in this zone).

Indicators of this zone characterize the adequate perception of employees of management decisions, the leader and the team are guided by the same principles in the work, which contributes to the harmonious development of the organization. Managers, using such a situation, have an opportunity to continuously improve the business process.

Underestimation zone of management capabilities: from -1 to -0,1 (the lower point is included in this zone).

The underestimation zone indicators reflect the lack of leadership skills of enterprise managers. There are potential opportunities to improve the management system. Employees evaluate the activities of the company higher than leaders. It is needed to use this situation to adjust the position of managerial personnel and to enhance the processes of improvement.

Overestimation zone of management capabilities: from 0,1 to 1 (the top point is included in this zone).

Indicators of the overestimation zone reflect differences in the opinions of leaders and employees regarding the situation in the enterprise. In this case, most managerial

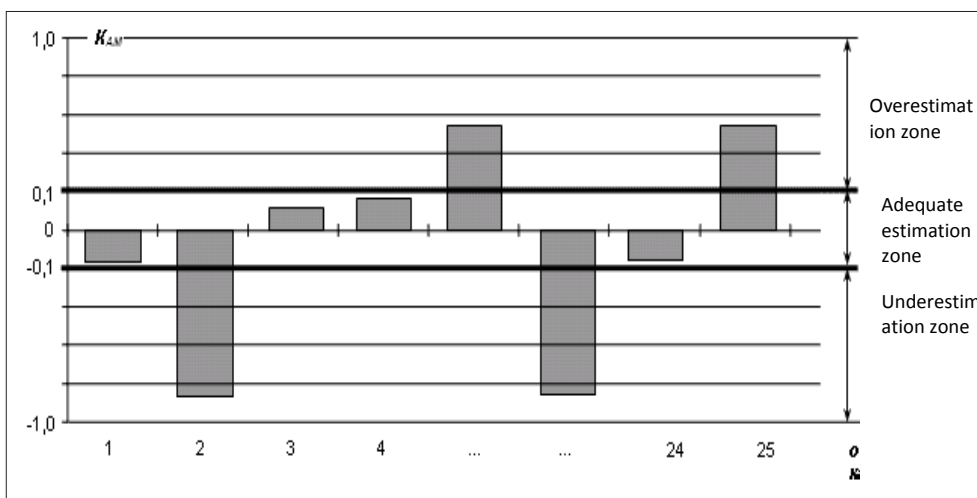


Fig. 1. Zonal distribution of estimation criteria

decisions may face the internal resistance of the team, and various kinds of transformations initiated by management will be completely ineffective (Korytko, 2012).

The primary tasks of management here are: the identification of causes of inconsistencies, analysis of categories, where the maximum differences in the evaluation are traced; establishing a more close contact with personnel; determining the degree of employee satisfaction; strengthening corporate culture.

*Personnel cohesion.*

An important element of the analysis in the system of self-assessment on the basis of MFAM is the definition of the personnel cohesion coefficient (KCK). This ratio reflects the polarity of opinions within the organization. For each question (category), the variance of employee estimates is calculated according to the following formula 5:

$$K_{CK} = \frac{m \sum (I_{pa6.n})^2 - (\sum I_{pa6.n})^2}{m^2} \quad (5)$$

where

- KCK – personnel cohesion coefficient;
- m – the number of interviewed employees;
- $I_{pa6.}$  – evaluation of employee;
- n – the number of the question (category).

An analysis of responses of employees makes it possible to identify the zone of unity and polarity of opinions in the staff. The zone of unity is within the value of the coefficient of agreement from 0 to 1 inclusive.

In the zone of polarity, the value of the coefficient, respectively, is between 1 and 4. The categories, by which workers gave an equivalent assessment, have a greater potential for making effective changes, as the situation in this area is equally perceived by the entire personnel. Indicators in the polarity zone require a top-priority analysis of reasons for the discrepancies. Otherwise, any improvement plans will be inadequately perceived by the personnel, and the effectiveness of the changes will be at best low, or the effect will be negative at all (Kindermann, 2002; Dykan, 2008).

Further analysis of the survey results involves identifying correlations between the coefficients of management adequacy and the personnel cohesion coefficient. The main task of the final stage of self-evaluation is to more accurately determine the effectiveness of changes in one area or another. The analysis tool here is the matrix of opportunities for improvement (see Fig. 2).

Depending on which of the zones a point with coordinates (KCK; KAM) falls, the degree of improvement opportunities on the investigated indicator is determined. We distinguish four zones of analysis:

1. Effective zone: the effectiveness of the program for improving management efficiency is high.
2. Working zone: the stable probability of improvement.

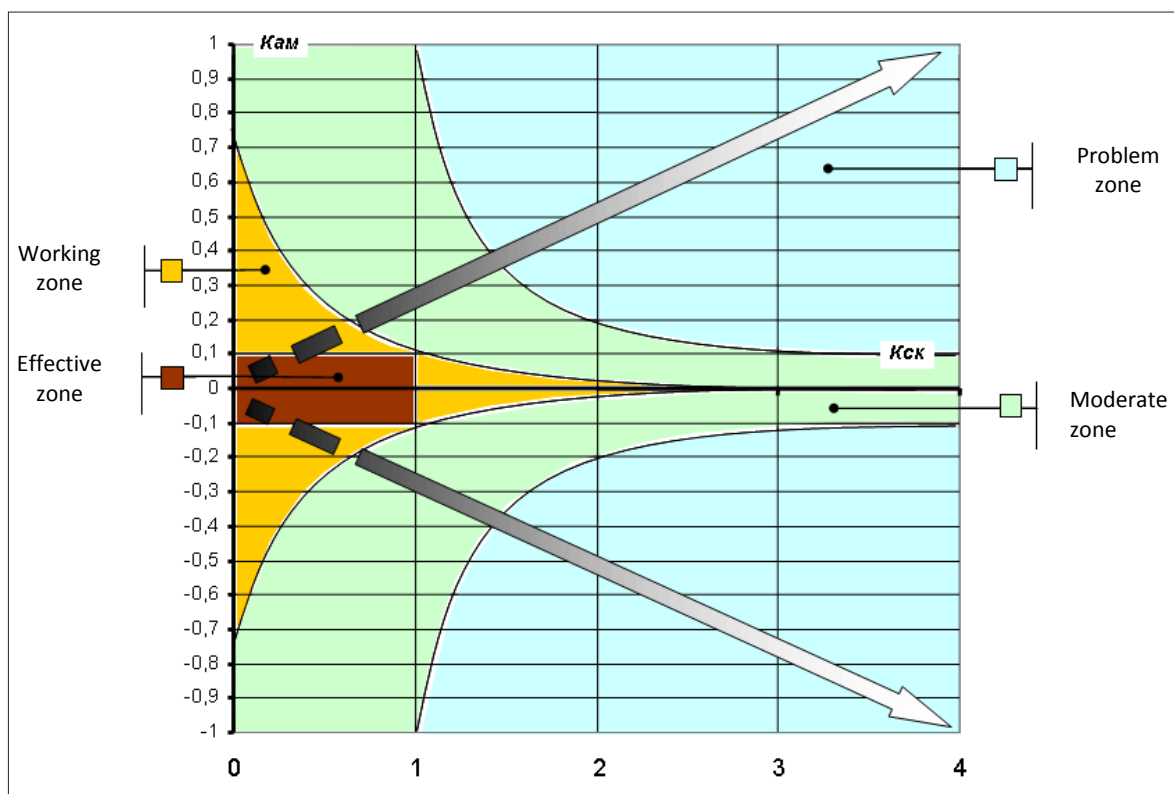


Fig. 2. The matrix of opportunities for developing efficiency

3. Moderate zone: implementation of a program of improvement requires a detailed preparation and preliminary analysis of coefficients.

4. Problem zone: the development and implementation of a program of improvement should begin after a thorough examination of the unsatisfactory indicators of KCK, KAM.

#### 4. Result

The experience of the experimental application of the model shows that the functional evaluation model helps to systematize the management approach, thus enhancing competitiveness and improving business results of organizations. In Table 4, we specified the competitive advantages that the enterprise received by using the MFAM.

In general, the algorithm of organizational self-esteem based on a functional model of management assessment can be represented as follows:

Step 1: Calculating the overall management assessment.

Step 2: Analysis of the results obtained for 25 categories of the model.

Identification of strong and weak areas in the management system.

Step 3: Calculation of the coefficient of management adequacy, KAM.

Step 4: Calculation of the personnel cohesion coefficient, Kck.

Step 5: Building a matrix of opportunities for improvement.

Analysis and definition of possible directions for improvement.

Table 4

#### Competitive advantages when applying a functional model of self-esteem

Key growth points	Competitive advantages obtained
Improvement of processes	A clear understanding of how to create value for the consumer
Achievement of the organization's goals	Implementation of strategic goals and objectives, based on available opportunities and disclosure of the organization's strengths, taking into account the views of employees
Comparison of key performance results with benchmarking	Ability to measure the dynamics of improvement and the level of achievement of the set goals, having determined the limits
Development of an operational planning system based on the organization's policy and strategy	Clarity and unity of goals within the whole organization contribute to the effectiveness of the process of continuous improvement
Combining all initiatives to improve into a single system	Interconnection of all areas of activity within the framework of a systematic approach to making managerial decisions
Development of team activity	Teambuilding on the basis of common values, trust, corporate culture, ethics

Step 6: Re-evaluation and analysis of changes (repeat steps 1-5).

In this regard, it makes sense to propose a flexible system of indicators for assessing the employee's business qualities (BQ) and evaluating the summarized results (SR) of his/her work, the essence and content of the indicators and their score are disclosed in Table 5.

Table 5

#### Essential distribution of indicators of labour evaluation by criteria

The essence of the indicator and its evaluation	1-low	2-middle	3-high	4-highest
	Extremely unsatisfactory results	Rather unsatisfactory than satisfactory	Quite satisfactory, but not always excellent results	Always excellent results
Signs (criteria) of the employee's business qualities (BQ)				
1. Diligence within the scope of labour duties. Readiness to perform production tasks entrusted by the manager.	Undiligent, inclined to avoid receiving new tasks under any circumstances.	Low level of diligence. Sometimes tries to avoid getting new tasks.	A good level of diligence, but not every day without exception.	Excellent level of diligence. Always perform duties and assignments.
	0,20	0,30	0,50	0,80
2. Ability to cope with duties and instructions. Ability to identify and solve emerging problems.	Often cannot cope with duties and instructions. Cannot detect problems and hardly solves them.	As a rule, copes with his/her responsibilities, but not always performs them properly. Poorly solves problems.	Copes well with responsibilities, skilfully solves problems but requires control from the head.	Able to handle duties perfectly. Always skilfully detects and quickly solves problems.
	0,20	0,50	0,50	0,80
3. Working capacity and/or ability during each working day to focus only on the performance of work.	Inattentive. Able to maintain efficiency for a short time, constantly diverting to issues not related to work.	Tired of increasing labour intensity, keeps the average working capacity during the working day. Often distracted.	Able to maintain a fairly high level of productivity during the working hours, but not always active.	Active throughout the working day. Always ready to work hard and intensely. All attention is concentrated only on work.
	0,20	0,30	0,50	0,80

End of Table 5

4. Competence. Knowledge of using techniques and methods of work and the ability to accurately follow them, the presence of the necessary skills.	Incompetent. Does not possess the basic techniques and methods of work and does not seek to master them.	Knows the basic techniques of work not well, while having weak skills and slowly developing them.	Knows the methods of work well, but there is a need for further competence development.	Competent. Excellent knowledge of all methods of work; strictly follows them every day.
	0,20	0,30	0,50	0,80
5. Interests and activities in matters of improving the quality, productivity of work, and development of effective working methods.	Often opposes the introduction of new technologies, methods of work aimed at improving quality and productivity.	Does not resist, but does not show interest in issues of improving the quality and productivity of work.	Always supports all innovations, helps to learn new methods of work.	Not only actively helps to master new methods of work, but often presents various innovative proposals.
	0,10	0,15	0,25	0,40
6. Ability to maintain working relationships with other employees of the enterprise. The absence of conflict.	Hard to get along with. Often creates conflict situations and tension in the team.	Not always and not with everyone can maintain normal working relations.	Able to maintain working relationships with colleagues in work, but one cannot say that he/she actively cooperates with them.	Able not only always and with all to maintain normal working relationships, but also actively cooperates with others, provides them with assistance.
	0,10	0,15	0,25	0,40
Signs (criteria) of summarized results of work of an employee (SR)				
7. Execution of the planned volume of work according to assigned production tasks.	No scheduled work was performed on assignments in time.	There have been cases of incompleteness in the full scope of the planned work on assignments.	Executed the entire volume of the planned work, but there were cases of violation of terms.	All planned work on assignments was carried out in full volume and in due time.
	0,30	0,45	0,75	1,20
8. Quality of work, tasks performed.	The work was carried out poorly. There were cases of shortage and return of tasks for work.	Although very rare cases of lack of work, there were errors and shortcomings.	The work was carried out quite qualitatively, but there were small errors.	Works were executed impeccably, neatly, without defects, in strict conformity with standards.
	0,40	0,60	1,00	1,60
9. Discipline. Compliance with labour, industrial, and technological discipline.	Undisciplined, indifferent, unpunctuality, there was a gross violation of discipline.	There were significant violations of discipline.	Disciplined, punctual in general, but there were minor violations of discipline.	There was no case of discipline violation during the attestation period. Punctual in all details.
	0,30	0,45	0,75	1,20

On the basis of the assessment of the employee's business qualities (BQ) and the summarized results (SR) of his work, an integrated assessment of the enterprise personnel is calculated, using the formula:

$$\text{Integrated Assessment} = (\text{Business Qualities}) + (\text{Summarized Results}) \quad (6)$$

Comprehensive evaluation of labour, as well as indicators of business qualities and criteria of summarized results of work of an employee, are compared with the average values of the relevant indicator on the whole for the enterprise in this way: if the individual value of the indicator falls within the range of  $\pm 30\%$  of the average – the employee's activity is recognized as average, at the value more than 30% – successful, otherwise – unsatisfactory.

The flexibility of the proposed system of indicators is ensured by the possibility of carrying out a comprehensive assessment of the work of the personnel of the industrial enterprise by the general characteristics (attributes) inherent in any type of labour activity.

The results of a comprehensive evaluation of work are formalized in the form of motivational profiles – individual for each employee or consolidated for a unit or the whole enterprise.

The results of evaluating the company's personnel in accordance with the developed system of indicators provided an opportunity for managers (Day, Wensley, 1988; Korytko, 2012):

- to make a separate generalized profile, corresponding to a group of the most successful employees;
- to form profiles of ideal employees, which are formed

on the basis of the idea of the leadership about the optimal combination of motivating factors (Nikitin, Rukas-Pasichnyuk, 2016).

With the help of profiles of successful and perfect employees, one can get a set of motivators and tools of motivation, which most completely meet the requirements of the enterprise. At the same time, evaluation of the results of the personnel activities allows management to identify the most prominent workers and really raise the level of their achievements, developing significant for the company qualities and skills of the employee (Iziumtseva, Myronchuk, 2012).

The methodology for assessing the enterprise personnel efficiency is an integral part of the organizational and economic model of assessment and motivation of the work of personnel. This is due to the fact that the results of the assessment of labour efficiency conducted in accordance with the developed methodology will allow improving the system of personnel motivation at the enterprise and increasing the efficiency of the enterprise personnel management by: positive action on the motivation of employees – the feedback has a beneficial effect on the motivation of employees, allows them to correct their behaviour in the workplace and achieve increased productivity.

In developing programs and measures to improve the system of assessment and motivation of personnel of an industrial enterprise, it is also necessary to take into account global trends and forecasts in personnel management (Potemkin, 2011):

- the transition of motivation to the strategic level;
- increasing participation of personnel in corporate governance;
- increase in the cost of health services and, consequently, increase in the importance of voluntary health insurance as one of the motivators;
- introduction of new information technologies in personnel management;
- aging of the labour force;
- increase in the number of claims to employers.

Proceeding from world trends and taking into account domestic specifics, to ensure the effectiveness of the system of evaluation and motivation of labour of the enterprise personnel, the following provisions must be observed:

- creation of conditions for the continuous self-improvement of participants in labour relations at the enterprise;
- use of specialized motivational programs in expanding the authority of the team in the adoption of managerial decisions;
- formation of new market values of labour, shared by all participants in production processes;
- flexible and adaptive use of human resources, the formation of a humanized organizational culture of the enterprise.

On the basis of these principles, it is possible to give grounded priority directions for improving the system of motivation and evaluation of labour of the personnel of the industrial enterprise, which are presented in Table 6 (Semenov, Sharko, 2009; Semikina, 2011).

Improvement of personnel motivation system at the industrial enterprise means reconstruction of the structure of motivating factors – the process is long and hard to foresee. Methods may vary from the creation of a system of internal corporate measures to change the corporate culture or the structure of business processes (extension of powers of certain groups of employees, change of control system). The main principle of changes: a new system of motivation should meet the enterprise goals (Semikina, 2011).

Having analysed Table 6, it can be seen that, for example, the remuneration system for superannuated work has much greater versatility than the scheme of share participation in business (Temchenko, Lisnichenko, 2010).

Basic motivation means allow satisfying mostly first-level needs. Additional means provide a possibility to realize the spiritual and intellectual potential of the worker. Based on developed concepts and models of improvement of motivation means, it is possible to create a complex program. The mission of this program is to create an effective system of personnel motivation that ensures an increase in the business activity of employees on the basis of the disclosure of their personal potential.

The main objectives of the program are to increase the personnel's interest in high-performance work and develop a system of compensation payments and benefits for personnel.

Today, when due to a difficult economic situation, a special attention should be paid to non-material stimulation, creating a flexible system of employee benefits, humanizing work, in particular:

- to recognize the value of an employee for the organization, to provide him with creative freedom, to apply programs of enrichment of work and rotation of staff;
- to use flexible schedule, part-time working week, opportunity to work both in the workplace and at home;
- to set discounts on the products produced by the company (to issue cards for the use of gasoline);
- to provide facilities for recreation and leisure, provide free vouchers, issue loans for the purchase of housing, garden area, motor vehicles, and so on.

It is advisable to form the motivational system at the enterprise in such a way that each employee is interested in delegating him a greater share of authority and directing each work to a positive result. It is necessary to develop performance indicators for employees based on the strategic objectives of the enterprise, and not simply to make the implementation of certain indicators dependent on wage payment. In this way, each employee will work to achieve the goals set by the enterprise

Table 6

**The formed directions for improving the system of motivation and evaluation of personnel work**

Directions for improving	The essence and possible results of the implementation
The motivation of the personnel by its external hobbies.	The passion for external interests – sports, hobbies, or other things that are not directly related to work, is typical for dynamic employees who have a significant growth potential. Aspirations of employees to achieve high results in the area they are interested can be used to stimulate their growth and motivation in the workplace. The positive attitude and encouragement from the management of interests of personnel are positively reflected in his/her work. In addition, the management, possessing information about employee's external hobbies, receives additional and effective tools of his/her labour motivation.
Independent personnel assessment of the degree of success of the work performed.	Employees, who constantly monitor their activities, are able to notice and document the growth of their own professionalism. They create for themselves a table of ratings and celebrate their victories and defeats better than the leader. The incentive and encouragement of the personnel as a result of self-assessment by the management provides additional motivational.
Individual approach to the motivation of each employee.	Different employees have different goals and desires and, therefore, they need to provide different opportunities for work and professional growth. To increase motivation, one needs to find an individual approach to each subordinate. One of the ways is to delegate the authority, goals, and objectives to each employee when developing a general plan or project. Another way is to provide subordinates the opportunity to independently develop their own strategic tasks and plans.
Operative data exchange within the enterprise on the work of personnel.	Allows timely receiving and monitoring the performance of employees and fulfilling their official duties, production tasks, and orders of leaders. The more information and operational exchange, the higher the motivation.
Availability for the staff of remuneration system accepted.	Arbitrary incentives and rewards negatively affect motivation. If the program of motivation is not enough for employees, it is necessary to explain in detail its essence, goals and tasks, the possibility of influencing their current activities.
Creation of a bank of ideas.	Most of the ordinary employees have their opinion and a number of ideas about improving the technology and production and economic activities of the enterprise as a whole. Thanks to practical knowledge and proximity to production processes, some employee ideas are valuable to management.
Motivation by knowledge.	In order to achieve professionalism in any work, an employee should strive to become the best in his specialty. A person enthusiastic about learning will necessarily grow up in office and develop additional useful skills.
Awarding individuals for the total contribution of the group.	In teamwork, individual merits of employees often remain unaccounted for, as companies tend to recognize the success of the group as a whole. However, direct heads and colleagues need to note the contribution of individual employees to the general business, only so a person can be encouraged and motivated to further activities.
Support for the positive exchange of information between employees.	Personal positive evaluations of the work of employees are an effective motivating factor. A corporate culture that supports the desire to give positive evaluations of consequences of the task increases the level of motivation and productivity.
It is necessary to search and accept people with internal motivation.	When hiring staff, managers tend to be interested in their level of competence. However, the very relation to work determines the motivation, which, in turn, has a major impact on the employee's aspirations for learning and quality work.
Rewarding employees is expedient to carry out in smaller volumes, but more often.	Most companies have a widespread practice of awarding valuable rewards to employees and paying large bonuses for the project, quarter or year. The ceremony for awarding the best passes rarely and attracts a close attention of all employees of the company, but of course they have less effect on motivation than not so big but more frequent incentives that give employees more chance of success.
Motivation by control	Heads are convinced that control is their prerogative. But control can also be a motivator. The main idea of this method is to provide employees with the opportunity to make decisions on all issues that do not require centralized control.
Specification and clarification of tasks.	An employee should be clear what he is doing, why he does it, and how well he performs his job. Studies have shown that the clarity of tasks more influences the motivation of employees than their experience or the size of the bonus. It is possible to achieve great results if help colleagues to see their personal contributions to the general business and regularly, promptly, and accurately evaluate their work.

Compiled by the author based on: (Semikina, 2011; Temchenko, Lisnichenko, 2010)



and personally will be interested in their achievement through the system of motivation. A particular attention should be paid to the development of a motivational system for production personnel, which would reduce staff turnover and unite production personnel at the plant, creating stable groups (gangs) that would be interested in achieving the objectives set by the plant and aware of their contribution to their achievement.

To develop a system of advanced training for mid-level managers: to conduct a series of training for employees, to oblige the HR department to find specialized seminars, trainings for enterprise management, and conduct such training on an ongoing basis.

To automate the personnel department in order to facilitate and improve the work of the latter.

To improve the motivation system, one can use a motivation system that aims to improve motivation means (see Figure 3).

The basic means of motivation can satisfy mainly the needs of the first level. Additional means provide an opportunity to realize the spiritual and intellectual potential of the worker. Based on the developed concepts and models of improving the means of motivation, it is possible to create a comprehensive program. The mission of this program is to create an effective system of personnel motivation, which ensures the increase of the business activity of employees on the basis of the disclosure of their personal potential.

The main objectives of the program are to increase the interest of the staff in high-performance work and to develop the system of compensatory payments and benefits for personnel.

Thus, within the framework of the program, there are 5 main directions of activities:

- creation of a new motivational environment, which helps to identify the reserves of employees as the main resource of the organization's internal development;
- development of basic organizational, regulatory, and methodological documents on the program formation;
- providing methodical assistance to the heads of departments in the formation of a new motivational mechanism;
- organization of broad propagation of the program's goals and objectives;
- questionnaires and surveys of personnel to clarify the program's goals and objectives.

### 5. Conclusions

According to European choice, Ukraine launches a new process of changes that should be based on the European human-centred system of pan-European values based on the observance of the integrity of human dignity, freedom of choice and fair working conditions, the creation of equal starting conditions and opportunities for promoting development and implementation of innovative, intellectual, cultural, creative abilities of the person in the process of labour activity, access to social guarantees, satisfaction of socio-economic and psychological needs of employees, social solidarity, social mobility towards obtaining professional knowledge, mastering of innovative technologies, tolerance, etc., which is a prerequisite for the formation of an effective system of personnel motivation at domestic enterprises and is aimed at meeting the person's personal needs according to moral, spiritual, cultural, educational preferences, achievement of the highest quality of working life.

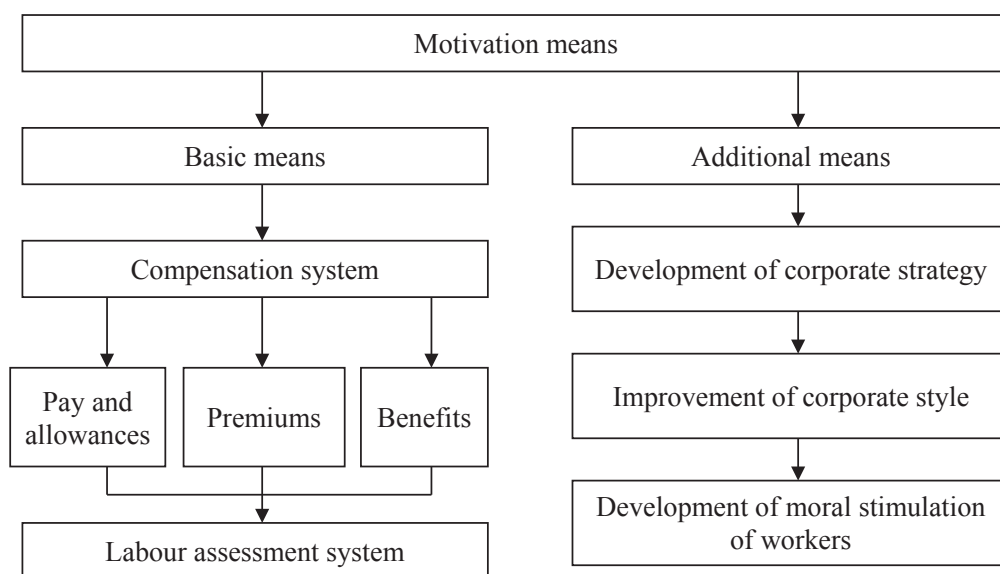


Fig. 3. Model of the system of improvement of personnel motivation means

Compiled by the author based on: Zhyvko, 2010; Iliash, Kaperyz, 2011

It is advisable to create a motivational system at an enterprise in such a way that each employee is interested in delegating more weight to his authority and directing each one to a positive result.

The effectiveness of the system of motivation should be evaluated in three parameters: personnel loyalty; productivity of personnel activities; company's attractiveness in the labour market.

We determine prospects of further research by

the following directions. It is necessary to develop performance indicators for employees based on the set strategic objectives of the enterprise, and not simply to make the implementation of certain indicators dependent on wage payment. In this way, each employee will work to achieve the goals set by the enterprise and will be personally interested in their achievement through the system of motivation.

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# GLOBAL EXPERIENCE OF SOCIAL ENTREPRENEURSHIP DEVELOPMENT

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**Abstract.** *The purpose of the article* – to reveal features of the implementation of social entrepreneurship in the world. *Methodology.* The theoretical and methodological framework of scientific developments consists of the research of scientists of modern times who work on the solution to development issues of social entrepreneurship in countries of the world, research data of consulting institutes, own research results. In order to provide validity of research results, the following methods are used: generalization – in the critical analysis of the content of works of scientists on solving the problems of the development of social entrepreneurship; information-logical analysis – when studying data of international consulting institutes and associations; comparison – when comparing directions of the state support for the development of social entrepreneurship in different countries of the world; cause and effect relationship – for obtaining final conclusions. *Results.* This article reveals optimal conditions for developing social entrepreneurship in countries of the world. A portrait of a successful entrepreneur of the world is formed. The state of social entrepreneurship and the directions of its development in advanced countries of Europe, America, and Asia are analysed. Possibilities of adaptation of the global experience in the social entrepreneurship development for Ukraine are determined. *Practical importance.* Results of this research can be useful for the Ministry of Social Policy of Ukraine, the Ministry of Economic Development and Trade of Ukraine. *Value/originality* – there are clarified conditions and strategic measures on the development of social entrepreneurship in Ukraine. Further research should be aimed at the improvement of stimulating mechanisms for the social entrepreneurship development as a global tool for solving problems of the socio-economic development of countries of the world.

**Key words:** Social enterprise, social entrepreneurship, conditions of social entrepreneurship development, state support, Europe, America, Asia.

**JEL Classification:** I38, H44, L31

## 1. Introduction

The world experience persuasively testifies that even the growth of socially necessary costs, social responsibility in the field of entrepreneurship, and improvement of the functioning of the “third sector” of economies of many countries of the world are not able to solve the whole complex of existing socio-economic problems. This lays emphasis on a low efficiency of interaction of public sector and business structures, activities of organizations of the “third sector” towards overcoming unemployment, social inequality, numerous wars, ethnic rivalries, gender discrimination, poverty, etc. And, then, is the main reason for deepening research

related to studying the role of social entrepreneurship as one of the forms of business organization, as well as stimulating mechanisms for its development in the world economic practice of entrepreneurship.

## 2. Literature review

Social entrepreneurship as a scientifically meaningful problem became widespread in the early 90s of the XX century; it was interpreted as an innovative approach, by which individuals can solve the serious social problems that their community faces (Drayton, 2011). The concept of the social entrepreneurship development and the promotion of the social economy

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is now a part of the EU's policy to overcome the social isolation of people in a fragile situation. As a result, the search for ways of achieving social goals within the framework of sustainable and inclusive growth, reflecting the experience of Bulgaria, is of a significant interest (Terziev, Nichev and Arabska, 2017). Generalization of American and European experience in social entrepreneurship, approaches of Russian scholars based on empirical research data (Hoogendoorn, Pennings and Thurik, 2010; Poltavskaya, 2015) allows asserting that social entrepreneurship as a branch of scientific research is at the stage of birth. And thus, there are virtually no effective mechanisms for its development stimulation. At the same time, development of theoretical provisions of social entrepreneurship, as confirmed by current studies, should be based on results of analysis, which covers the contribution of value generation, value comparing, and resource exchange efficiency and social entrepreneurship should be seen as an integration structure that promotes a clearer understanding of the process of creating social value (Hlady-Rispal and Servantie, 2018). In the context of the direction of these studies, the authors propose a variety of examples of solving social problems, in particular, the creation of municipal Economic Justice Incubators, the purpose of which is to solve the problems of employment of former prisoners (Baskaran, 2018). The importance of distributing non-profit organizations in the field of healthcare is also emphasized; in particular, the experience of India in this direction is interesting. In order to improve the sustainability of charity hospitals, it is proposed to focus attention on ensuring long-term financial well-being, disseminating and integrating the best practices of this type of social enterprises by expanding learning opportunities and sharing knowledge (Chowdhury, 2015). For certain countries of the world suffering from socio-economic conflicts as a result of hostilities, ethnic rivalries, social entrepreneurship is considered as a mechanism for their solution on the set of positive effects from the activities of social enterprises and taking into account scenarios of the possible course of events in society, given the existing trends in the world (Kryvovyazyuk and Haranchevskaya, 2017). Along with that, one should note the relationship of social entrepreneurship with the concept of sustainable development, which is achieved through the social reorganization and inclusive entrepreneurship (Saxena, 2011). This can serve an opportunity for further adaptation of separate regulatory tools, which positively influence the sustainability of the socio-economic ecosystem in the nearest region of the enterprise operation in relation to the stimulation of development of social entrepreneurship in whole. It is also necessary to study features of state regulation of socio-economic responsibility of business (Batchenko and Dielini, 2017), which can be a positive experience for Ukraine.

### 3. Conditions for social entrepreneurship development in the world and successful social entrepreneur's portrait

According to data from the research of famous American foundation (Thomson Reuters Foundation, 2016), top 15 countries with the best conditions for the development of social entrepreneurship include today the USA, Canada, Great Britain, Singapore, Israel, Chile, South Korea, Hong Kong, Malaysia, France, Switzerland, Germany, Italy, Columbia, and India. These countries have formed the best governmental support for social entrepreneurship, conditions for attracting qualified personnel, receiving respectable wages, attracting investments, understanding by the society of the need for social changes, provision of the growth of this sector of the economy.

This convincingly shows that social entrepreneurship has become widespread in a large part of the world countries due to the principles of activities aimed at solving the existing social problems by means of introducing innovative entrepreneurial methods of work and providing the effect of a scale that reaches the international boundaries. Along with that, each team of social entrepreneurs is oriented to leaders who, due to their exclusive initiative and volunteering provide the accessibility of objectives to be achieved.

If we reduce all leaders of the rating of successful social entrepreneurs of the world to uniform parameters (Forbes Gallery, 2012), their portrait will be as follows: they are mostly men (66.7%) aged 18-28, less often – women (33.3%) aged 20-29; absolute majority of them – representatives of the USA (70.0%), also there are representatives of Asia (12.9%), Europe (6.5%), Africa (6.5%), and other continents (4.1%); all of them are founders or cofounders of social entrepreneurial structures, and sometimes combine it with their activities' management as general directors; among the selected spheres of social assistance, the priority belongs to medicine (20.0%), education and learning (20.0%), dissemination of information technology (20.0%), energy preservation (10.0%), issues of ecology and environmental protection (6.67%), solving food supply problems (6.67%), issue of infrastructural development (6.66%), and other services (10.0%); by scale of development of social assistance, activities of entrepreneurs are directed to the solution of problems: in the world in whole (23.3%), in countries of Africa (33.3%), in countries of Asia (13.4%), in countries of America (30.0%).

Research results showed that the most active social entrepreneurs direct the main attention to satisfy secondary and tertiary needs of people – in preserving health, education, as well as in solving environmental problems.

#### **4. The state of social entrepreneurship and the directions of its state support in the advanced countries of Europe**

A number of countries of the world – Great Britain, Germany – are among the countries with the best conditions for developing social entrepreneurship.

According to research data of SEUK (Temple and Gregory, 2017), in Great Britain, there are 67-70 thousand social enterprises, employing about 1 million workers, generating about 24 billion pounds sterling of revenue from activities, according to various estimates. A significant share of social enterprises operates up to 5 years (49%). About 34% of such enterprises carry out activities at the local level. More than 75% of trade income accounts for 74% of social enterprises, the largest share of which accounts for the state sector of the economy (20%). About 18% of income comes from international activities. The share of social enterprises, which produces innovations, in Great Britain is 50%, while among small and medium-sized businesses – only 33%. It should be noted that two-thirds of social enterprises support people from disadvantaged groups, and 44% employ them. The average salary of the head of a social enterprise is 36 115 pounds sterling. About 51% of social enterprises are looking for funding of fewer than 100 000 pounds sterling. The most common form of financing activities – grants (82% of social enterprises applied for grants).

Such an activity is achieved due to the legislative consolidation of social entrepreneurship, local authorities' support, and proper regulation of the development of social entrepreneurship. Among the most effective methods and forms of state support for this sector should be distinguished: preferential taxation, state financing, support for enterprises engaged in the development of the local community by giving a priority to participation in tenders, promotion of the development of social entrepreneurs' vocational education, creation of an investment fund of financial support for the development of social entrepreneurship, creation of a department of social entrepreneurship issues at the Department of Trade and Industry, interaction of public authorities with non-state, public organizations, oriented to social entrepreneurship, associations and unions of entrepreneurs (Social Enterprise UK).

As the results of the research program "Social Entrepreneurship as a Force for more Inclusive and Innovative Societies" (SEFORIS, 2016) show, in Germany, there are now about 100 thousand social enterprises employing about 2.5 million workers. About 29% of social enterprises operate for less than 5 years. Germany is defined by the prevalence of social enterprises' cooperation with the national government (21%) along with the cooperation with local and regional governments. The share of German social

enterprises producing innovation is 88%, which is the third indicator in the world after Sweden and China. Activities of social enterprises of this country focus on the development of the community, employment, and training (25%), education and research (22%), and healthcare (15%). The main sources of financing of German social enterprises are levies and sales in the market or governments (43%), grants (29%), and donations (10.5%).

Directions of state support for social enterprises of Germany include: exemption from corporate income tax, inclusion of social enterprises as separate categories of target groups in state support schemes, financing of such enterprises by the national development bank and EU structural funds, promotion of volunteering, social enterprises' support at the local and regional levels, legislative consolidation of development of social entrepreneurship.

#### **5. The state of social entrepreneurship and the directions of its state support in the advanced countries of America**

The USA is the best country where business leaders strive to solve social problems. According to research data (Social Enterprise Alliance, 2018), there are about 140 thousand social enterprises registered in the country that receive over 500 billion dollars of income and provided jobs to more than 10 million citizens, whose wage fund is at least 8.3% of the country's payroll budget. Along with that, up to 40% of these enterprises have fewer than five employees and only 8% – more than 100 employees; 45% of enterprises have income less than 250 thousand dollars; 22% – more than 2 million dollars; 35% of social enterprises – non-profit organizations; 20% – affect the economic development of the USA; 16% – focus on the workforce development; less than 10% – focus on the international level.

State support for the development of social entrepreneurship in the USA is one of the best in the world and ranks 6th in the ranking of the best countries for the development of social entrepreneurship (Thomson Reuters Foundation, 2016) and is realized in the following directions: stimulating social innovation, creating favourable conditions for support, promoting the dissemination and development of successful social initiatives, disseminating information on effective solutions to social entrepreneurship. One should also note a significant role of the Social Enterprise Alliance in the support for social enterprises of the USA.

Canada occupies the second place in the world for the creation of conditions for the development of social entrepreneurship, including the first by the possibility of access to capital, the ability of social entrepreneurs to make a living due to work, as well as the pace of development of social entrepreneurship (Thomson Reuters Foundation, 2016). The number of social

enterprises in the country increases annually and is close to their number in the USA. Thus, only Ontario has registered 10 thousand social enterprises that have formed investment capital of 2.5 billion USD. Social enterprises of Canada (Elson, P., Hall, P. and Wamucii P., 2016) mostly operate at the local level (58%), much less at the national (13%) and international level (10%). The main financial sources of their activity are grants (77% of social enterprises), banking credits (8%), finances of credit associations (7%), government structures (2%), financing of private persons.

The state significantly promotes the development of social entrepreneurship by means of support for social initiatives, promotion of volunteering, social entrepreneurs benefit from Social Venture ConneXion – the first platform named MaRS and TMX group that unites social enterprises with funds and investors.

## 6. The state of social entrepreneurship and the directions of its state support in the advanced countries of Asia

Among the countries of Asia that create the best conditions for the development of social entrepreneurship, there are Singapore, South Korea, Hong Kong, Malaysia. Along with that, we consider appropriate to distinguish those providing the best state support towards the solution of social problems – South Korea and Singapore that fairly took the first and the second places correspondingly in the field of state regulation of social processes (Thomson Reuters Foundation, 2016).

Development of social entrepreneurship in Singapore (Watanabe and Tanaka, 2016) is considerably promoted by a lower corporate tax (17%) compared to other Asian economies – Japan (40%), China (25%), and South Korea (24%). In 2015, the National Council of Social Service (NCSS), Ministry of Social and Family Development (MSFD), Tote Board, and SEA established a new centre named “raiSE” for supporting the development of social enterprises by means of creating a centralized support window. It provides services to new social entrepreneurs on issues of financial support (in the form of grants and investments for covering different business stages, including start-ups), advisory services (on issues of cooperation with large corporations), education services (providing educational programmes), provision of offices. About three out of five social enterprises in Singapore participate in raiSE and took advantage of these additional opportunities.

South Korea, unlike most of the countries with favourable development conditions for social entrepreneurship, has a much smaller number of social enterprises. According to research results (Cagney, 2018), there are 1814 entities, however, all of them are certified by the Ministry of Labour and Employment

Affairs and KoSEA, which allows receiving significant preferences from the state and, in particular, funds for the reimbursement of labour costs. Social enterprises employ about 30 thousand people; the share of their contribution to the country's GDP structure is 3%. In their activities, enterprises are oriented to solving problems of energy saving, education, international expansion in order to reduce unemployment and develop agriculture (Hwang, Jang, Park, Kim, 2017).

State support for social entrepreneurship in South Korea has a dual nature: on the one hand – it considerably strengthens the sector where social enterprises operate, on the other – weakens business development as a whole. Along with that, the main directions of the state support for the development of social entrepreneurship are the financing of the support for social initiatives, tax preferences, institutional provisions, and support for the international markets' entry.

## 7. Possibilities of adaptation of the world experience in development and regulation of social entrepreneurship for Ukraine

Analysis of the global experience in development and regulation of social entrepreneurship in the advanced countries of Europe, America, and Asia points out that its adaptation is possible and useful. However, it will become possible taking into account the following conditions: firstly, it is necessary to legalize social entrepreneurship as in advanced countries of the world; secondly, national doctrine for the development of social entrepreneurship is required that will enable determining the tactics and strategy of actions to solve social goals; thirdly, it is needed to generate in society an understanding of the importance of social entrepreneurship as a global tool that can stimulate business development as a whole.

As the first-priority steps that can improve adaptation of the global experience in the development of social entrepreneurship for Ukraine, it is necessary: to introduce specialties “Social Entrepreneurship” and “Regulation of Social Entrepreneurship Development” in the training of specialists of economic and legal directions in higher educational institutions of the country; for advanced social enterprises – to become full-fledged participants of the Social Enterprise Alliance; to create a Centre for supporting the development of social enterprises; to introduce a mechanism for cooperation of the state, business, and community in the area of development of social entrepreneurship.

## 8. Conclusions

Analysis of scientific papers of scientists of modern times showed that the role of social entrepreneurship in the development of the global economy is constantly increasing, requiring a deeper study of ways to achieve

social goals in the advanced countries and, at the same time, features of state support for the development of social entrepreneurship.

Research results outline that social entrepreneurship development conditions can be considered the best if there are provided: its proper governmental support, optimal conditions for attracting skilled personnel, respectable wages, investment attraction for the development of social entrepreneurship, understanding in the society of the need for social changes, ensuring the growth of this sector of the economy.

Analysis of the world experience in the development of social entrepreneurship points out that in the advanced countries of Europe, high activity of this sector is achieved due to legislative consolidation of its role in the economy of countries, support on the part of local authorities, proper regulation of development of social entrepreneurship, grant activities; in the advanced countries of America – by means of stimulating social

innovations on the part of the state, creating favourable conditions for supporting this sector's development, dissemination of information data on viable solutions of the social entrepreneurship field; in the advanced countries of Asia – due to financing of the support for social initiatives, tax discrimination, institutional provision, support for the international markets' entry.

For Ukraine, such an experience is useful, first of all, from a perspective of the need of assigning a legal status to social enterprises, provision of the understanding in the society of the need for these changes, elaboration of ways to stimulate the development of social entrepreneurship and create a platform for solving a number of social problems – unemployment, low wages.

Further research should be aimed at the improvement of stimulating mechanisms for the social entrepreneurship development as a global tool for solving problems of the socio-economic development of countries of the world.

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## THE RELEVANT TEMPORAL MARKET DEFINITION IN ANTITRUST ANALYSIS

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**Abstract.** The *purpose* of the paper is to compare various theoretical approaches to the relevant temporal market definition, collecting the arguments for their implementation under the different kinds of antitrust cases. It is vital for the markets with peak demand (transport, electricity, markets of intergenerational products) or discreet supply (agriculture). *Methodology.* The survey is based on the theoretical and graphical modelling of product space perception by consumers. It investigates changes of the latter under different marketing strategies of a seller. Statistical methods are used to analyse trends of demand and prices for iPhones' changes, as well as dynamics of electricity consumption. *Results.* The paper reveals two facing approaches to the definition of relevant temporal market: 1) the discrete one that provides a short-run analysis of products' substitutability and combines only those time periods that are characterized by a stable balance of demand and supply, as well as stable market equilibrium; 2) the coherent one that provides a long-run analysis of cyclical variation of the market. This cycling is based on the awareness of consumers and producers of intertemporal substitutability of products. The authors use the model of intertemporal competition to explain principles of these approaches and apply it to the iPhone market analysis. They conclude that the coherent approach must be applied to the temporal market definition for the products with elastic demand. Inelastic demand brings the necessity to apply the discrete approach to the temporal market definition. These conclusions cannot be applied to regulated markets. The system of government regulation is the main determinant of the temporal boundaries of such markets. *Practical implications.* The results of this research can be used by competition agencies in antitrust cases to define the relevant temporal market, where the violations of antitrust legislation can occur. The correct definition of the market is the first step of structural analysis under antitrust cases that determinates the correctness of its next steps and finally – accurate labelling of an antitrust violation. *Value/originality.* The paper grounds capability of both (discrete and coherent) approaches to the relevant temporal market definition, determines the factors that define what the approach must be chosen, as well as the exceptions from the rule.

**Key words:** relevant market, temporal market, intertemporal competition, peak and off peak services, intergenerational products.

**JEL Classification:** D47, D91, D92, L49, L94, O31

### 1. Introduction

The relevant market is a key term of antitrust economics. The term was first-ever used in 1948 in the court case *United States v. Columbia Steel Co.* in response to the need to determine the geographical boundaries of post-merger competitive effects expansion. In that case, the geographical market boundaries were defined as the territory smaller than the nationwide market boundaries, although that decision of competition authorities was rejected by Supreme Court (US Supreme Court, 1948). The better-known case of the relevant market definition took place in 1953 in the court case

of *United States v. EI Du Pont De Nemours & Co.* and was concerned the definition of product boundaries of the market. In the course of this case, the courts found that cellophane was in a market with other flexible wrapping materials. More specifically the Supreme Court found that there was a substantial cross-elasticity between cellophane and other flexible wrappings, and that cellophane and these other wrappings had reasonable interchangeability. What the courts failed to recognize was that, if Du Pont had market power over the relevant market that included cellophane and raised its price to the monopoly level, then was already exercising market

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power in the market for cellophane, so much so that any further increases in price would cause customers to migrate in sufficient numbers so as to render an attempt at a further price increase unprofitable. However, these other flexible wrappings might not have been viewed as close substitutes if cellophane were priced at competitive levels (Stocking and Mueller 1955; Jamison, 2014). This court case became well-known in the theory of industrial organizations as “cellophane fallacy” and appeared in the relevant textbooks. However, it is interesting for us not only because of the meaning of the “cellophane fallacy” but as an illustration of the basic principles of relevant market definition. First of all, it is about the principle of substitutability. The US Federal Trade Commission and the US Supreme Court decisions were based on the criteria that the substitutes belonged to the same relevant market.

The substitutability of goods as a criteria of relevant market definition was described by J. Robinson (Robinson, 1934), F. Scherer and D. Ross (Scherer & Ross, 1990), M. Coate and J. Fischer (Coate & Fischer, 2006), Y. Li (Li, 2009), T. Teodorovicz, T. Leandro and L.A. Esteves (Teodorovicz, Leandro & Esteves, 2015), and others. The substitutability principle is the main basis of the relevant market definition by the competition authorities of Australia, Bulgaria, the European Union, Israel, South Korea, Mexico, Poland, Romania, etc. (OECD, 2012). For example, according to the definition in the Polish Competition Act, the relevant market is a market of goods, which by reason of their intended use, price, and characteristics, including quality, are regarded by buyers as substitutes, and are offered in the area in which, by reason of their nature and characteristics, the existence of market access barriers, consumer preferences, significant differences in prices and transport costs, conditions of competition are sufficiently homogeneous (OECD, 2012). Modern competitive authorities explore not only demand-side substitution but also supply-side one (EC, 1997) for defining the relevant market boundaries. It demonstrates one more important characteristic of the relevant market – the balance of demand and supply.

When the goods are substitutable (in terms of demand or supply) and the market is balanced enough to support its members to keep certain equilibrium parameters of interplay that means the existence of the relationships of competition or monopoly between market participants. These relationships are the main evidence of the relevance of the studied market according to M. Coate and J. Fisher (Coate & Fischer, 2006), J. Baker (Baker, 2007), M. Galalov (Galalov, 2002), V. Lahutin and others (Lahutin et al., 2009). These relationships cannot exist between sellers of independent products. That means that the first step of any antitrust investigation is a definition of the relevant market.

The legislation of the majority countries distinguishes two types of boundaries of the relevant market:

product and geographical. For example, the European Commission in the Commission notice on the definition of relevant market for the purposes of Community competition law announce that the relevant market combines the product market and the geographic market, defined as follows:

- a relevant product market comprises all those products and/or services, which are regarded as interchangeable or substitutable by the consumer by reason of the products' characteristics, their prices, and their intended use;
- a relevant geographic market comprises the area, in which the firms concerned are involved in the supply of products or services, and in which the conditions of competition are sufficiently homogeneous (EC, 1997).

Recently the idea of expanding the list of relevant market boundaries has become popular. C. Beaton-Wells (Beaton-Wells, 2003), C. Filho (Filho, 2011), V. Lahutin (Lahutin et al., 2009), B. Marshall (Marshall, 2007), M. Motta (Motta, 2004), F. Russo and M.L. Stasi (Russo & Stasi, 2016), B. Zhang (Zhang, 2009) suggest to define temporal boundaries of the relevant market in antitrust cases. This suggestion is supported by law in China, Germany, Poland, Singapore, Ukraine, United Kingdom of Great Britain, and Northern Ireland (OECD, 2012). For example, the British Guidance on Market Definition gives three examples that require detailed analysis of temporal market boundaries. There are:

- peak and off-peak services. This can be a factor in transport services or utilities such as electricity supply,
- seasonal variations, such as summer versus winter months, and
- innovation/intergenerational products. Customers may defer expenditure on present products because they believe innovation will soon produce better products or because they own an earlier version of the product, which they consider to be a close substitute for the current generation (OFT, 2004).

The similar list was announced by China's Anti-Monopoly Commission. Chinese Guideline on Definition of Relevant Market provides that timeliness shall also be considered in defining the relevant market, when a product's production cycle, lifetime, seasonality, fashion, or a valid term for intellectual property protection has become an essential characteristic of the product (Zhang, 2009).

The common denominator of all the reasons for detailed analysis of temporal market boundaries is the imbalance between demand and supply of goods that appears on the different stages of market functioning. For example, the demand on the passenger transport services significantly increases in the peak hours or before holidays, while the supply of it is limited by transport infrastructure capacity that stays constant or increases insignificantly. This fact stimulates changes of parameters of market equilibrium compared to the off-

peak period. The same situation is in tourism, where the demand is under the great impact of the seasonality, especially in the coastal regions; in fuel market and market of fertilizers, where the demand depends on the agricultural season duration; etc. The imbalance between demand and supply in markets of vegetables and fruits is induced by reduction of their supply in wintertime. In the markets of inter-generational products, it caused by the introduction of the next-generation product. All of these periods are characterized by different parameters of the market equilibrium comparing to off-peak ones – mostly higher price and lower output. In this context, the question is how to determine the temporal market boundaries: as separate discrete periods of peak and off-peak consumption or as the coherent periods between individual peaks of consumption? The article is dedicated to the investigation of this question.

Starting with the example of imbalance between demand and supply of intergenerational products caused by their introduction on the market, the second section provides the model of intertemporal competition. Its analysis brings the arguments for applying the different approaches to defining the temporal market. The third section introduces the way of the intertemporal competition model's use in the practice of temporal market definition via the example of imbalance between demand and supply of iPhones as an intergenerational product. The findings of this analysis are expanded onto other kinds of temporal imbalances between demand and supply. The fourth section researches the role of state regulation in the temporal market definition. It brings the example of state regulation of the business activity of power plants in Ukraine. The last section concludes.

## 2. The model of intertemporal competition

The phenomenon of intertemporal competition was the subject of economic research in the mid-twentieth century. It appears on the market of durable goods, and, first of all, intergenerational ones. The buying of an intergenerational good at the moment of its launch excludes the consumer from the market for a long period. To support sales, the seller has to cut the intertemporal price. This fact has an effect on a specific form of the demand curve for these products. Its elasticity increases gradually with the process of the life cycle of goods. At the moment of a new product launch, its demand is relatively inelastic. Sometimes it even characterized by the positive value of price elasticity of demand, caused by the Veblen's effect. It pushes up the price of the good. While the product loses positions in the premium segment and moves into the mass-market (where the cross-elasticity between goods is usually significantly higher) the price elasticity of its residual demand increases. Following the elasticity changes, the rational (in terms of neoclassical analysis) seller steadily reduces the price of the product as long as it gets to the value of marginal costs. Knowing this fact, consumers consider the intertemporal substitution of products as a separate element  $g_o^t$  of the chain of substitutes. It is situated between the good  $g_o$  and its closest substitute  $g_c$  (Fig. 1). You can buy the good now in the seller's market power zone (segment OA in the Fig. 1) or you can wait and lose some time of consumption but buy the same product at the reduced price in the zone of intertemporal competition (segment AB). There is a big difference between market power zone and competition zone in terms of prices and, as a result, of the value of

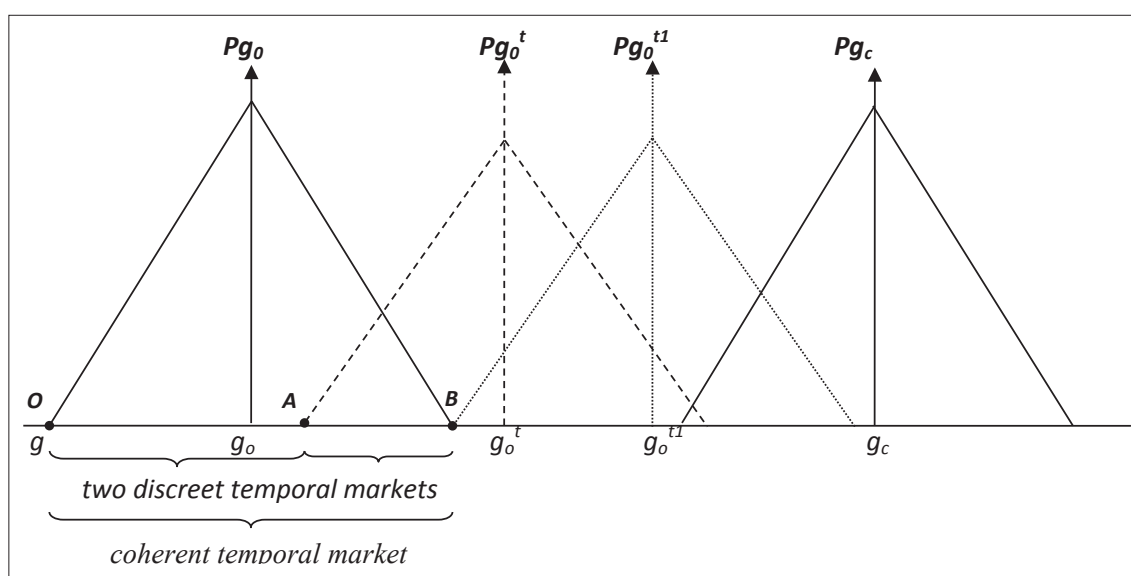


Fig. 1. Intertemporal competition in the Salop's circular city model

Source: constructed by the authors according to the research results

the economic rent. For example, in the US video game market, this difference is about 170% (Nair, 2007). There are two discrete time periods (OA and AB) with different supply and demand for goods, on the one hand, and the free move of consumers' demand between the periods, on the other hand. Ultimately the latter may cause the unification of these periods and reduction of the economic rent of the OA period up to zero. This is the point of the Coase paradox.

The understanding of the possibility to move the demand between the periods gives the consumer the perception of temporal substitutability of such goods' consumption. As the demand-side substitution is a key indicator of the relevant market, we can broaden the latter from the one stage of the life cycle of an inter-generational product to the whole one according to the coherent approach to the temporal market definition. The exception is only several products and services of prime necessity, which elasticity demand is sufficiently low to abuse the dominant position inside the small temporal market. In these cases, it is better to apply the discreet approach to study the temporal market boundaries.

The analysis in terms of supply-side substitution allows making the same conclusions. Knowing the principles

of the mechanism of intertemporal competitions, the seller tries to extend the zone of inelastic demand. The most general tool of this extension is to convince consumers that intertemporal price reduction will not happen at all or that the price reduction will not happen soon (Avdasheva & Rozanova, 1998). How the seller can do this? The spread of invalid information about keeping the prices is not good for the company in terms of optimizing the elasticity of demand for the next-generation products. The realization of the long-term strategy of high prices maintaining is also wrong in terms of the natural changes of residual demand elasticity. The best way is to postpone the prices reduction. This strategy is the most realistic and one that corresponds to the Coase paradox. The seller can take the responsibility to keep the price at the primary level within a clearly defined period. Its duration is a function of the initial level of the price, the expected price level in the future period, the dynamic of price elasticity changes, etc. Graphically it looks like the movement of the axis of the intertemporal substitute from  $g_o^t$  to  $g_o^{t'}$ . It causes the extension of the market power zone from the segment OA to the segment OB, including those consumers for whom the alternative value of postponed consumption (expectation for the period  $tI$ ) is higher than monopoly

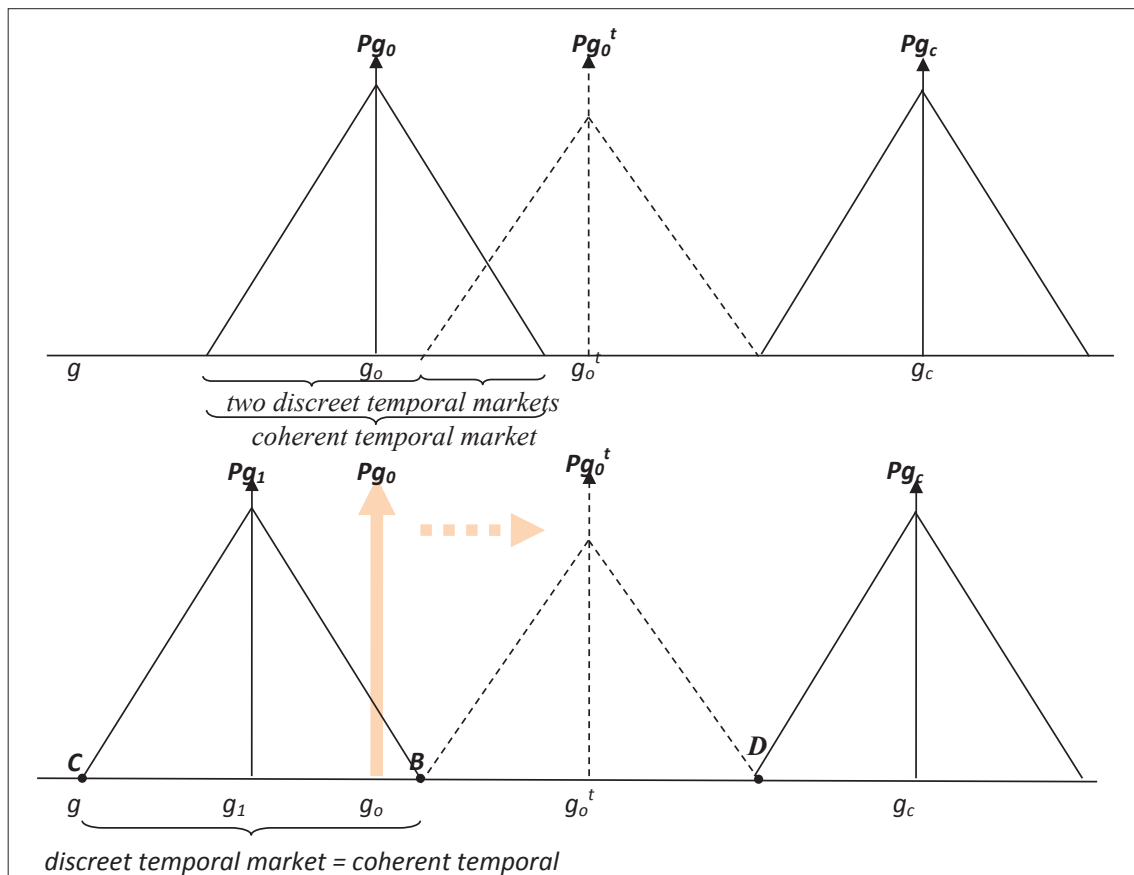


Fig. 2. The strategy of planned obsolescence of a product in the Salop's circular city model

Source: constructed by the authors according to the research results

increase in price in the zone of temporary market power. That leads to the stabilization of demand and supply and other parameters of market equilibrium within the relevant period that corresponds to the temporal market boundaries, which are wider than the discrete period of keeping the high level of price elasticity of demand for the new product but less than the period of full life cycle of the product.

Another tool of equilibrium parameters' unification in the extended temporal boundaries is fulfilling the strategy of planned obsolescence of product. It means the systematic upgrading of the product based on science and technological progress (STP), producing the next-generation product when the demand for the product of the previous generation is too flexible for maintaining the price on the profitable level (Tirole, 1996). Firstly, this policy returns consumers (who bought the product in the previous period) to the market. Secondly, it makes consumer expectation of lower price unreasonable. The utility of the consumption of intertemporal substitute at the reduced price is lower than it was for the same product in the in the moment of its introduction in the market by the amount that is higher than the cost of delay. Fig. 2 shows the next-generation product with the axis  $g_1$ , located to the left of the former position of the previous-generation product  $g_0$ , while the consumption of the latter has shifted to the position of its intertemporal substitution  $g_0^t$ , creating different temporal relevant markets CB and BD. This means that the sales conditions are the same during all the period between the introductions of adjacent inter-generational products, answering the question of how to define the temporal market.

### 3. Intertemporal competition model's use in the practice of temporal market definition

Looking for the empirical evidence of the effectiveness of the intertemporal competition model, as well as the results, made on the base of its theoretical analysis, let's explore the dynamics of worldwide demand for iPhones (Fig. 3). As it was described in the theoretical model, the demand, which was driven by the persuasive advertising, increases rapidly at the time of introduction of a new model of iPhone. Then the demand falls down and becomes constant up to the time of introduction of the next generation model (every second peak on the diagram is conjunctural and relates to the Christmas holidays). The cycle repeats for every new iPhone model. This means that the price elasticity of iPhones' demand, as well as demand and supply balance, are different in the first month of its sales comparing to the other part of the year, making the argument for the use of the discreet approach to the temporal market definition. However, the demand and supply of iPhones in these two periods are closely connected by intertemporal substitutability. For example, the annual Christmas peaks in Fig. 3 indicate that many consumers consider the iPhone purchased in December (three months after the start of the sales), as the substitute for iPhone purchased at the time of its release on the market. They plan this purchase in the area of the lower price elasticity of demand, consciously postponing consumption. There can be two conclusions of it. The first one points at the existing of the single temporal market of iPhones within the period between the introductions of adjacent iPhone models. Another one points at the validity of Coase paradox in this market, which must be considered by The Apple Corp, while pricing.

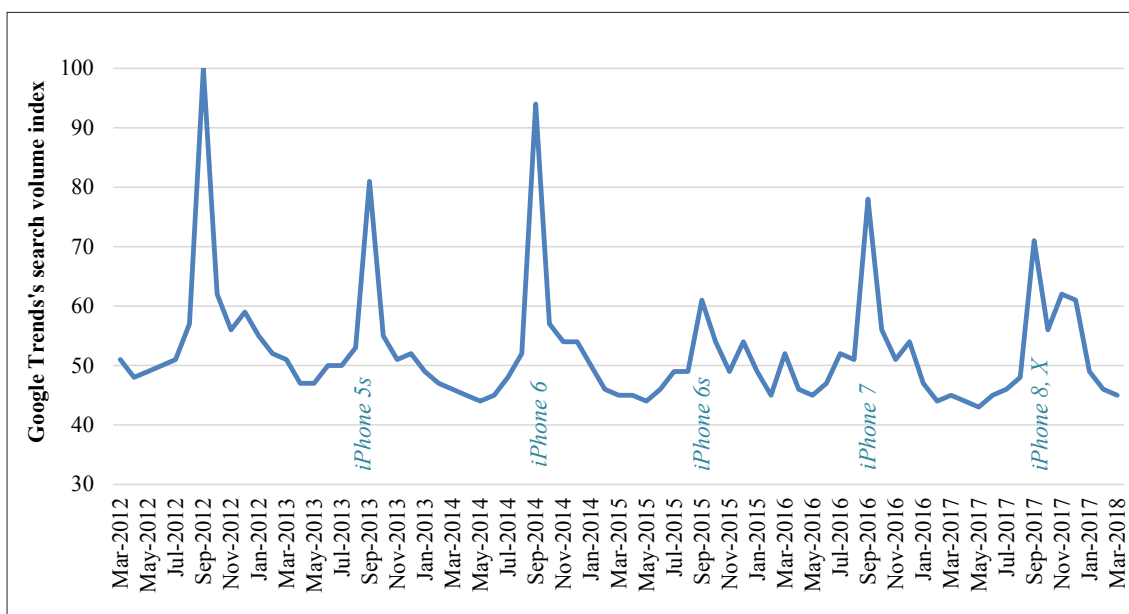


Fig. 3. The dynamics of the worldwide demand for iPhones, March 2012 – March 2018

Source: Google, 2018

Notwithstanding the difference in the price elasticity of demand, the Apple Corp cannot set different prices on the same model of iPhone in the first month of its sale, comparing to the subsequent ones, being under the risk of the first-period sales decrease according to the Coase paradox. It decreases the price of the previous-generation model of iPhone once a year – in the moment of the next-generation model introduction (Fig. 4), walking the line of the strategy of planned obsolescence of product. It allows the company unify the market equilibrium parameters within the whole cycle of demand change, being the argument for the use of the coherent approach to the temporal market definition, instead of the discreet one.

These conclusions could be applied to the other cases of temporal market definition. Let's start with the example of seasonal imbalance between demand and supply. The quality and quantity of the agricultural products' harvest (for example, apples), collected in summer and autumn season, determines annual supply and sales conditions. The consumers can easily move within the boundaries of the temporal market. They can buy apples in the summer time at the lower price and keep them within the year at their own expense or buy them at the higher price in the winter time. This difference in prices cannot be an indicator that approves the existence of two separate temporal markets of apples, while the intertemporal substitutability is an indicator of the single temporal market existence.

The other example deals with peak and off-peak services in the transport. The transport company knows in advance about the irregularity of the traffic flow

within the day, week or year. It considers it by planning the volumes and the schedule of service supply. The practice of such markets functioning witnesses that the transport companies mostly use the instruments of the cross-subsidization between periods instead price discrimination. Therefore, the temporal market does not cover a separate period of the cycle (daily, seasonal, life cycle of a product), but the whole cycle.

These both cases, as well as the intergenerational product case, bring enough arguments to applying the coherent approach to the temporal market definition. The exceptions must be made only for the markets with inelastic demand, where the possibility of intertemporal substitution is poor. Many of such markets are under strict government regulation that raises the issue of the government regulation impact on the temporal market boundaries.

#### 4. The government regulation impact on the temporal market boundaries

Government regulation can significantly change the institutional environment of the market that is one of the important determinants of market boundaries. Let's show it at the example of the Ukrainian electricity market. This market is marked by at least three major cycles of its operation: daily, weekly, and annual (Fig. 5). They illustrate the fluctuation of electricity sales up to 50% of the market capacity. According to the neoclassical logic, the interaction of demand and supply in each cycle peak and off-peak periods has to result in different equilibrium prices and outputs. That means the existing of at least six different temporal markets

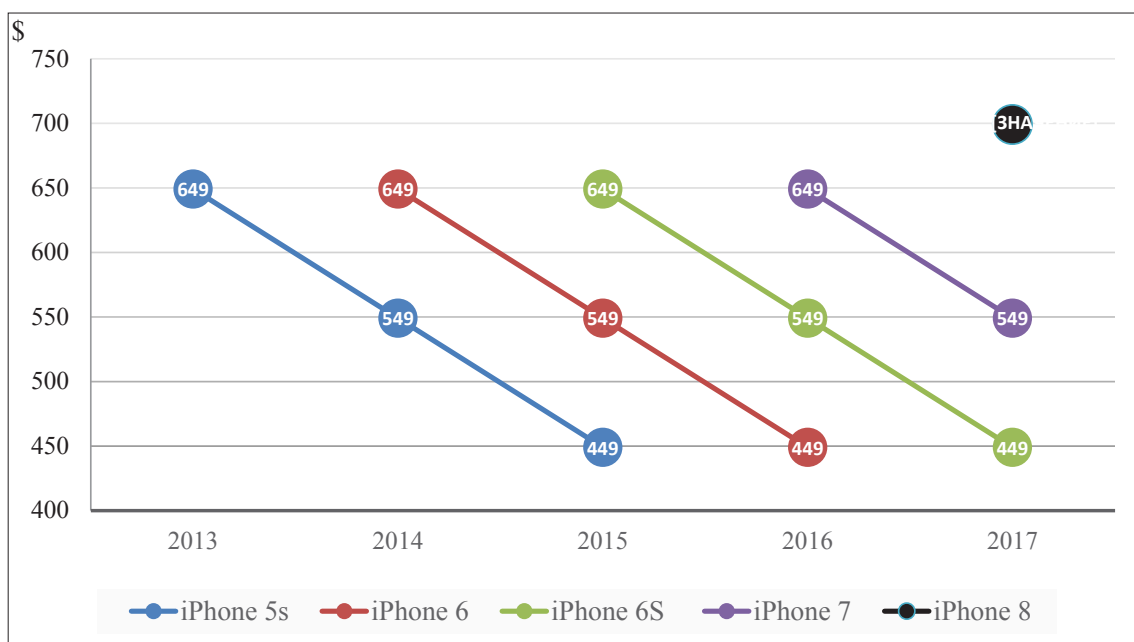


Fig. 4. The dynamics of the iPhones' basic model prices, September 2013 – September 2017

Source: constructed by the authors on the data of The Apple Corp., 2013–2018

under the discreet approach to the temporal market definition. Using the coherent approach reduces the number of relevant temporal electricity markets two times. Considering the current Ukrainian government regulation of power companies' activity challenges the existence of the only one temporal relevant electricity market in Ukraine – the daily one.

The Regulations of Ukrainian wholesale electricity market (hereinafter – WEM Regulations) spells out that all the electricity producers have to submit operating capacity bids for each designed period of the next day to the system administrator of the power grid. The external inflow operators have to submit import and export schedules. The power suppliers have to submit the forecasts of electricity consumption. Basing on this data, the system administrator of the power grid has to design load schedule for each power unit during each designed period of the next day (WEM Regulations, 2015). This means that the competition between electricity producers arises at the moment when they submit daily bids and repeats on a daily basis. It takes place due to the fact that such bids (taking into account restrictions and privileges, the system of priorities provided by applicable law, and the prices bid by the producers) determine whether or not a power unit will be put into operations, how long it will operate during the day, and at which capacity. The adjustment of the bid by the producers during the daily period is allowed in cases of emergency only. The set of grounds for the adjustment is set by applicable regulations. The validity of a bid that was not accepted is not extended to the next day, requiring a new act of competitive bidding.

This means that there is no smaller market than the daily electricity market in Ukraine because the fact of power plant's inclusion into the load schedule depends on the terms of their daily bids, specified by hours. This also means that there is no wider relevant temporal market. Next day the companies will submit new operating capacity bids, as well as price bids. These bids will create a new balance of power in the market

and new parameters of market equilibrium. Thus, the temporal boundaries of this market are just 24 hours.

Further statutory evidence that the Ukrainian electricity market functions within the daily boundaries can be found in the State Standard GOST 13109-97 “Electric energy. Electromagnetic compatibility of technical equipment. Power quality limits in public electrical systems” (GOST, 1997), in the Rules of relations between the SE ‘National Energy Company “Ukrenergo” and electricity industry facilities (entities) under conditions of parallel operation within the Ukrainian United Power Grid (MFE, 2008), in the Guidelines on inspection of thermal power plants, hydropower plants, and nuclear power plants readiness to participate in the regulation of frequency and voltage in the Ukrainian United Power Grid (MFE, 2009), and in the Ukrainian Law “On Electricity Market”. Although the latter has not become fully operational yet, it can be used as a landmark in the context of institutionalization of the existing business practices. Article 1 of this Law introduces a new category of the “day-ahead” electricity market (the day-ahead market), which constitutes a system of relations between participants of the day-ahead market and the system operator of power grid in connection with the sale and purchase of electricity that is necessary to meet the demand of the day following the trading day (Ukrainian Law, 2017). Among the trading platforms for the sale and purchase of electricity, offered by this Law, this particular market in conjunction with the interday market and balancing market corresponds to the acting model of the electricity market. This is one more argument to support the singular day dimension of the temporal boundaries of this market.

So, in such a case, the government regulation becomes the key determinant of the temporal market boundaries, while the economic and technological determinants are put on the back burner. The last two determinants would like to define the electricity market as a spot market with different equilibrium parameters for every second. However, these boundaries are denied with

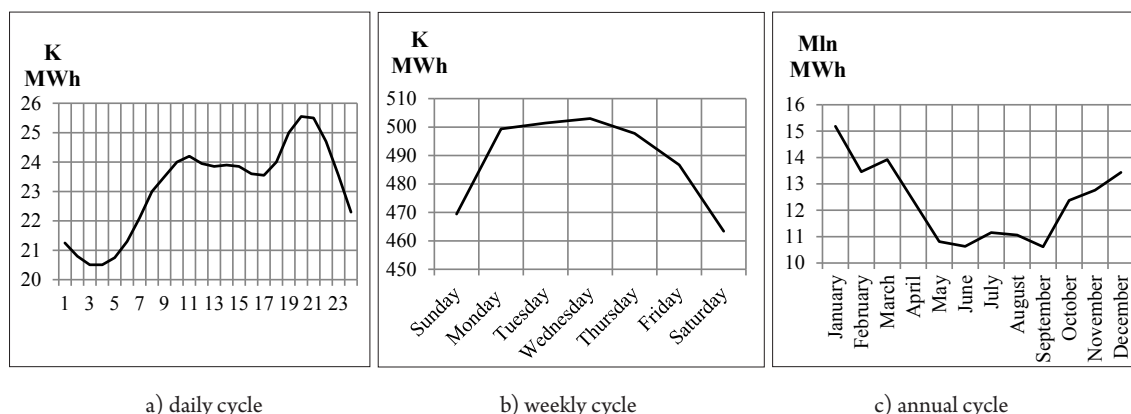


Fig. 5. The cycling of the electricity market in Ukraine

Source: constructed by the authors on the data of Gerasymenko et al., 2016, p. 15, 41



the impossibility of producers to change their bids in response to changes in market conjuncture within the 24 hours.

There are the same restrictions for the use of above-mentioned approaches to the temporal market definition in other regulated markets. The temporal boundaries of the market of services of transporting the oil (or the gas) by pipelines depend on the time value of the auction lots for network access. The temporal boundaries of the market of heat supply services are determined by the most common terms of the delivery contracts; etc.

## 5. Conclusion

Summarizing this investigation results, it should be stated that the question of the correct definition of temporal boundaries of the relevant market in the antitrust analysis is becoming more important now. As we can see from the above examples, these boundaries could be different and are dependent on the internal and external market parameters. Among the latter are: government regulation of the economy, traditions and habits of the social groups and other institutional determinants. The structure of various temporal markets could be dramatically different that leads to the differences in the behaviour of companies and regulatory bodies according to the “structure – conduct – performance” paradigm.

The world's practice of temporal market boundaries' researching suggests two alternative approaches: discrete and coherent. The first one means the short-run analysis of goods' and services' substitutability. It implies the combining of only those periods, that marked by a stable balance of demand and supply and

stable parameters of market equilibrium. The second one means the long-run analysis of goods' and services' substitutability, which consider the cyclic variation inside the market. This cycling is aware of consumers and producers, being the base for intertemporal substitution. It allows transforming the question of temporal market boundaries into the question of the cost of postponed consumption. If the increase of the peak price is lower than the cost of postponed consumption, the consumer will purchase a product at the time, when the need arises. If it is not, the consumer will wait for the price cut. The even spatial allocation of consumers by the criteria of the cost of postponed consumption is the factor of peak and off-peak periods' integration into the single temporal market, asking for applying the coherent approach to the temporal market definition. If such an allocation is not an even one and the prices change discretely (for example, because of a rapid drop of price elasticity of demand), the discreet approach to the temporal market definition should be applied.

These conclusions are confirmed by business practice but they fail when there is a strong external interference with the market mechanism operation, inter alia in the way of government regulation of the market. For example, the strict regulation in Ukrainian electricity sector determines the temporal boundaries of the relevant electricity market in the administrative way, fixing the interval of arising competition and the forms of competitive behaviour. Neither coherent, no discreet approach to the temporal market definition is effective in such a market conditions. The same barriers to applying economic methods of market boundaries definition exist in other regulated markets.

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# ADMINISTRATIVE AND LEGAL PRINCIPLES OF THE FUNCTIONING OF THE FINANCIAL SYSTEM IN UKRAINE AND EUROPEAN COUNTRIES: A COMPARATIVE ANALYSIS

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**Abstract.** *The purpose of the article is a comparative analysis of administrative and legal principles of the functioning of Ukrainian and European countries' financial systems and further determination of ways to improve domestic legislation in this area. The subject of the study is the experience of European countries in state regulation of financial systems. Methodology.* The research is based on a comparison of foreign experience in the legal regulation of the financial system using the example of European countries with current state regulation of the financial system in Ukraine. Due to the used arsenal of general scientific and special-scientific methods and techniques of scientific knowledge, the content of administrative and legal principles of the functioning of the national financial system in conditions of liberalization of foreign economic relations, strengthening of integration and globalization processes in international financial and commodity markets was characterized and determined. *The results of the comparative legal study revealed the absence of a general model of the financial system state regulation in Ukraine; rather, the presence of administrative and legal framework for the provision of financial sector's certain components, in particular, banking, investment, tax and budget, financial services market, etc. Practical implications.* Administrative and legal principles of the financial system functioning in certain European countries expose greater effectiveness of the financial system state regulation in comparison with Ukraine. Most European states support the policy of regulating the financial system as a holistic, indivisible phenomenon, gradually shifting away from its interpretation as a set of separate segments. On this issue, significant influence has been made by the European Union, which introduced integration of the most important functions in the regulation of the EU financial system and assigning these functions to a separate group of special bodies. It is expedient to include this experience in the legal system of Ukraine in order to increase its economic stability. *Relevance/originality.* A comparative legal study of world experience in the administrative and legal regulation of the financial system functioning in Ukraine and European countries provides a better understanding of prospects for development of national administrative legislation in this area.

**Key words:** administrative and legal principles, financial system, state regulation.

**JEL Classification:** D73, P43, H83

## 1. The relevance of the topic

The vital activity of any state depends on the functioning of a large number of different elements, such as the society, legal system, security and inviolability of its territories, etc. One of the most important components is the economy of the country. In Ukraine, the financial sector is at a transitional stage now due to

a number of factors: first, Ukrainian state is relatively young compared to other European countries; second, a rapid shift of the national economy from a planned to market form; third, the restructuring of regulatory framework and state policy transformation in economics under the "pressure" of European standards. Moreover, some incompleteness and shortcomings of the financial

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system of Ukraine need further reformation and development. Thus, the issue of a state influence on the financial sphere, that is, its state regulation, is important. In this case, relations, which occur, are regulated by rules of many branches of law. Hence, in the modern legal system of the state, there are corresponding administrative and legal principles of the functioning of the financial system of Ukraine. It is appropriate to note that this aspect is not a novel in foreign countries. In particular, in each European country, there are a certain authority and legal principles of support and influence on the financial sector that are relevant to follow.

It should be emphasized that in the scientific sphere, the question of comparing the administrative and legal principles of the functioning of the financial system of Ukraine and European countries was not properly addressed. Moreover, the lack of theoretical and practical justification of this aspect confirms the high level of its relevance. A comparative analysis of the administrative and the legal framework for the functioning of the financial system in European countries and Ukraine enables to find positive and negative factors of activity in this area, as well as to understand what experience should be applied.

## 2. Past research review

The financial system is a multidimensional phenomenon, therefore, a large number of foreign and domestic scientists of various scientific fields research it, in particular: Voronova L.K., Oparin V.M., Borynets S.Ya., Afanasiev M.P., Vasylyk O.D., Lunina I.O., Sadovskiy V.M., Mikhailov A.M., and others. The issues of the administrative and legal mechanism of the financial system regulation were considered in works by such theoreticians as: Bandurka O.M., Averianov V.B., Zasunko S.S., Kolpakov V.K., Stolbovyi V.P., Sushchenko V.D., and others. Foreign experience of state regulation of financial systems was highlighted in works of W. McDonald, T. Rose, D. Trachtman, and others. Instead, a comparative analysis of Ukrainian and foreign administrative principles in ensuring the financial system functioning has not been properly carried out.

The purpose of the article is to conduct a comparative analysis of administrative and legal principles of the functioning of the financial system in Ukraine and European countries.

To reveal this problem, first, it is necessary to outline the features and define the content of categories "administrative and legal principles" and "financial system" as separate phenomena. It should be noted that the concept of "administrative and legal principles" is quite common in the scientific literature. In addition, it consists of two independent terms that have a broad content. Thus, in accordance with provisions of the dictionary, "administration" is revealed as a bureaucratic

management by means of orders and directives (Busel, 2005). In turn, the word "principles" is used as:

- the basis of something;
- the main thing, on which something is based, established;
- the initial, main position, principle; the basis of the outlook, the rule of conduct;
- the way, method of doing something (Bilodid, Buriachok, 1972; Zabroda, 2013).

Therefore, administrative principles can be defined as the bases, priorities of public administrating. Moreover, the term "legal" denotes their connection with a particular branch of law, that is, administrative. The latter is considered by scholars as a set of legal norms, which regulate public relations of managerial nature in order to fulfil the tasks and functions of the state, and which appear in executive power, the internal organization of other state bodies, as well as in carrying out external legal authorities by public organizations and their bodies (Alforov, Vashchenko, Dolgopolova, Kupin, 2011; Administratyvne pravo Ukrainy, 2000). From this perspective, Melnik R.S. and Bevzenko V.M. argue that administrative law regulates such groups of social relations as:

- social relations that arise out of human and civil rights and freedoms provision by the subjects of public authority, primarily public administration;
- social relations in public administration of a state and communal property objects;
- social relations in the internal organization of public authorities;
- public relations in the interaction of public authorities with civil society institutions (Melnyk, Bevzenko, 2014).

Therefore, administrative and legal principles can be defined as codified bases of state bodies' authority, concerning public administration in certain spheres of social relations. Considering this interpretation, the administrative and legal principles are not separate principles of the work of certain state bodies, but a set of rules of law, which contain provisions of initial, key ideas of management in a certain field of social relations. In the present research, such a sphere is the financial system, the content of which also needs further elaboration.

It should be emphasized that the main feature of the financial system is its systemic nature, that is, the presence of the structure of interconnected elements. The idea of a system as a special form of unity of categories dates back to ancient Greece (Agoshkova, Ahlibininskiy, 1998; Bilinskyi, 2011). It is characteristic that each element is a completely independent category, which can have its own purpose of existence, task, etc. However, together such elements acquire common features, and their target orientation may change. In this regard, a logical question arises, what the financial system represents and what elements compose it? There

are several scientific views on defining the content of this category. For example, Oparin V.M. argues that the issue of defining the content of the financial system should be considered from two perspectives: the substantive content and the institutional structure. Under the substantive content of the financial system, a set of separated but interrelated units (finance of business entities, state (public finance), international finance, financial and insurance market), which reflect the particular forms of financial relations, is meant. According to institutional structure, the financial system is a set of financial institutions that ensure its effective functioning, organization and implementation of financial activities of its subjects (Bubryka, Solonar, Utkina, 2016; Oparin, 2006). Kirilenko considers the financial system as a set of separate areas of financial relations, which are interconnected and have centralized or decentralized funds of money, as well as an appropriate management apparatus and legal support (Kyrylenko, 2002). According to Popov, the financial system is a set of historical economic relations as for the formation, distribution, and use of funds of money of the state, economic entities, and households, distribution and redistribution of GDP, which are realized by means of a financial body in accordance with the state financial legislation (Popov, 2012; Ganzitska, 2016). According to Orliuk, the category of the financial system has multi-dimensional nature, that is, its content can be defined in three "dimensions", namely:

- as a set of financial institutions that contribute to the creation and use of funds specifically for the financial performance of the state;
- as a set of state authorities and bodies of local government, which carry out the management of financial activity of the state as a whole, as well as enterprises, institutions, and organizations, which participate in it;
- as a set of public finances, finances of business entities, international finance and the financial market (Orliuk, 2010; Myrhorod-Karpova, 2017).

Considering the diversity of approaches, it can be concluded that the financial system of a state is a set of social relations that arise in the distribution and use of entire monetary resources, are implemented in the activities of individual entities and provided by the state, which determines the features, forms, and procedure for conducting financial activities. Agreeing with the scientific position of Nesterenko, it should be noted that these relations are consolidated into integral institutions, which, in turn, are a part of the financial system structure. For that reason, the latter includes public finances, finances of business entities, international finance and financial markets (Nesterenko, 2013). Moreover, financial markets include banking, tax and budget, investment, financial services markets, etc.

Therefore, after outlining the essence and features of all the necessary concepts, it is possible

to determine what constitutes the administrative and legal principles for the functioning of the state financial system. In this research, these principles are considered as a set of legal norms that establish the key principles of management activities of state authorities in the field of organization and provision of the financial system as a set of relations regarding the distribution and use of monetary resources. In other words, these principles regulate the features of the existing model of state and legal regulation of the financial system as a whole.

The administrative and legal principles of the financial system functioning can be found in the provisions of many legislative and subordinate regulatory legal acts of Ukraine. For example, in the Law of Ukraine "On Financial Services and State Regulation of Financial Services Markets", Article 20 states that state regulation of financial service activities is carried out through:

- 1) running the State Registers of financial institutions and the registers of individuals, who are not financial institutions, but have the right to provide certain financial services and licensing of financial services;
- 2) legal regulation of financial institutions;
- 3) supervision over financial services market participants (except for financial services customers);
- 4) application of coercive measures by the authorized state bodies;
- 5) other measures on state regulation of financial services markets (Pro finansovi posluhy ta derzhavne rehuliuвання rynkiv finansovykh posluh).

Moreover, similar provisions are contained in the Law of Ukraine "On Investment Activity". Chapter III of the Law defines the purposes, forms, and limits of legal state regulation of investment activity. Specifically, its purpose determines implementation of economic, social, scientific and technical policies based on the goals and indicators of economic and social development of Ukraine, state and regional programs of economic development, state and local budgets, in particular, the amount of their investment activities provided for by them. Simultaneously, privileged conditions are created for investors investing in the most important areas for meeting social needs, first, in the social sphere, technical and technological improvement of production, creation of new workplaces for citizens, who need social protection, introduction of discoveries and inventions in the agriculture, in the implementation of programs for the consequences of the Chernobyl accident elimination, in the production of building materials, in education, culture, protection of cultural heritage, environmental protection and health (Pro investytsiinu diyalnist). Under these conditions, the main forms of the state regulation of investment activities are public investment management, regulation of investment activity, control over the implementation of investment activities by its participants and investors (Pro investytsiinu diyalnist).

In banking, state regulation is limited. According to Articles 4 and 5 of the Law of Ukraine "On Banks and Banking Activities", banks, formed in accordance with the laws of the state, determine independently directions of their activity and specialization by types of services. Public authorities and local governments are prohibited from influencing management or employees of banks in the course of their duties or interfering in bank activities (Pro banky i bankivsku diialnist). Instead, in accordance with the legislation, the National Bank of Ukraine, a special central state authority, regulates banking activities, as well as supervises over the banking system in order to promote financial stability within powers provided by law (Pro banky i bankivsku diialnist; Pro Natsionalnyi bank Ukrainy). Forms of administrative and legal influence on the banking system are also defined legally:

- 1) registration of banks and licensing of their activities;
- 2) establishment of requirements and restrictions on the activities of banks;
- 3) application of sanctions of administrative or financial nature;
- 4) supervision over the activities of banks;
- 5) provision of recommendations on the activities of banks (Pro banky i bankivsku diialnist).

It is worth noting that in state regulation of fiscal and tax relations, the administrative and legal principles of the financial system functioning demonstrate the change in the vector of public administration in this field due to its reformation. Confirmation of this fact can be found in the provisions of the Strategy of Sustainable Development "Ukraine 2020" approved by the Decree of the President of Ukraine dated January 12, 2015. Paragraph seven of the document states that the purpose of the tax reform is to form a tax system, which is simple, economically fair, with minimal time spent on the calculation and payment of taxes, able to create necessary conditions for sustainable development of the national economy, and provide sufficient coverage of the State Budget of Ukraine and local budgets. The main areas of the reform are transition from supervisory and punitive functions of fiscal authorities to servicing that helps in the calculation and execution of tax payments, rather than is aimed at filling the budget through financial sanctions and overpayments; reduction of the number of taxes and their size, as well as simplification of the procedure of calculation and payment; introduction of electronic services for taxpayers; reduction of tax burden on wages in order to take them out of shadow; improvement of Ukrainian legislation aimed at the reinforcement of combating tax evasion schemes for both legal entities and natural persons, in particular, improving the administration of value added tax, creating a system of tax control according to the degree of risk in the activity of taxpayers, ensuring openness of access to payment information taxes, improving legislation on transfer pricing issues, implementation of

control over expenditures of individuals (Pro Stratehiu staloho rozvytku «Ukraina-2020»).

Therefore, the analysis of current legislation has shown that at present, there are a large number of administrative and legal principles for the financial system functioning, which are provided for in legal rules that regulate key aspects of state influence on certain spheres of the financial system's components. Moreover, the conducted research revealed that a general model of the financial system state regulation is not developed in Ukraine. There are only administrative and legal principles for providing certain components of the financial sector, in particular, banking, investment, tax and budget, financial services markets, etc. In these areas of state regulation, independent political courses are formed; therefore the general inconsistency of administrative and legal regulation of the financial system is evident. Due to this, in Ukraine, a large number of state authorities with different powers in the financial sphere exist. At present, the financial system is coordinated by the Cabinet of Ministers of Ukraine, the Verkhovna Rada of Ukraine, the Accounting Chamber, the President of Ukraine, the Ministry of Finance of Ukraine, the State Treasury, the National Bank, fiscal authorities, etc. Such a control and regulation mechanism is extremely cumbersome and ineffective, which ultimately leads to negative economic consequences for our country.

European experience of administrative regulation of the financial systems and financial activities differs significantly. It is worth noting that the features of the current stage of the world economic development are the liberalization of foreign economic relations, strengthening of integration and globalization processes in the international financial and commodity markets, which is due to the openness of national economies and cooperation of countries in various spheres of economic activity. Thus, the openness of the national economy contributes to the development and improvement of economic, productive, financial, social, cultural, and other interrelationships between countries (Denysiuk, 2015). A remarkable example of this fact is the European Union (hereinafter – the EU). The main thing is that a large number of states are now a part of the EU. This international organization, represented by a special body, coordinates the functioning of financial systems of the Member States to ensure economic stability in the EU. In addition, such an approach does not preclude the existence of appropriate national mechanisms to maintain the functionality of financial systems in the very Member States.

A key difference in the regulation of financial systems in European countries is in perceiving the role of the state in this process and the content of the financial system as a whole. Financial consolidation and formation of large financial conglomerates demand replacement of a traditional regulatory paradigm based on consideration of the financial system as a set of segregated segments

(insurance, banking, stock, etc.) for one that takes into account the interconnectivity of different financial intermediaries and establishes for them the same rules and supervision principles. For example, on this basis in the European Union, a new European system of financial supervision has been created, the key institutions of which have become the European Systemic Risk Board and established by the European Commission's proposal three sectoral bodies:

- 1) European Securities and Markets Authority;
- 2) European Banking Authority;
- 3) European Insurance and Occupational Pensions Authority (Giorgio, Di G., Carmine Di Noia, 2005; The Level 3 Committees welcome the new institutional arrangements on European financial supervision; Baldych, 2013).

At the national level, in economically advanced countries, the financial system regulation is also based on consolidation of a large amount of authority within one or more core bodies that implement a common economic policy, which affects all spheres and components of the financial system. Administrative regulation of the financial system in the territory of this state is carried out by a single, key institution, the Treasury (Harust, Tolkachov, 2017). It should be noted that the State Treasury of Great Britain is one of the oldest state agencies, but in terms of numbers, it is one of the smallest. The Treasury is a political and creative department with several functions that link it with the public and industry. It is connected with financial markets mainly through the Bank of England. Historically, its main function was to control public funds spending, but now it is responsible for management of British economy so as to achieve the economic goals set by the ministries and agreed with the Parliament (Yurii, Stoian, Mats, 2002; Bulhakova, Kolodii, 2002). The Treasury of Great Britain has a wide range of functions in support of the financial system. In particular, this authority regulates issues related to:

- 1) public spending, which includes departmental spending on labour costs and pensions in the public sector, as well as an investment;
- 2) oversight of the financial services market;
- 3) strategic oversight of the UK tax system;
- 4) supervision of economic stability (United Kingdom Government: HM Treasury).

In addition, in accordance with British law, among the main functions of the Treasury is development, preparation, and execution of the state budget; development and execution of the state fiscal policy; tax system management; management of the structural units of the Treasury; development of tax legislation, simplification and computerization of tax legislation; financial and economic forecasting; planning and control over public spending, maintaining budget balance, timely and efficient budget coordination, preparing a financial and budget report, and submitting

it to Parliament; realization of the policy of relations with the European Community, maintenance of the balance of profits and expenses related to EU membership, etc. (Havrylishyn, Kozyrieva, 2007).

The German model of administrative regulation of the financial system is similar to British one because it is also based on the unification of powers within the framework of several main bodies of financial coordination. On the territory of Germany, the Federal Financial Supervision Authority carries out oversight functions in the financial sector. This body has a wide range of authorities and has the right to issue sub-normative acts and regulations within the limits of its competence. In addition, the Authority also carries out banking supervision together with the German Federal Bank. The latter, in the process of ongoing control, assesses documents, reports, annual financial statements and audit conclusions, and so on. It should be noted that the Federal Financial Supervision Authority issues licenses for banking, insurance, and financial services, as well as oversees credit institutions, financial conglomerates, insurers, investment and pension funds and securities market (Horuzhii, 2016).

Similar administrative and legal principles of the financial system functioning exist in other European countries as well. In particular, in Poland, the Polish Financial Oversight Commission carries out state financial regulation. This is a body of financial supervision with an autonomous competence and a separate budget that oversees banks, insurance companies, insurance intermediaries, investment companies, asset management companies, investment and pension funds, providers of payment services and electronic money, credit bureaus and securities markets (Horuzhii, 2016). In Sweden, the state regulation of the financial system is implemented by the Financial Supervision Authority. It is a public institution responsible for financial oversight of banks, money, payment institutions, the securities market (including exchanges, clearinghouses), investment and pension funds, consumer lending services, savings and loan associations, as well as insurance and insurance intermediation activities. It is funded at the expense of annual regulatory fees and at the expense of license fees. The agency is subject to the Ministry of Finance of Sweden (Horuzhii, 2016).

The principles of administrative regulation of the financial system of Spain, the most priority areas of which are fiscal, banking, and financial markets, are quite interesting. State regulation of the tax sector is characterized by a high level of efficiency due to numerous reforms in the 80 years of the twentieth century. In order to simplify the procedure for paying taxes, improve taxpayer accounting, and strengthen combat against tax crimes, the reorganization of the tax service was carried out through a series of organizational measures, in particular:

- introduction of identification numbers for all taxpayers, both for legal entities and for individuals;

- the introduction of tax labels, which contains all the information on a taxpayer: the identification number, all types of taxes payable by a taxpayer, payment deadlines (issued to legal entities at registration, and sent by mail to individuals);
- introduction of mandatory submission of a tax return together with tax labels;
- introduction of tax vectors and memos, in which taxes are defined and their payment periods are determined;
- establishment of close cooperation with banking institutions and structures;
- change in the organizational structure of tax management and the tax service in general (Stukalo, Litvin, Derkach, 2014).

To support the stock market, the National Stock Market Commission monitors the proper functioning of the system, checks Spanish securities markets and activities of all participating organizations. In addition, the Commission also monitors the transparency of the Spanish stock markets and the correct pricing, protects investors. The activity of this body concerns companies that issue securities for public placement, secondary stock markets and companies offering investment services (Stukalo, Litvin, Derkach, 2014).

Although the banking system of Spain is a set of different government agencies and private banking institutions, it is based on principles of strict centralization. In particular, the Bank of Spain, the central bank of the country, is the main institution that regulates the banking system and implements monetary policy in the country. The Bank of Spain is subordinated to the Ministry of Economy and Finance, to which the government delegates powers in the field of monetary policy. The Ministry of Economy and Finance develops provisions for the Bank of Spain to follow when implementing the monetary and credit policy of the Government, defines the principles of the Bank's disciplinary and control functions, establishes the procedure for the Bank to carry out operations with private banks, etc. (Stukalo, Litvin, Derkach, 2014; Rudenko, Tokar, 2010).

### 3. Conclusions

Therefore, the comparative analysis showed that the administrative and legal principles of Ukrainian financial system functioning differ significantly from European ones, which is manifested in the features of

state regulation of the financial sphere, in general, and its separate components, in particular. For that reason, the present research enables to conclude the following.

1. The existing administrative and legal principles of Ukrainian financial system functioning are characterized by general inconsistency. In other words, they are disconnected that prevents the creation of a general financial policy in our country and its further realization. In all cases, the administrative and legal principles provided for in the norms of legislative and subordinate acts relate to state regulation in certain spheres of the financial system's constituent elements.

2. The absence of a single legal basis for the national financial system state regulation in practice leads to engagement of a large number of various state bodies, whose powers, in some cases, are repeated causing controversy. This negative aspect has a direct impact on the efficiency of financial activities and the development of the national economy.

3. Analysis of foreign experience has shown that most European states support the policy of regulating the financial system as a holistic, indivisible phenomenon, gradually shifting away from its perception as a set of separate segments. A significant influence on this issue has been made by the European Union, which introduced integration of the most important functions in the regulation of the EU financial system and assigning these functions to a separate group of special bodies.

4. It has been determined that nowadays the financial system state regulation of many European countries is based on consolidation of coordinating and supervisory functions. One or several clearly defined bodies carry out the national regulation of financial relations in European countries such as Germany, Poland, Sweden, Spain, etc. In the UK, the many years' experience is outstanding. In this country, the Treasury is a single body, which is in charge of the regulation of the financial system of the country. This organization works today quite effectively, which is confirmed by the fact that the UK economy is one of the most developed in the world.

Therefore, in some European countries, the administrative and legal principles of financial system functioning reveal the greater effectiveness of the financial system state regulation in comparison with Ukraine. Thus, the given foreign experience should be included in the legal system of our state in order to increase its economic stability.

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# GLOBALIZATION AS A CHALLENGE TO UKRAINIAN EXPORTERS OF IRON ORE RAW MATERIAL

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**Abstract.** *The purpose of the article* – to identify the main characteristics of iron ore mining and beneficiation enterprises that allow carrying out income-generating export activity in terms of increasing the level of globalization of the country. *Methodology.* Information background of the research consists of publications of KOF rating of the level of globalization of countries of the world (1991–2016), annual reports of the United States Geological Survey (1995–2016), statistical data of the State Statistics Service of Ukraine (2012–2016), scientific publications and findings of experts of the national and world markets for iron ore. Achieving the purpose of this article provides for the following stages and methods of scientific research: time series analysis – for evaluating dynamics of globalization index for Ukraine, dynamics of global iron ore production and export of iron ore raw material by Ukrainian producers; vertical analysis – for determining the structure of global iron ore production; methods of qualitative analysis (expert estimation) – for defining characteristics of mining and beneficiation enterprises that allow ensuring competitiveness in the global market; generalization – for determining options of sales of Ukrainian iron ore production in international markets in terms of globalization. *Results.* High-level globalization of Ukraine makes it significantly dependent on the condition of global markets of key export branches of the national economy. Ukraine belongs to the top ten countries with the largest reserves of iron ore and its production in the world; however, an insignificant part of the market doesn't allow influencing its condition. The surplus of iron ore and deficit of iron-ore pellets in the global market stimulate the interest of Ukrainian mining and beneficiation enterprises in projects on improving their existing production facilities. The volatility of the global market for iron ore raw material increases the level of financial and investment risks. *Practical significance.* The established trends in globalization of Ukraine and the status of Ukrainian producers of iron ore raw material in the global market allow us more thoroughly analyse their competitive advantages in the long view and develop risk reduction programs. Alternatives to sales of Ukrainian iron ore production of vertically-integrated holding under globalization are made. *Value/originality.* Determined advantages of Ukrainian exporters of iron ore raw material in the global market that, in terms of high-level globalization of the country, are provided by the corporate synergy of the transnational vertically-integrated exporting company.

**Key words:** globalization, iron ore global market, export of iron ore raw material, transnational companies, international mining and smelting holding, export strategy in terms of globalization.

**JEL Classification:** F15, F23, L61, L72

## 1. Introduction

Globalization as a basic process and phenomenon that characterises the contemporary development of the world economy causes not only the revival of international trade, it also promotes a deeper level of integration of international economies, their interdependence, creation and implementation of common interests, conflict generation, other worldwide phenomena. Global rating and level of development of countries depend on many factors that both government

agencies and economic entities should take into account in determining their own strategies in the globalized world.

Considerable volume of exports of goods and services, leadership in innovation, high level of population well-being, and other indicators of countries of G7 prove that economic development of a separate country, increase in revenues of its enterprises and citizen income are possible upon condition of intensive use of opportunities of the global market and world economy. The openness

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of the national economy arising from the international integration of the country has both positive and negative sides, which is determined by export assets of the country and required import. As a large by population size, territory, and natural resources European country, Ukraine makes considerable political and legislative efforts for the formation of a stable basis of economic activity of national enterprises in leading markets of the world. Conclusion of the association agreement with the European Union, free trade agreements with Canada, Georgia, and other countries, simplification of cargo customs clearance procedures, switch to international accounting standards, improvement of state regulatory bodies and other measures form international prospects for Ukrainian business, however, contribute to the improvement of its dependence on the world market condition. Due to this, national enterprises should consider international trends; this considerably increases the level of complexity of business environment analysis and forecasting, development of business strategies, assessment of investment attractiveness of projects.

Exports of goods/services to other countries of the world have always been a source of incomes for Ukraine. A feature of Ukrainian exports was its structure, namely, a high share of production of mining and metals sector (MMS) that for a long time formed up to 60% of annual inflow of foreign currency in Ukraine. In 2015–2017, the share of MMS gradually decreased to 20% at the expense of a dynamic increase in exports of products of the agro-industrial complex (AIC). Such a change in the structure of export revenues of the country was determined not only by improving competitive advantages of AIC enterprises and demand for their production but also deterioration of the economic situation in the world market of mineral resources, for example, iron ore raw material (IORM). As a result, it increased risks to export strategies of Ukrainian companies of mining and metals sector, which in some periods led to losses, termination of production development investment programs. The other side of national producers' access to foreign markets is the increase in the level of the national market openness, in particular, in terms of imports of iron ore raw material. Given the above, relevant is the issue of assessing development prospects of iron ore mining and beneficiation enterprises in the conditions of strengthening the processes of globalization.

## 2. Analysis of recent research and publications

Prospects of iron ore mining and beneficiation enterprises of Ukraine in internal and external markets, features of innovative development, and strategic issues in the field of production, marketing, corporate finance are considered in works of many Ukrainian and foreign scientists. For example, issues of mining and metals sector of Ukraine formed as a result of slowdown of the growth of world market for ferrous metals are studied

by S. Kulytskyi (Kulytskyi, 2015), focusing attention on strategies of owners of iron ore enterprises regarding their provision of financial sustainability and investment in projects that will ensure reduction of production expenses. Assessing export orientation of Ukrainian iron ore enterprises, I. Savchuk (Savchuk, 2017) stresses that it becomes impossible to increase steel production and rolling necessary for the needs of the military-industrial complex of Ukraine.

Features of the methodology for evaluating the level of countries' globalization, as well as dynamics of the globalization of Ukraine and its nearest neighbour countries, are studied by N.P. Stuchynska (Stuchynska, 2017). T.V. Zlunitsyna (Zlunitsyna, 2016) notes the negative influence of the extensive use of powerful iron ore reserves in Ukraine on its specialization in the international division of labour and concludes about state strategy on activity in the internal market for iron ore production. According to M.V. Kyryku (Kyryku, 2016), international integration of Ukraine should be accompanied by system government measures on promoting innovation and investment security of MMS enterprises, in particular, management of real investment volumes and R&D financing processes, the attraction of foreign direct investment in the industry.

Studying the influence of marketing concepts on the formation of development strategies of iron ore enterprises in terms of globalization, V.M. Tkach (Tkach, 2015) notes a significant dependence of production development projects on characteristics of a mined deposit, impossibility of rapid manoeuvring the range of marketable products, long-term depreciation of fixed assets value, etc. In the context of obtaining competitive advantages, L. Horoshkova (Horoshkova, 2014) proves the expediency of vertical integration of MMS enterprises given the positive forecasts of an increase of prices for IORM, coal, electricity tariffs. Lowering of transaction costs and reduction of indirect taxation of intermediate products became the basis for these conclusions, which is important in view of high resource and energy intensity of steel production and risks of decreasing competitive advantages of the national metallurgy in the global market in terms of approaching raw material and energy prices to the world level and strengthening competitive pressure on the part of newly-introduced facilities. D.A. Dovhan (Dovhan, 2016) stresses on the formation of a new, cluster structure of the national mining and metals sector based on innovation improvement of their production, the relevance of expansion of national product consumption, consolidation processes in the industry. In the issue of Ukrainian export promotion, it is important to achieve the highest quality of export, which is evaluated by indicators of its concentration and diversification. T.O. Vlasiuk (Vlasiuk, 2015) proves a considerable gap between Ukrainian export indicators and those of developed countries, which indicates a focused specialization of the country.

Summing up the directions of scientific research, we note that the vast majority of authors are of the opinion about the presence of interest of different subjects in solving strategic issues of international integration of Ukraine into the world economy and the need to coordinate concepts of national, branch, and microeconomic development with the consideration of capacity of iron ore mining industry of Ukraine. Thus, issues of economic security of mining and beneficiation enterprises taking into account the orientation of state export strategy towards more knowledge-intensive industries require constant attention. In particular, insufficient attention is paid to the identification of characteristics of mining and beneficiation enterprises that allow them to maintain profitability in terms of volatility of the world market for iron ore material.

### 3. The purpose and methodology of research

The purpose of the article – to identify the main characteristics of iron ore mining and beneficiation enterprises that allow carrying out income-generating export activity in terms of increasing the level of globalization of the country. Achieving the purpose of this research provides for the following stages: assessment of the level of globalization of Ukraine; appraisal of iron ore reserves and trends in the world market for iron ore raw material; evaluation of dynamics of Ukrainian production and export of iron ore raw material; identification of the main characteristics of Ukrainian iron ore mining and beneficiation enterprises that determine prospects for their activity in terms of globalization.

For solving the tasks of the study, the following methods of scientific research are used: time series analysis – for evaluating dynamics of globalization index for Ukraine, dynamics of global iron ore production and export of iron ore raw material by Ukrainian producers; vertical analysis – for determining the structure of global iron ore production; methods of qualitative analysis

(expert estimation) – for defining characteristics of mining and beneficiation enterprises that allow ensuring competitiveness in the global market; generalization – for determining options of sales of Ukrainian iron ore production in international markets in terms of globalization.

### 4. The level of globalization of Ukraine

Influence of global markets on the national economy of a separate country is determined by volume, structure, geography, level of concentration of its export, and many other indicators of foreign economic activity of subjects of the national business. The level, conditions, ways of international integration of the country within internationalization, transnationalization, and globalization processes occupy an important place. Evaluation of globalization level for 207 countries of the world is provided by *KOF Globalization Index*, according to which Ukraine ranks among top 100 of the most globalized countries. In the period of 1991–2016, the mentioned globalization index of Ukraine increased in 2.4 times (from 29.97 to 70.71), and in 2017 – somewhat decreased to 70.24 (Fig. 1). As a comparison, the Netherlands has the highest globalization index – 97.29, and the Channel Islands are characterized with the lowest one – 1.0 (KOF Swiss Economic Institute, 2017). The level of globalization of a country is calculated by indicators of economic, social, and political spheres, each of which can be a catalyser of a deeper international integration of this country. The most developed key factor of globalization in Ukraine is its political sphere, which is strengthened by the orientation of Ukraine's strategy towards European integration, encouragement of export initiatives of enterprises, etc. The most dynamic key factor of the globalization of Ukraine is its economic sphere, which index for the period of 2001–2016 increased from 49.73 to 68.89 (+38.5%).

Economic globalization is evaluated by commodity flow, services of capital, as well as corresponding

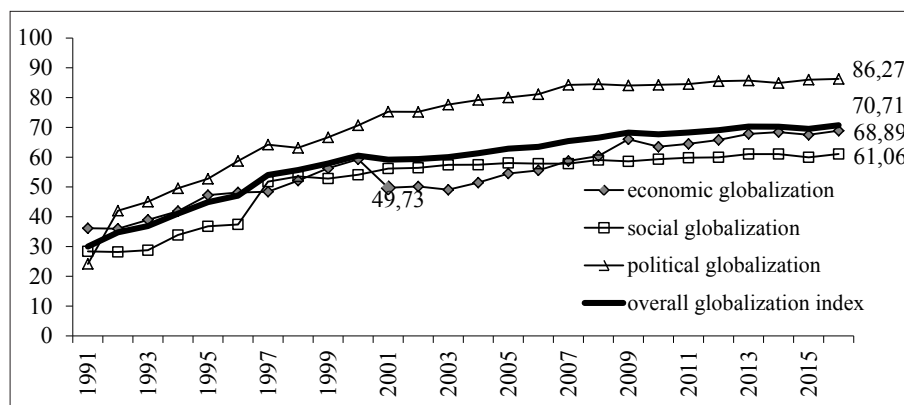


Fig. 1. The level of globalization of Ukraine according to KOF Globalization Index

Compiled by the author according to data (KOF Swiss Economic Institute, 2017, long)

restrictions, in particular, customs tariffs, taxes, hidden barriers, control over the capital movements. Australia, Brazil, and China, as the largest countries that produce IORM, have overall globalization indexes of 90.05, 61.4, and 62.02 respectively, which speaks about different state strategies on integration to the world economy. For example, political globalization of China is evaluated by the index of 84.26, and economic and social globalization – 52.84 and 54.23 respectively, thus, the supply of products to the market of China will require meeting specific requirements, rules, adaptation to the culture of business partners. In this context, an increase of social globalization of Ukraine, which assesses qualitative and quantitative characteristics of global communications, the convergence of national cultures, becomes relevant.

Thus, due to globalization, complex direct and mediated relations regarding movements of capital, people, technology, commodities, ideas, etc. are created. In the aspect of results of activity of iron ore mining and beneficiation enterprises, these aspects of globalization determine requirements to the quality of production, conditions of supply, possibilities of entrance to international markets and competition with

IORM producers from other countries of the world, opportunities to attract foreign capital, control activities of national producers through companies with foreign registration, optimize product supply logistics, etc.

### 5. Dynamics and structure of global iron ore production

Scales of production activity of national companies, quality of mineral reserves in the country, cost of other factors of production, prices of transportation companies, state customs policy, and other factors make an influence on the attractiveness of IORM product supply in the world market and in the market of a separate importing country.

Iron ore production (concentrate, pellets, agglomerate) is conducted by many countries of the world, and Ukraine, having the fourth largest reserve of these mineral resources, is ranked among the top 10 of the largest countries that produce IORM. The volume of global iron ore production is characterized by a general increasing trend since 2001, however, in 2015–2016, a decrease in the mentioned volumes is observed (Fig. 2). A general cause for this is a fluctuation of global GDP,

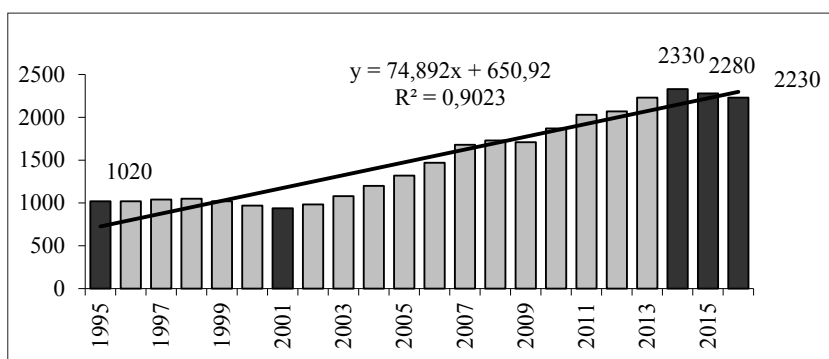


Fig. 2. Iron ore statistics: world production, million metric tons

Compiled by the author according to data (Mining engineering, 2017; USGS Mineral Resources Program, 2016; USGS Mineral Resources Program, 2017)

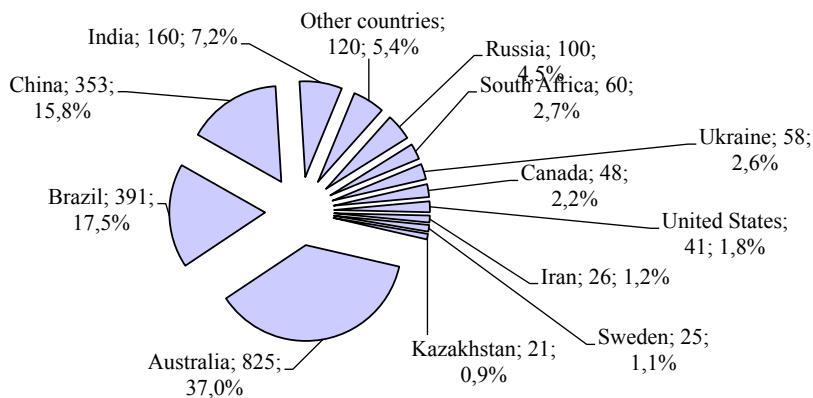


Fig. 3. Structure of global iron ore production in 2016, million metric tons; %

Compiled by the author according to data of the United States Geological Survey (USGS Mineral Resources Program, 2017)

a specific cause – deterioration in demand for IORM. For example, slowdown in GDP growth of PRC (the biggest world importer of IORM), its state strategy on the development of own iron ore deposits force exporters of IORM to diversify international product sales markets and to cut down prices (2015, 40 \$/MT, CFR China contract, 62% Fe (UNCTAD, 2017). In contrast, plans of government regarding concessional lending for construction and business encouragement for ensuring higher GDP growth rates contribute to price raising (2016, 84 \$/MT, CFR China contract, 62% Fe (UNCTAD, 2017). In 2016, China imported over 1000 million tons of iron ore at the cost of 93 billion USD, where 640 million tons – ore from Australia, and 215 million tons – ore from Brazil.

The share of Ukraine in global iron ore production in comparison with leaders is low (Australia, Brazil, PRC) and undergoes fluctuations, for example, it was 2.0% in 2014, in 2015 – 2.9%, in 2016 – 2.6% (Fig. 3).

The presented state of Ukrainian producers of IORM doesn't allow influencing the market, which determines their potential strategic actions: to reduce production cost, to curtail export, to get state support, to search for other foreign markets, etc.

### 6. Export of Ukrainian IORM in terms of globalization

Export of iron ore raw material (IORM) by Ukrainian producers in the period of 2012–2014 increased annually in natural units, but the decline in demand and lower prices in the world market of IORM have determined the downward trend in export revenues (Fig. 4).

The most successful for Ukrainian exporters of IORM was 2013 (3.74 billion USD), and the worst result, almost twice as low, was observed in 2016 (1.83 billion USD). In 2013–2014, an increase in export volumes provided lower cash inflows. In 2016, export of iron

ore raw material was 5% of the export value of Ukraine as a whole. The constancy of the downward trend in export revenues is confirmed by high (significant) determination coefficient  $R^2 = 0.67$ . Consequently, the maintenance of export revenues at an attractive level for enterprises is ensured by an increase in the volume of export of products in kind. It updates for mining and beneficiation enterprises the issue of preparing new fields for development, but the national legislative regulation of land relations significantly complicates the process of siting of new land plots.

According to expert estimates of specialists of the analytical department of the State Enterprise “Ukrainian Industrial External Expertize,” investment company “Investment Capital Ukraine” (ICU), the surplus of iron ore in the world market is 20-50 million tons (Yvanova, 2016). According to Ingrid McMahan, manager of the investor and communications department, Ferrexpo, which controls the activity of iron ore MCC in the Poltava region, there is a shortage of iron ore pellets. The increase in the demand of metallurgical enterprises for pellets is compounded by the technological catastrophe and the downfall of the Brazilian manufacturer Samarco, an increase in the environmental requirements of the Chinese government to its own producers of iron ore agglomerate. A significant aspect of developing a commodity strategy is the difference in the price of pellets from the price of lump ore, which increases the attractiveness of investment in projects for improving the enriching cycle (Interfax-Ukraine, 06.07.2017 12:25).

It should be noted that iron ore, which does not require enrichment, is extracted by Zaporizhzhia Iron Ore Company in Ukraine. Other mining and beneficiation enterprises in Poltava and Dnipropetrovsk regions of Ukraine enrich the extracted ore as a result of the low content of iron in the ore, their commodity products are iron ore concentrate and agglomerate, pellets. The volume

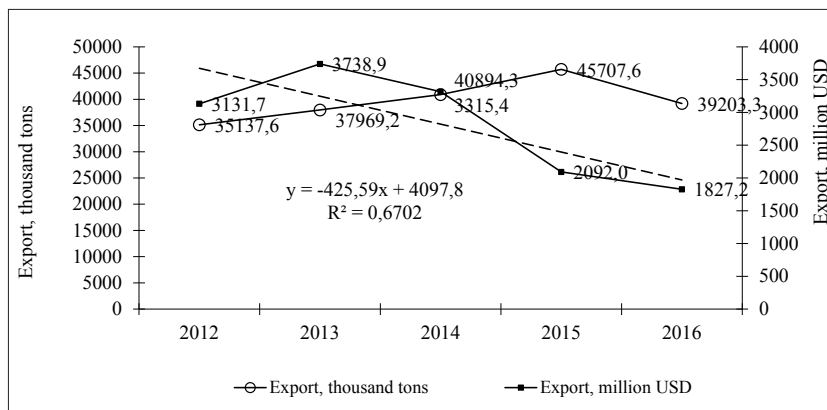


Fig. 4. Dynamics of export of iron ore raw material (IORM) by Ukrainian enterprises in 2012–2016

Compiled by the author according to data of the State Statistics Service of Ukraine

of investments that can direct enterprises to the development of production capacity will depend, first of all, on the ability to accumulate the relevant financial resource, the forecast of the world market, prospects of the domestic Ukrainian market as an alternative to international markets. It is the domestic market that allowed Metinvest Holding (Metinvest Holding, 2017), which controls the activities of three Kryvyi Rih iron ore plants, to secure the sale of their products due to the presence of associated metallurgical plants in the holding's structure. Consequently, in addition to gaining a certain competitive position in the world market, national producers of iron ore raw materials should maintain a status quo in the domestic market.

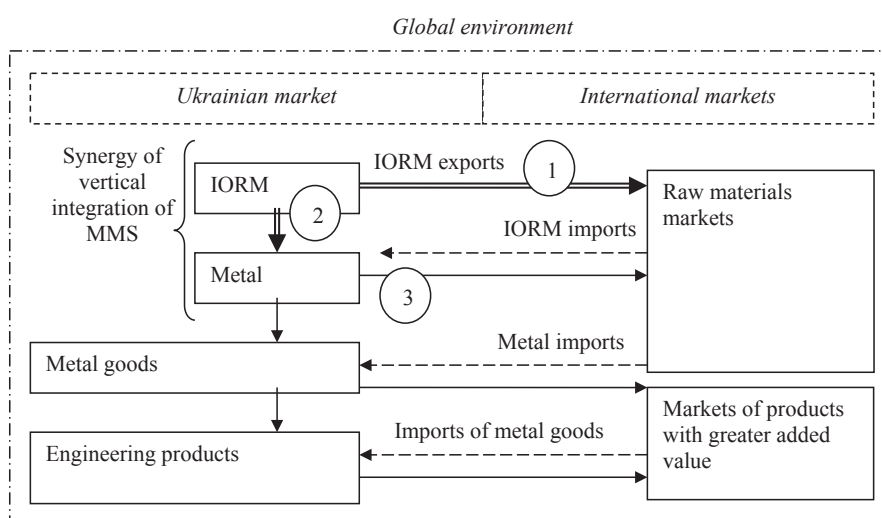
Staying in the mining and processing enterprises as a part of a vertically-integrated holding can be understood as a factor in the economic security of the plant (Shahoian & Hrybinenko, 2017). This is confirmed not only by the supply of the plant's production for metallurgical enterprises of the holding in Ukraine but also by facilitating access to the markets of North America, Europe, South-East Asia. In particular, there are used professional services of the freight forwarding company associated with the holding, long-term agreements with the stevedoring company, which carries out ore handling in ports.

Together with the Ukrmetallprom association of enterprises, the problems of non-compliance by PJSC "Ukrzaliznytsia" with contracts for the transportation of iron ore raw materials to European countries are solved (Censor.NET, 12.12.17 14:41). According to O. Kalenkov, the chairman of Ukrmetallprom, in November 2017, the average level of provision of MMS enterprises by open wagons was 29%, resulting in over

300 thousand tons of IORM, which led to the creation of the surplus stock of commodity products, lack of export earnings.

Consolidation of the assets of the mining and smelting metals sector of Ukraine through the formation of vertically integrated structures for gaining competitive advantages should be considered in the context of strategies for increasing the profitability of products that are closest to the final consumption. It is a metallurgical product in the mining and smelting holding and, therefore, the activity of extractive enterprises can depend substantially on the prospects of metallurgical enterprises in international markets and the domestic market (Fig. 5). For example, the director of sales of Metinvest D. Nikolaienko noted that the loss of control over the metallurgical enterprises of the holding (Alchevsk Iron & Steel Work, Yenakieve Iron and Steel Works, Doneststeel) in the occupied eastern territories of Ukraine led to directing iron ore raw materials to the PRC market (Interfax-Ukraine, 24.04.2017 15:34). Consequently, the optimization of processes and reduction of mining and concentrating enterprises' costs, originating due to corporate synergy (Shahoian, Solodovnyk & Chernenko, 2016), has an inverted negative effect.

The development of Ukrainian iron ore plants is appropriate to determine, taking into account trends in specialized and related world markets (metal), but also to assess the markets for metal products and machinery, trends in the national energy market, in particular, the coal industry (Pashkevych, 2011). This choice correlates with the state export strategy of Ukraine (Government portal, 27.12.2017 12:48), in which the emphasis is placed on strengthening the support for mechanical engineering enterprises, which will increase



**Fig. 5. Alternatives of sales of Ukrainian iron ore products of vertically-integrated holding in terms of globalization:** 1 – exports of IORM by mining and concentrating enterprises; 2 – sales of IORM to metallurgical enterprises of the holding in the domestic market; 3 – exports of products of metallurgical enterprises of the holding



the demand for the products of the mining and metals sector. Realization of this approach is possible in the conditions of stimulating the domestic demand for metal and metal products for construction, development of machines and mechanisms, which, in the conditions of innovation and competitiveness of the latter, will allow the suppliers of raw materials – enterprises of MMS – to obtain significant positive economic results in the conditions of globalization.

## 7. Conclusions

High-level globalization of Ukraine makes it significantly dependent on the condition of global markets of key export branches of the national economy. Ukraine belongs to the top ten countries with the largest reserves of iron ore and its production in the world; however, an insignificant part of the market

doesn't allow influencing its condition. The surplus of iron ore and deficit of iron-ore pellets in the global market stimulate the interest of Ukrainian mining and beneficiation enterprises in projects on improving their existing production facilities. The volatility of the global market for iron ore raw materials increases the level of financial and investment risks. The strategy of protecting the economic interests of the mining and beneficiation enterprise can be built taking into account the corporate synergy provided by a vertically-integrated holding – transnational company.

Search for opportunities to reduce the cost of iron ore products, assessment of advantages and risks of vertical integration, and forecasting of the effectiveness of state measures regarding the development of the domestic market, Ukrainian industries potentially competitive in the global market, are considered as a direction for further research.

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# LEGAL REGULATION OF ADAPTATION OF THE NATIONAL LEGISLATION OF UKRAINE TO THE EU LEGISLATION (ACQUIS COMMUNAUTAIRE) IN THE FIELD OF PUBLIC SERVICE

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**Abstract.** The purpose of the paper is to analyse the concept of a system, to consider the essence of systems theory in lawmaking. *Methodology.* On the basis of the analysis of components of legal relations in the field of public service and functions of the latter, the specificity of its implementation in the process of adaptation of the national legislation to the EU laws in the field of public service is determined. Task-solving related to the development of laws of adequate quality in terms of the guarantee of their effectiveness, system nature and completeness of the actions, which relies on the legislator, is possible only on conditions that systems theory is applied. *Results* of the paper showed that a key feature of legal relations in the field of public service is manifested through their functional purpose – the satisfaction of public interest. This particular feature allows us to refer to them as to a system rather than a complex of separately existent objects. *Practical implications.* The application of systems theory during the implementation of adaptation of the national legislation to the EU in the field of public service implies the necessity to cover all, without any exceptions, components of legal relations in the field of public relations by such processes. *Value/originality.* The research defined that an adequate application of systems theory during the implementation of the adaptation of national legislation to the EU laws in the field of public service is able, quite predictable, and lead to the codification of legal norms, which regulate legal relations in the field of public service.

**Key words:** system, systems theory, public service, adaptation of national legislation, EU legislation.

**JEL Classification:** P19, H83, D72

## 1. Introduction

Any legislative amendments, including those, which are performed through the adaptation of national legislation to the EU one, have to be based on compliance with the requirements of key principles of lawmaking. Thus, the legislator has the task of development of laws of the proper quality in terms of the guarantee of their effectiveness, consistency and completeness of the actions, gaps' absence, elimination of conflicts of law, etc. (Nediukha, Hladkova, 2014). Their solution during the implementation of the adaptation of national legislation to the EU one in the field of public service is possible solely upon conditions of the application of systems theory.

A.M. Rysheliuk reveals the significance of adherence to the principle of system nature in lawmaking in more detailed and comprehensive way, dividing it into internal and external one. According to the scientist's definition, the concept of internal system nature covers the existence of a certain system of disclosure of the normative material within the law, in particular, thematic logic and consistency, the lack of gaps between content-related provisions, the absence of repetitions, a clear structure of the law, density and logical completeness of regulation of issues covered by the law, an internal coherence of its provisions. A.M. Rysheliuk offers to comprehend an external systems theory as a harmonious

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inclusion of an appropriate law in the current system of legislation and its occupation of a logical place in this system, as well as an informative consistency of the provisions of a new law with the provisions of other laws. An element of the external system nature is the requirement for compliance with a sector division of the legislation during development and adoption of the law (Rysheliuk).

Some aspects of the application of systems theory in lawmaking were also studied by the following scholars: Bakhrakh D.N., Hladkova T., Nediukha M., Fomitska N.V., Shlonska O.O., however, in the context of implementation of the adaptation of national legislation to the EU one in the field of public service, this issue is considered for the first time.

Taking into account the obvious importance and relevance of the determined problem, we set a goal to consider within this article the essence of systems theory on lawmaking and the specifics of its implementation in the process of adaptation of national legislation to the EU legislation in the field of public service.

## 2. Analysis of the concept of the system

We think it expedient to start solving the above tasks with the analysis of an original concept – the concept of a system. The Academic Explanatory Dictionary of the Ukrainian Language includes about twenty definitions of the notion “system”, however, in the context of this issue, the following are the most acceptable for the purposes of our study: system – a set of any elements, units, parts, united according a common basis, purpose; a construction, a structure that composes a unity of naturally located and functioning parts; an order caused by the correct, systematic arrangement and reciprocity of parts of something (The Academic Explanatory Dictionary of the Ukrainian Language).

Fomitska N.V. in case study, devoted to the methodology of systems theory, proposed an author’s definition of the concept of system, which allows us to define the list of key features of the latter: “System is a collection of objects of free form and content, mutually interconnected to each other and united by some regular interaction”. The scholar identifies such characteristics as follows:

1. Cohesiveness is a feature that lies in the fact that a system is, first of all, an integral set of elements, that is, components don’t form a unit (system), but conversely, the components of the system are discovered during the unit separation.

2. Conventionality of boundaries. The author writes that based on the understanding of a systemic nature of the world, it is not always possible to clearly define the boundaries of this system, separate from the objects of the external environment, which largely determine the quality of the system operation.

3. Emergence is the phenomenon of the acquisition by a system of new properties, characteristics, qualities that are alien to any of the objects, which compose it.

4. Homeostasis is the ability of a system to function without a significant decline in efficiency for a long time.

5. Defined order, interconnection, interaction. In addition, Fomitska N.V. identifies the property of the emergence as the most important property of the system (Fomitska, 2015).

Besides these features, the system also has a feature of integrity, due to which it is possible to speak about the emergence of the system itself, which is manifested in acquiring the characteristics that are inherent in the system but not specific to each of its individual components outside of interaction with others. Integration is a process and mechanism of unification and cohesiveness of elements, which are characterized by integrity, system-forming variables, factors, connections, etc. (Don V.A. (ed.), 2006).

On this issue, Bakhrakh D.N. notes that all features of a complex system are important, significant, and closely interconnected, besides their interconnection form an integral property of the whole system – system-forming, integrative secondary feature, the existence of which is affected by each of the primary features in a special way. This is one of the properties of complex systems: the interaction of parts of the whole generates such special characteristics, which parts don’t have (Bakhrakh, 1989).

Thereby, the ability of the components to integrative mutual influence has its natural consequence of their unity, which reflects in the unity of the functional purpose of the system, and vice versa: when the system implements its purpose, its components interact as a cohesive whole. Thus, the system-forming feature is manifested in its functions, and the very functional purpose of public service is its most essential, key feature.

## 3. The nature of systems theory

Based on the above statements, we turn to the consideration of the nature of systems theory. Thus, the term “systems theory” covers a group of methods, due to which a real object is described as a set of interacting components. In this case, the general tasks of system researches, as scientists emphasize, are analysis and synthesis of systems. In the process of analysis, the system is separated from the environment, there is determined its composition, structure, functions, integral characteristics, as well as system-forming factors and interconnections with the environment. The synthesis process creates a model of the real system, raises the level of abstract description of the system, and determines the completeness of its composition and structures, description basis, regularities of dynamics and behaviour. The systems theory is applied to a

multitude of objects, the study of individual objects and their components, as well as the properties or integral characteristics of objects (Shlonska).

In such a way, at the current stage, we have already found a system-forming property that defines the functional purpose of public service as a system. To conduct a proper analysis, we also should, as follows from the above, determine the structure of public service and specify its functions. In turn, in order to determine the structure of public service, first, we will turn to its concept.

The legal doctrine has developed two main approaches to the disclosure of the nature of public service: institutional and functional. In accordance with the institutional approach, public service is determined by the specifics of the legal status of entities that carry out activities in a specific area and is considered broadly and narrowly. Public service in the broad sense can be carried out by employees of all organizations of the public sector: public authorities (not only executive but also legislative and judicial); state enterprises and institutions; local self-government bodies; public utilities and institutions. That is, the concept of public service includes the activities of employees of all institutions that perform public tasks including the activities of state or municipal doctors, teachers, etc. Public service is considered in the narrow sense in the institutional dimension as an activity, primarily, of employees of the bodies of state executive power and executive bodies of local self-government (Tymoshchuk, Shkolyk (ed.), 2007).

The institutional approach is clearly monitored in the definition of public service consolidated in the Code of Administrative Legal Proceedings of Ukraine: "Public service is an activity in state political positions, professional activity of judges, prosecutors, military service, alternative (non-military) service, diplomatic service, another civil service, service in the ARC authorities, local self-government bodies" (The Verkhovna Rada, 2005). At the same time, the legislator totally ignores the key feature of public service – its functional purpose.

#### **4. The functional aspect of public service**

As we have been defined above, the function for the existence of a system is a key feature that ensures the unity and interrelation of its parts, for this very reason, it is more appropriate to turn to the functional aspect of public service. From this point of view, public service involves activities of many institutions as the tasks of public administration in many countries are performed not only by the bodies and organizations of public (government and municipal) sector but also delegated by public organizations and even by private entities. That is, it is about the extension of the circle of subjects involved in the implementation of public functions

and about the determination of boundaries of public service through the implementation of public tasks (Tymoshchuk, Shkolyk (ed.), 2007).

Popova O.V. formulated an appropriate, from the standpoint of the functional approach, author's definition of a public service: "Public service should be defined as the realization of power by the people through the fulfilment of tasks and functions of the state, aimed at ensuring public interests by persons on a permanent professional paid basis at the expense of budgetary funds in executive bodies, the apparatus of all branches of government, local self-government bodies on the basis of administrative-legal act of appointment to a post" (Popova, 2011). Based on this definition, it is possible to identify the key determinant of public service immediately that lies in its purpose, – "the realization of power by the people through the fulfilment of tasks and functions of the state, aimed at ensuring public interests by persons ..." and only then the author refers to the specific features of such subjects, however, as the above definition illustrates, the first and decisive thing is to outline the purpose of public service.

Consequently, many definitions of public service, developed for today by domestic scholars of administrative issues, can be divided into two groups depending on whether its nature is determined by the nature of activities of entities or the specific legal status of such. After all, the determination of an object (phenomenon, process) means to define a list of features, typical of the genus or species, to which it belongs, and particular or several ones, which allow delimiting the determined object (phenomenon, process) from close or similar to it. From this perspective, the key distinction of public service is absolutely its purpose, which is specified in its functions. That is why we consider the functional approach allows discovering its nature more complete.

On the basis of the analysis, we can conclude that public service is considered as a professional activity of subjects with a specific legal status, which allows solving the tasks facing public servants in order to achieve the ultimate goal of satisfaction of the public interest. However, activity is not the only component of public service as a phenomenon, which is a system itself.

#### **5. Application of systems theory in the adaptation of national legislation to the EU legislation**

In turn, adaptation, from the point of view of systems theory, is the process of adjustment of a system to the environment without losing its identity. Adaptation has a number of dimensions: social, political, state-management. Adaptation in public administration is related to the adjustment to the environment of subjects, institutes, methods, and technologies of public administration (Don V.A. (ed.), 2006).

In such a manner, the application of systems theory in the adaptation of national legislation to the EU legislation requires that it will be done during determining the legal status of all entities (both public and private) without exception, by defining the order of their activities (taking into account all directions of activity of its subjects without exception) and on the basis of conceptual foundations defining the purpose of public service. Consequently, the application of systems theory during the implementation of national legislation adaptation to the EU laws in the field of public service implies that it should cover all, without any exceptions, manifestations and forms of legal relations in the field of public service, which are a unified system and not only public service as a professional activity of public servants. In other words, we should discuss legal relations in the field of public service as a complex system that will allow implementing systems theory in the adaptation of national legislation to the EU laws in the field of public service in full measure. The integrative feature of this system, as we have defined above, is its purpose – satisfaction of public interest.

Melnyk R.S. interprets public interests as conscious interests of the whole society or its part (territorial communities, state, etc.), which reflect the economic, social, and law-enforcement needs of the population.

Public interests are not simply a set of individual interests of members of a society or its part. They are a kind of quintessence (combination) of the interests of members of society, that is, they combine only those interests, which are equally important for every member of a society (the interest to breathe clean air, the interest to use safe public transport, the interest of access to urban infrastructure objects, interest to in a safe (non-criminogenic) city, etc.). Under a public interest, it is necessary to recognize such an interest, which is “accessible” for any person on an unconditional basis. The public interest is a relatively sustainable category as the belonging of one or another interest to the category of public interest depends on economic, political, social factors that may vary from time to time (Kolomojets, Kolpakov (ed.), 2014).

Ways and directions of the satisfaction of public interest are reflected in the functions of public service, the detailed consideration of which will enable us to disclose the essence of the system-forming feature of the legal relationship in the field of public service – its functional purpose.

Karpa M.I. carries out a profound analysis of the concept of the post of public service from the position of the functional approach stressing that it is expedient to consider the activity of public authority only taking into account a system nature as its basic characteristic. The author proposes to divide the functions by the forms of activity into: 1) organizational; 2) permissive-regulatory; 3) technologically-enforcement; 4) authoritative; 5) information; 6) control; 7) rulemaking;

8) representative, and others. Karpa M.I. proposes to distinguish such functions by the subjects of implementation: 1) the state service and its officials; 2) local self-government and its officials; 3) state enterprises, institutions and organizations and their officials; 4) other institutions, organizations, enterprises authorized to perform the functions of public service and their officials. According to legal forms of a service career, the researcher defines: 1) law-making; 2) control; 3) organizational; 4) law enforcement functions. Along with this, in the context of the implementation of the main objective functions of the public authorities, Karpa M.I. defines the following: political, economic, social, cultural, environmental, and humanitarian (Karpa, 2013).

Such a multiplicity in the direction of public service and its appointment is conditioned by the multiplicity of participants in the legal relationships in the field of public service and the specifics of their legal status. All these facts allow us to speak about the plurality of varieties of legal relationships that are in the public service.

For example, Bednyi O. proposes to mark the following types of public-service relations: 1) the basic public-service relation, within which a public official performs his official duties as defined by the status of a corresponding public service position, and a public authority creates the proper conditions of service activity for an employee and pay for it; 2) public-service relations connected with the involvement of persons in the public service and their dismissal from the public service; 3) public-service relations related to the assessment of professional knowledge and skills, as well as other characteristics of candidates for posts of public service and civil servants; 4) public-service relations related to the submission and disclosure by applicants for posts of public service and civil servants of information about property, income, expenses, and financial obligations regarding them and their family members; 5) public-service relations related to the conferment of ranks, class ranks, special ranks etc. to public servants; 6) public-service relations related to professional education and advanced training of the level of professional competence of public servants; 7) public-service relations related to the application of disciplinary measures to a public servant; 8) public relations, which are not directly public-service but closely related to their public purpose and content (for example, internal organizational relations in public authorities with regard to the creation (establishment) of posts and the determination of official powers and relations relatively to the consideration and decision in the administrative procedure of public-law disputes on public service matters) (Bednyi, 2016).

Without denying in any way the value of such a scientific approach, it should be emphasized that the above classification reveals the “internal” activity

component of only one category of subjects, public servants, and other institutions belonging to the sector of public relations related to the acceptance of a person to public service, its career and termination, outside of one's interaction with such subjects as a person and a citizen, a territorial community, the nation of Ukraine, whose interests must be satisfied in the process of professional activity of public servants and other institutions that contribute to it.

That is why the application of systems thinking during the implementation of the adaptation of national legislation to the EU laws in the field of public service implies that all components of legal relations in the field of public service should be covered, only under this condition it will be possible to achieve the ultimate goal of professional activity of public servants – realization of public interest.

The structure of legal relations in the field of public service includes all the components, which are typical for any legal relations: 1) a subject or subject body is a group of people involved in legal relations; 2) an object, that is, it provokes appearance and performance of activity of subjects; 3) a content, that is, legal rights, duties, powers, responsibilities of subjects of legal relations, as well as the structure of content – a way of interconnection arising on the basis of legal rights, duties, powers, responsibilities. The structure of the content of legal relations does not form a connection of its content elements (rights, duties, powers, responsibilities) but forms the legal connection that arises on their basis about claiming something. In other words, this is the legal mutual status of subjects, which determines, shapes their behaviour through corresponding to one another rights and obligations for the satisfaction of their interests; 4) a legal fact, which is the basis for the

emergence, change, and termination of legal relations (Skakun).

## 6. Conclusions

Summarizing our research, we emphasize once again that the key, integrative feature of legal relations in the field of public service is revealed through their functional purpose – the satisfaction of public interest. This very feature allows us to speak about them as a system, rather than a complex of individually existing objects (phenomena, processes), which we have been listed above in the framework of the structure's consideration.

Thus, the application of systems theory during the implementation of national legislation adaptation to the EU laws in the field of public service implies the necessity of coverage by such processes, without exception, of legal relations in the field of public service: all entities without exception (not only public servants and public authorities but also those segment of the population whose public interest is realized in the process of professional activity of public servants and other subjects contributing to it), a proper and profound determination of the legal status of each of them (and not just the legal status of public servants), order, reason, and conditions of interaction within relations that are formed due to the satisfaction of public interest (including professional activity of public servants).

Based on the above, we also consider it quite justified to state that the proper application of systems theory during the implementation of the adaptation of national legislation to the EU one in the field of public service legislation is able quite naturally to lead to the codification of the legal norms regulating the legal relations in the field of public service.

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# THE INCREASE OF ENTERPRISES' INNOVATIVE DEVELOPMENT BASED ON THE NETWORK APPROACH

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**Abstract.** The *purpose* of the paper is studying the role and problems of the innovative development of domestic enterprises, discovering the factors that influence these processes. *Methodology.* The methodology for the study was based on logical and historical methods, methods of the system-functional approach, methods of scientific abstraction, systematization, grouping, generalization and formalization, analysis and synthesis, economic and statistical methods, and method of questioning and peer review. *Results.* It is studied the essence and substantiated the expediency of the network approach use, it is outlined its capabilities and limitations, determined the effectiveness of network innovation structures, and developed the proposals for activating the innovative development of enterprises in new dimensions of the economic space based on the network approach. *Practical implications.* The proposed measures will promote the activation of innovative development for domestic enterprises, improve the quality of business chains, competitiveness and management structures, and provide the development of new market segments. *Value/originality.* The information background for the paper was the official data of the State Statistics Service of Ukraine, statistical and financial statements of enterprises, rating estimates by the international agency Bloomberg Rankings, analytical report "Global Innovation Index" (World Intellectual Property Organization, WIPO), the report of the European Innovation Scoreboard, scientific publications of domestic and foreign researchers, normative reference literature, analytical and logical generalizations and observations of authors, Internet information resources.

**Key words:** innovations, innovative development, enterprises, network approach, network innovative structures.

**JEL Classification:** R14, D18, P2

## 1. Introduction

In the world, there is a formation of a new type of entrepreneurship, the basis of which are knowledge and information and communication technologies, and which is focused on the activation of innovative development. That is, the speed of building social needs, the intensification of scientific and technological progress, the aggravation of competition and other factors require domestic enterprises to activate the innovative development using new non-traditional approaches. Therefore, the activation of innovative development for domestic enterprises based on a network approach, the emergence of which is conditioned by the progress of information and communication technologies and the deployment of business democratization processes, will promote the generation of additional competitive advantages, provide economic benefits, assimilate new market segments, and

increase labour productivity. This approach solves a wide range of problems that require qualitative changes in the activities of enterprises since it is "in the network structures and the network principle of the organization of economic activity, a new driver of innovation development of enterprises" is seen (Sichkarenko, 2015). Based on this, the chosen topic of research is particularly relevant; inhibition of innovative development of domestic enterprises is due to their backwardness, loss of competitiveness, and economic crisis.

The issue of enterprises' transition to an innovative way of development, measures to enhance their innovative activity in scientific publications are covered fairly widely. When considering this problem, researchers most often rely on the development of: J. Schumpeter, C. Oppenlander, P. Drucker, A. Anchishkin, N. Kondratyev, D. Kokurin, J. Yakovets,

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S. Ilyashenko, P. Pererva, L. Fedulova, A. Yastremskaya and others. However, issues of mainstreaming innovative development for enterprises based on the network approach remain the object of lively scientific discussions, which means space for the further development of scientific research.

The aim of the article is to highlight the role and problems of innovative development for domestic enterprises, to find out factors affecting these processes, discover the essence and the rationale for the use of a network approach, define its capabilities and limitations, define the effectiveness of network innovation structures, and to develop proposals to enhance the innovative development of enterprises in new dimensions of the economic space based on the network approach.

## 2. Challenges and condition of the innovative development of Ukrainian enterprises

The need to intensify the innovative development of domestic enterprises is generated, mainly, with the emergence of new challenges and deformations in the economic space. To such challenges and deformations today can be attributed: political instability and conduct of the anti-terrorist operation in the east of the country, saturation of the market and a rapid decline in consumer demand of the population; development of radical qualitative innovations, especially for production technologies; deployment of inflationary processes; expansion of the market assortment; destruction of the banking system, and as a result of the narrowing of business lending; threats of competitors. In contrast to existing challenges and deformations, there is a slowdown in the innovative development of enterprises. So, during the 2014–2016 years, the share of enterprises engaged in innovative activities was 18.4%, incl. technological innovation – 11.8% (5.7% for the product and 10.3% for the process), non-technological – 13.4% (8.7% – organizational and 10.2% – marketing) (Popov, 1994). It should be noted that there is a close interdependence between the size of the enterprise and its innovative activity, since additional resources, in particular, a certain number of employees for research and development, are needed to develop innovations. The largest share among technological and non-technological innovation enterprises was observed in large enterprises (31.4% and 28.1%).

By industry, in 2014–2016, the largest share of innovation had information and telecommunications enterprises (22.1%), processing industry enterprises (21.9%), enterprises of financial and insurance activities (21.7%), and enterprises of activities in the field of architecture and engineering (20.1%) (Popov, 1994). According to the territorial location, a high level of innovative activity was noted at the enterprises of the Rivne, Kharkiv regions, and in Kyiv.

In 2016, enterprises allocated 23.2 billion UAH for innovative needs, including the purchase of machinery, equipment, and software in the amount of 19.8 billion UAH. Almost a third part of enterprises carried out innovative activities to introduce new or substantially improved products or processes. Innovations were mainly carried out at the expense of the enterprises' own funds (89.5%), foreign investors' funds (3.1%), and other sources (2.9%) (State Statistics Service of Ukraine, 2017). The main partners for enterprises on innovative cooperation were primarily suppliers of equipment, materials, software, and customers (13.7%). The share of enterprises cooperating with scientific institutions was 8.4%.

At the same time, we note that the innovative potential of countries is determined by indicators of the availability and growth of the number of doctors and candidates of sciences and an increase in the relative number of persons with higher education (according to which Ukraine is among the top ten economically powerful countries). The share of doctors and candidates of science among performers of scientific research was 27.9%, among researchers – 42.6% (State Statistics Service of Ukraine, 2017). In 2016, the proportion of performers of scientific research in the total number of employed population was 0.60%, including researchers – 0.39%. According to Eurostat, in 2014, this share was high in Denmark (3.07% and 2.09%), Finland (2.95% and 2.12%), Norway (2.73% and 1.90%) (World Intellectual Property Organization, 2017).

## 3. Comparison of indicators of Ukrainian enterprises' innovative development with enterprises from other countries

The world does not stop its development in order to give domestic enterprises an opportunity to catch up. The maximum innovation that J. Schumpeter defined as “creative destruction” helps to avoid various business problems, and Ukraine's enterprises are characterized by innovative backwardness compared to other countries. For example, according to the European Innovation Scoreboard in 2016, Ukraine was in the last on the level of innovation – the fourth group – “modest innovators” with an index of 0.1889 (maximum 1). Compared with other EU countries, the backlog of Ukraine is more than 4 times from the first group of “Innovation Leaders” (the first place in the rating takes Sweden – 0.796). In general, for Ukraine, the largest value of this index was observed in 2013 – 0.1893 (European Commission, 2017).

The low innovation activity of Ukrainian enterprises is confirmed by the rating of the international agency Bloomberg Rankings. So, in 2017, Ukraine took the 46th place in the top 50 innovations and economies of the world (Innovation Index) (in 2015 – 33, 2016 – 41) (Bloomberg, 2017).

Based on the analytical report “Global Innovation Index” (World Intellectual Property Organization, WIPO), according to the country’s innovation rating in relation to GDP, Ukraine was classified as lower-middle-income and ranked 64th out of 141 countries (World Intellectual Property Organization, 2017). The share of research and development expenditures in Ukraine’s GDP was 0.48%, including 0.16% at the expense of the state budget. In 2015, the same figure in the EU countries averaged 2.03%. The highest rates were shown by Sweden – 3.26%, Austria – 3.07%, Denmark – 3.03%, Finland – 2.90%, Germany – 2.87% (European Commission, 2017).

That is, it can be argued that domestic enterprises have not yet become on the rails of activating innovative development. The most vulnerable for Ukraine are: “Political stability and security” (125th place), “Easiness of resolving issues of bankruptcy” (113th place), “Political environment” (123rd place), “GDP per unit of energy” (115th place). High rankings in the world competitiveness ratings of national economies are held only by those countries whose outstanding achievements are due to attracting the innovation factor: Finland, Great Britain, Netherlands, Singapore, Japan, USA, South Korea, Ireland (Ivchenko, 2007). Innovations have the ability to rapidly change entire sectors of the economy and bring tremendous economic, social, and financial benefits to countries that create a supportive environment for them (European Commission, 2017). That is, for more effective implementation of their capabilities, enterprises must move from single mastering of innovations to a large-scale integrated process of generation and implementation of innovations, namely, to intensify their innovative development.

#### **4. Braking the factors of enterprises’ innovative development**

Managers of enterprises call holding factors that prevented them from mastering innovations in 2014–2016, namely: low demand for innovation (60.7%), lack of funds (57.1%), lack of ideas or opportunities for innovations (54.7%), high costs for innovation (52.3%), negative experience in innovation development (51.2%), difficulties in attracting state support for innovations (38.5%), unfavourable regulatory framework (34.1%), low competitiveness of the enterprise (34.7%), high competition (31.2%), lack of loans (29.4%), uncertain demand for innovative products (16.4%), absence of skilled labourers (11.76%), absence of reliable partners (8.2%).

It should be added to this list that business-units are becoming more and more pluralistic; democratic; interconnections between different business contractors are complicated; it is significantly increasing the uncertainty, threats and risks; globalization is unfolding,

the influence of external factors on the state’s internal politics is growing; competitive struggle is intensifying; society IT development is intensifying; the confidence of entrepreneurs and the population towards state authorities is falling down. The above requires the revision of traditional approaches to activating the innovative development for enterprises, as they do not meet the challenges of the present, and in the conditions of the information and communication revolution do not provide the expected activation and efficiency of innovative processes.

#### **5. The feasibility and essence substantiation for the network approach**

Now, activation of innovation activity involves an increase in the degree of openness and interaction with partners. Multiplicity, versatility, and complexity of such an interaction prove the expediency and effectiveness of the application of the network approach.

In fact, a network approach is an answer to the challenges, the changing conditions of enterprises and their expectations in the uncertain and full of threats and information in the economic space. A network approach defines a system of relationships between enterprises without the domination of one of them. In essence, it provides for the use of one of the types of horizontal integration, contributes to the maximum attraction of available resources for the provision of innovative products and services, the development of technological innovations, the development of competencies, competitive advantages, innovation, production, information, and intellectual potential in the contour of a single multi-polar information and communication space. Among the significant advantages of the network approach, there should be high organizational capacity, more efficient use of resources, increased competitiveness, expansion of the horizons of opportunities to solve complex innovation problems and improve the quality of services, services for consumers.

The network approach is based on the synthesis of several economic theories: resource theory, evolutionary economic theory, management theory, knowledge economy, institutional theory, the doctrine of synergies, the economy of agreements and transactions. Hence, the logic of the network approach includes (Kelly, 2009) decentralization, synergy, community, free access, concern for network values, maximization of innovation, multidimensional space, lack of discontinuity, technology balance, expansion of the space of innovation opportunities.

Appropriate is the assertion by Paul Romer, Paul Krugman, and Kevin Kelley (Kelly, 1999): the values associated with the network function as stimulants – the perception of the desired behaviour is the basis for creating the network and attracting the following

participants; contribution to overcoming resistance to rapid changes and the spread of innovative behaviour.

The use of the network approach as a specific form of organization of innovative business chains began in the middle of the last century as a response to the challenges of scientific and technological progress, deepening the processes of globalization. At the same time, internationalization and integration of economic processes were observed. Enterprises of economically powerful countries began actively use various forms of integration, cooperation, and partnership. At the same time, the development of modern ICT has provided the formation of information and business communications between enterprises, significantly expanded the opportunities for their interaction. In fact, this form of organization of innovation activity helps enterprises to disseminate information about their innovative projects, supports at various stages of innovation, helps in finding business partners and clients.

That is, a hierarchical traditional structure, limited by national, legal, and bureaucratic borders, is replaced by a qualitatively new one, in which each enterprise has almost the same opportunities to attract resources and competences of other members of the network. The meaning of the network organization of innovation activity is concentrated in “the possibility for each of its participants to have equal direct relations with other participants” (Zvirko, 2012). Network interconnections of enterprises are determined by independence from spatial, time, resource constraints and are based on the capabilities of modern information and communication technologies, competitive advantages and competencies that apply to all enterprises included in it: risk minimization, high intensity of information flows, expansion of business combinations, coordination of innovation chains, multiplication of key competencies, optimal use of common assets.

“The network structure is a new model of redistribution of intellectual and production resources, it allows its subjects to minimize the time and material costs of adapting to market conditions.” In conditions where the resources of high-tech enterprises are limited and do not meet the requirements of the competition, it is their network reorganization that allows redistributing the risks and reducing the time and financial costs for the development and implementation of innovations” (Moskovkin & Rakovskaya-Samoylova & Kovalenko, 2005).

## **6. The experience of using a network approach in European countries**

The European Network of Business Innovation Centers (EBN) was established in the early 1980s on the initiative and at the expense of financing by

the European Commission, it now carries out as a non-governmental non-profit association receiving funds from the EU only with participation in specialized projects on the competition on general grounds. Additional funding is provided for the provision of services to partners, contributions of network members and sponsorship. The network comprises almost 150 accredited members and up to 70 associates. Their permanent staffs consist of 13 people. The b-apartment is located in Brussels. An important function of the network is to manage the quality of business innovation centres: accreditation (by agreement with the EU) to obtain the status of a “European Business Innovation Centers” (EU-BIC). The EIC, the network of European innovation centres was established in 1987 by the European Commission. It united more than 300 organizations in 50 countries of the world, mainly its chambers of commerce, economic development agencies, banks and consulting companies, business associations (Castells, 2010).

## **7. The experience of using a network approach in Ukraine**

At present, the development of network innovation structures in Ukraine can be considered fragmentary. There is an attempt to form or expand some network entities at the regional or national level (innovation centres, technology transfer centres, intellectual property commercialization departments, which unite partner and agent networks around them). Practically it is an attempt to introduce the experience of the EU countries on the domestic expenses, but their impact on the activation of innovative development for enterprises is not much appreciable. Note that there is a tendency to form formal network innovation structures. Mostly they perform functions of marketing networks by consulting agencies and the like. The reason for this is inadequate state support, low coverage of potential innovative enterprises, lack of development of intermediary innovative, investment, information structures, transfer and technology transfer centres, low qualification of personnel, lack of skills in the development of partner chains.

Summarizing the practical experience of using network innovation structures convinces that such a network forms a solid institutional basis for the innovative development of enterprises, creates the necessary information, organizational and economic prerequisites, and accumulates resources for successful innovation activity. It helps to coordinate the activities of enterprises, intermediaries, developers, scientists. Its role is to facilitate the continuous flow of new ideas, their development and commercialization, and the practical introduction of innovations in production.

## 8. Advantages and disadvantages of using a network approach to stimulate the innovation development for enterprises

It is recognized that the formation of innovative networks has a relatively fast and significant positive effect, which gradually changes the very quality of innovative development of participating enterprises. The effectiveness of innovative networks is ensured by a low level of staff utilization and an optimal cost structure of resources. "Networks exclude the duplication of competent workforce and capacities in different sectors, thus avoiding high aggregate costs for the production of end products or for the intra-organizational exchange of services." The prerequisites for a network configuration without the use of surplus labour are in particular deep segmentation of all members of the network organization. In general, the network has a reserve potential, primarily due to the creation of new configurations or the attraction of additional partners (Popov, 1994).

At the same time, the innovative network is characterized by the following features: "the rejection of bureaucratization and formalization, the high status of information and personnel integration tools (combination of staff), the form of communication between the organization itself and other enterprises, for example, by creating internal markets, a small number of hierarchical levels thanks to the transition from a large centralized organization to a number of small organizations with flexible specialized forms of work" (Merriden, 2003).

Despite the conducted research, we are convinced that the implementation of the activation of innovative enterprise development based on the network approach reveals both new opportunities and has a number of limitations.

So the following additional possibilities are revealed:

- increasing the adaptability of enterprises to changing environmental conditions;
- expansion of info-communication chains;
- reducing the level of risks and threats;
- the emergence of a rapid adequate response to changing consumer demand;
- multiplication of competence;
- adding competitive advantages;
- concentration and specialization of the company's activity on attractive unique processes;
- optimization of structure and volume of expenditures;
- avoiding the duplication of staff use;
- providing creativity and flexibility;
- attracting the best specialists and partners;
- combination of interests of the enterprise with interests of the whole network.

At the same time, the innovation network generates a number of limitations that need to be considered when forming:

- lack of material support and social guarantees for its members due to the refusal of any long-term contracts;
- focus on key competencies, narrow specialization, which does not provide for diversification of activities;
- excessive dependence on the professionalism of the staff;
- large risks due to staff turnover;
- great heterogeneity of participants and partners;
- danger of excessive complexity of the innovation process;
- dilution of participation and membership;
- high dynamics of changes within the network.

The formation of an innovative network for the activation of innovative development for enterprises in Ukraine is due to the following circumstances: the need to modernize the outdated material and technical base of many enterprises; growth in demand for high technology; wide dissemination and development of ICTs; availability of highly qualified specialists; the need for the technological renovation of the production; the insufficient level of the development of applied science, which hinders the introduction of innovations; the democratization of business models; the request for new values.

The purpose of creating an innovative network should be to increase the level of competitiveness of enterprises by enhancing their innovative development by expanding competencies, sharing resources, infrastructure, reducing the duration of innovation cycles; an increase of competitive advantages; risk reduction; an increase of innovation effectiveness.

## 9. Proposals for the activation of enterprises' innovative development on the basis of a network approach

The innovative network covers the areas of search, generation, and dissemination of ideas and the development and commercialization of innovations; it is a set of enterprises, organizations, objects of innovation infrastructure, public authorities that interact in the process of innovation and operate in the contour of a certain innovation policy.

An innovative network is formed by a number of subsystems: 1) education, vocational training and retraining of personnel (including universities, colleges, other institutions of secondary and vocational education, as well as the organization of retraining and professional development of personnel, taking into account the training and retraining of personnel for innovation); 2) subsystem of innovative activity, production and sales of products and services (including small, medium, and large enterprises, branch and regional innovation and technical centres, as well as concerns, corporations, and financial-industrial groups, trade (dealer) networks); 3) a subsystem of technological infrastructure (including centres for the support of innovative entrepreneurship,

technology parks, telecommunications networks, business incubators and business innovation structures, consulting and engineering firms, information centres and technology transfer centres, a system of scientific and technical communications, together with a system of scientific and technical information, demonstration halls); 4) the financial infrastructure (contains organizational and legal mechanisms for financing and resource support for all stages of the innovation cycle with the investment companies, banks and other financial institutions, investment and innovation funds, venture funds, budget financing, if the customer is a state); 5) an information infrastructure subsystem (covering information resources, technologies and systems, information and telecommunications networks, ICT market)" (Shugurova, 2010).

Functions of the innovation network are: the promotion of innovative technologies; the search for innovative solutions for small and medium-sized technology-oriented enterprises, the reduction of operational, commercial, systemic, and criminal risks for them; the promotion of technological cooperation; the dissemination of data on research results among potential consumers, technological and organizational assistance expansion of access to these data for all participants of the innovation network, the systematization of technical information, organizations for partners of personnel and educational programs (Zgurovsky, 2006).

A key role in the development of network innovation structures belongs to the state authorities that establish rules of its functioning and provide legal, organizational, resource support. Such a support can be provided through the credit subsidization of innovation activities, the direction of investment funds in venture funds, preferential taxation, accelerated depreciation.

Thus, network innovation structures allow: improving the transfer of technologies by eliminating various obstacles in joint innovation activities; accelerating development of new technologies; coordinating innovation policy of all participants; generating additional competitive advantages; directing innovation activity in the context of consumer demand and market demands; activating the innovative development for small and medium-sized enterprises.

The implementation of advantages of a network approach in the area of activation of innovative development of enterprises is carried out when the following key prerequisites are fulfilled: restructuring the business chains of the participating enterprises themselves, forming network relations and business combinations of joint innovation activities and implementing certain norms of conduct and management regulations in the implementation of joint network projects; development of organizational infrastructure; existence of a high level of technological base development to ensure the effectiveness of communications between network participants.

To participate in an innovative network, each enterprise should make appropriate changes: to use new business models based on partnership and trust; to formulate new principles for managing business chains; to develop qualitatively new rules for mutual relations and innovative behaviour. At the same time, the key areas of innovative development of enterprises should be: outsourcing; reduction in the physical size of enterprises with a simultaneous increase in performance indicators; the transformation of technical and economic basis of production; expansion of business combinations; change of values and semantic content of innovative development of the enterprise.

Thus, it is possible to determine principles of enterprise network participation: "real-time work, which includes parallel work and organization; each employee should have an access to any information about the enterprise; support for the integrity of the enterprise through the creation of a network of teams; creation of a techno-organization conditions for the formation of "virtual" teams whose members may be located at different geographical points" (Wilkinson & Young, 2002). The well-known rules for the successful individual behaviour of enterprises in networked entities are proposed by Kevin Kelly: "Everything is cheaper as it is perfected. It is worth to invent faster than the innovation becomes usual. It is not necessary to develop a product, but a network of business ties. New species constantly replace the old ones; the constant search for new possibilities, repetitions, copying, and automation depreciate, and originality and creativity grow in price" (Kelly, 2009).

## 10. Conclusions

The coverage of the role and problems of the innovative development for domestic enterprises, the disclosure of factors influencing these processes, the disclosure of the essence and substantiation of the expediency of using the network approach, the determination of its capabilities and limitations, the determination of the effectiveness of network innovation structures allowed to formulate proposals.

The use of such proposals for activating innovative development for enterprises in new dimensions of the economic space based on a network approach will help to stimulate the innovative development of domestic enterprises, effectively organize the rational interaction with partners, improve the quality of business chains, competitiveness of management structures, develop new market segments, improve the technology transfer by eliminating various obstacles in joint innovation, open up the new technologies, coordinate the innovation policy of all participants, generate the additional competitive advantages and competencies, align the innovation activities in the context of the consumer demand and the market demands.

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# INVESTMENT ATTRACTIVENESS OF AGRICULTURAL SECTOR OF UKRAINIAN REGION IN MODERN CONDITIONS OF SOCIAL AND ECONOMIC DEVELOPMENT

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**Abstract.** It is proved that investment attractiveness of regions is an indisputable factor in the stable socio-economic development of the country. The purpose of the study is to analyse investment attractiveness of region and to substantiate proposals for improving investment attractiveness of Cherkasy region. The subject of the study was peculiarities of formation and expansion of investment potential in the region. *Methodology.* The paper is based on the views of prominent domestic and foreign economists. During the research process, the following methods were used: monographic, historical, analysis and synthesis (in theoretical and empirical studies of investment process); systematic (for the systematization of methodological approaches and indicators of investment attractiveness assessment of the region); statistical and graphics (for the analysis of state and trends of investment processes in Ukraine); comparative (for analysing the investment attractiveness of regions). *Results.* The essence of investment attractiveness of region as aggregate characteristic of conditions of a certain territory of the country is determined, which includes assessment of development level of investment infrastructure, human capital, financial opportunities, which significantly affect the formation of profitability of invested fixed assets and investment risks. Investment attractiveness of an individual region of Ukraine is assessed. It is proved that investigated region is investment-attractive and has a powerful potential for increasing the volume of gross agricultural products and providing the population with quality food products. *Practical implications.* The main problems connected with the receipt of investments into the economy of the region are determined, ways of their solution are revealed. In order to improve investment attractiveness level of Cherkasy region, we recommend local authorities to work in the following areas: introduction of free funds accumulation mechanism, in particular, in venture funds; creation of innovative risks insurance system; accumulation of public funds within the framework of social and pension insurance systems and their focus on long-term lending of investment activity; strengthening investment activity of population and ensuring guaranteed protection of their savings.

**Key words:** regional economy, investment attractiveness of region, investment potential, investment climate of region.

**JEL Classification:** Q14, M21, R30

## 1. Introduction

An important role in investment activity strategy plays a scientifically grounded definition of priority investment directions, their compliance with state interests, program objectives of the national revival of Ukraine, rapid overcoming of economic crisis and achievement of stabilization and national economy's

growth. They are priority directions of scientific and technological progress, on which investment and innovation activities and resources should be aimed at as much as possible. Only those countries that are able to provide a high level of science, technology, education, culture, an organization of management and labour discipline can apply for

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the development of modern and future high-tech industries (Davidenko, 2011).

In the Ukrainian economy, a difficult situation has arisen in this regard. State that has been depleted as result of corruption, financial crisis, and military actions in the east, loses reliable sources of necessary investments. And now seeking at least with a considerable delay to revive and intensify policy of reproduction as the basis for stabilization and renewal of national commodity production, faced with the opposition of certain political and economic forces. Concentration of financial capital in new structures areas, shadow turnover and banking system, which do not seek productive investments, in fact, inhibits reproduction processes, economic stabilization and growth.

Limited investment resources and unstable capital investment contributed negatively to development and stabilization of the state economy and economy of individual regions.

## 2. Review of theory and literature

Considering peculiarity of the problem, a large number of works were published on the subject of research. According to A. Duka (Duka, 2013), mercantilists made one of the first contributions to the formation and development of investment theory.

Representatives of late mercantilism (Mun, Serra, Montchrestien) asserted the need to invest in those industries that produce export-oriented products in order to achieve positive trade balance (Lukyanenko, 2003).

Establishment of John Keynes connection between consumption, investment, and national income, which he made on the basis of the concept of a multiplier, deserves attention. He also deduced the quantitative relationship between investment and national income based on the multiplier effect or multiplier effect (Keynes, 2002).

Among modern scholars problems of current state and possibilities of optimizing investment potential of the region, its investment attractiveness were investigated by domestic and foreign researchers such as V. Andriichuk, I. Bahrova, L. Borshch, I. Hryshyna, B. Hubsnyi, N. Davydenko, B. Epifanov, H. Kozachenko, M. Kozoriz, R. Coase, P. Makarenko, O. Margolin, V. Onyshchenko, I. Rozeman, B. Chub, V. Fedorenko, and others. Aforementioned scientists have developed sound approaches to implementation of regional investment policy, offered their own methods for assessing the level of investment development of the region and its investment attractiveness.

In the works of O. Baranovskyi (2004) and V. Petrushevska (2013), reasons for the lack of attraction process efficiency of foreign investments are revealed. Researchers such as V. Liashenko (2004), Y. Bazhal (2006) researched topic of investment and investment climate. However, given multidimensional

nature of topic under study, many of its aspects have not been thoroughly studied. In particular, the issues of assessing investment attractiveness of Ukrainian regions and directions for its improvement remain inadequately investigated.

## 3. Analysis of factors characterizing investment attractiveness of the region

Regional investment attraction policy is defined as one of the main factors that affect not only economic growth efficiency but also content and form of Ukraine's entry into the world economic system.

Investment attractiveness of the region is a virtual concept since the desired one does not always correspond to reality. Assessing investment attractiveness of a particular region, rating agencies take into account not only the natural and productive potential, availability of labour and financial resources but also (usually as a result of surveys) assessments of the political situation in the region, corruption level of officials, judicial protection of entrepreneurship in the territory, etc. Moreover, the opinion of respondents may be polar depending on their personal experience of interaction with structures of state power.

In our opinion, investment attractiveness of the region is an aggregate characteristic of certain territory's conditions of the country, which includes assessment of legal framework development level, investment infrastructure, human capital, a financial capacity that significantly influences the formation of invested capital profitability and investment risks.

Namely, investment attractiveness of region is a combination of factors that predetermine behaviour of existing and potential investors in investing in region's economic development. Factors that determine investment attractiveness of region are:

- 1) availability of resource and raw material base and features of natural and climatic conditions;
- 2) economic and geographical position of the region and its level of infrastructure provision;
- 3) industrial and scientific specialization of the region;
- 4) availability of labour potential and level of its qualification;
- 5) aggregate population purchasing power;
- 6) development of institutional market structure (exchanges, banks, financial intermediaries, insurance companies, etc.);
- 7) general state factors (level of political stability, the current system of legislation, taxation system, conditions of activity of foreign investors, etc.).

So, let us take a closer look at all of the above components in order to make a real assessment of investment attractiveness of agricultural sector of the economy of Cherkasy region.

Cherkasy region is located in the central part of Ukraine; its area is 20.9 thousand square km, which is

3.46% of the state (18th place in the country). In the north, it borders Kyiv region, in the south – Kirovohrad region, on the east with Poltava, and Vinnytsia in the west. Due to its geographical location, the region is characterized by developed infrastructure.

The main document for regional development in the medium-term perspective is Cherkasy Region Development Strategy for the period up to 2020, which includes Cherkasy Region Development Strategy Implementation Plan for 2015–2018, which was prepared with the participation of stakeholders of regional development through workshops and discussions that took place during 2014–2015.

Strategy was developed on the basis of the Law of Ukraine “On Stimulating Development of Regions”, taking into account State Strategy for Regional Development of Ukraine, Strategy for Sustainable Development “Ukraine – 2020” and other documents, as well as using the best European and Ukrainian experience and experience in implementing the Strategy for Development of Cherkasy Region by 2015.

Between 2010 and 2017, the largest share of all capital investments was used by enterprises of agriculture, forestry, and fisheries (42% in 2016). In 2017, direct investments came from non-residents from 45 countries. Main investor countries that account for 94.5% of the total foreign capital include Belize, Cyprus, Germany, the Czech Republic, France, Spain, the United Kingdom, Estonia, and the Netherlands.

The agroindustrial complex of the region has potential to increase the volume of gross production of agriculture, providing people with quality food products. Over the past five years, Cherkasy region’s agriculture is characterized by profitability. The main directions of agriculture:

- crop production (grains and technical crops, fruit-bearing plantations, vegetables);
- livestock breeding (cattle, pigs, poultry).

Analysis of crop production sector shows that for the years of 2014–2016, crop area for agricultural crops is almost unchanged, with the exception of forage crops, which ceased to grow in 2016 (since yield was very low), which were replaced by fruit and berries 5,500 hectares of land were allocated in the same year of 2016.

The largest amount of production is attributed to grain and leguminous crops, namely, 40793.0 thousand tons in 2016, and the smallest one – to fruits and berries. Fodder crops, although they had a sown area in 2014 and 2015 more than 100 thousand hectares, did not produce anything.

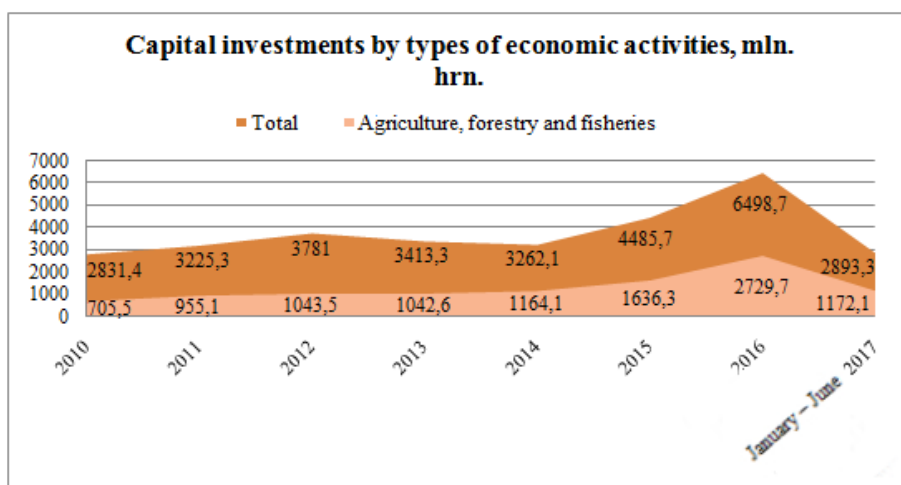
Sugar beet (factory) had the highest yield in the Cherkasy region. So, from 1 hectare of harvesting area, you can get an average of 460 thousand. Potatoes and open-ground vegetables also have high yields, grain and legume with the lowest yield, but due to their cropping area, this region’s culture is sufficiently covered.

Regarding the livestock sector in the Cherkasy region, it reflects the general picture of Ukraine: the number of livestock and poultry reduces every year. For example, if we compare the number of cattle in 2016 to 2014, we can say that it decreased by 8.4%. Significantly situation is better with a number of poultry and pigs.

In general, the Cherkasy region is an important part of livestock production of our state because, in terms of meat production, the region occupies the first place in Ukraine, milk – 8, and eggs – 9.

#### 4. SWOT-analysis of investment attractiveness of agricultural sector of Cherkasy region’s economy

Formation of the investment climate in the region depends on improving investment attractiveness. To find out investment attractiveness of agricultural enterprises in the region, it is necessary to determine where exactly the most favourable microclimate of the



Source: developed by the author on the basis of data of the Main Department of Statistics of Cherkasy region

region is. It is based on the definition of investment attractiveness in terms of financial indicators, land use, and volume of external and internal investment in agricultural enterprises.

Analysis of investment processes suggests that financial resources are invested mainly in large enterprises. However, small and medium-sized farms, which are common for Cherkasy region, also require investment. Because of agricultural enterprises management specifics in Cherkasy region, in the vast majority, there are very small (private peasant farms), small (private peasant farms, farms) and average production (farms, private agricultural enterprises). There are only a few large agricultural farms in Cherkasy region (Table 1).

According to results of 2016, agricultural production was carried out by 569 agricultural enterprises, which cultivated 65 percent of the total area of arable land, 1424 farms, of which 1190 farms have in use more than 151.4 thousand hectares of agricultural land (on average, one enterprise have 127.2 ha of land). According to operational statistics, the volume of gross agricultural production in all categories of farms grew by 2.1%, in agricultural enterprises – by 3.2%. According to volume index, Cherkasy region is sixteenth, production per capita – the third, in terms of production – the sixth. The share of agricultural production to the national level is 5.9%.

Therefore, it is further expedient to assess investment attractiveness of agricultural sector of the economy of Cherkasy region using the SWOT-analysis method.

The great advantage of Cherkasy region is the presence of large areas of high productive land and favourable natural and climatic conditions that contribute to the cultivation of many crops. In the context of current

Table 1

### A number of agricultural enterprises in Cherkasy region in 2017

Name of district	Number of agricultural enterprises	Overall rank in district ranking
Horodyshche	65	16
Drabiv	141	3
Zhashkiv	110	10
Zvenyhorodka	115	8
Zolotonosha	110	10
Kamianka	98	11
Kaniv	83	14
Katerynopil	97	12
Korsun-Shevchenkivskyi	66	15
Lysianka	89	13
Mankivka	166	1
Monastyryshche	126	4
Smila	97	12
Talne	115	8
Uman	144	2
Khrystynivka	66	15
Cherkasy	119	7
Chyhyryn	49	17
Chornobai	123	6
Shpola	112	9
Vatutine city	2	22
Zolotonosha city	21	18
Kaniv city	8	21
Smila city	14	20
Uman city	19	19
Cherkasy city	124	5
Total in the region	2279	x

Source: calculated by the authors (Main Department of Statistics of Cherkasy region)

Table 2

### SWOT-analysis of investment attractiveness of agrarian sector of Cherkasy region's economy

Strong sides	Weak sides
<ol style="list-style-type: none"> <li>Moderate natural and climatic conditions for agricultural production.</li> <li>Relief of the territory and high-performance soils.</li> <li>Favourable geographic location of the region.</li> <li>Significant manufacturing experience.</li> <li>Availability of old industrial zones for investing.</li> <li>Availability of research institutions in branches of the agro-industrial complex.</li> <li>Stable development of agro-industrial complex.</li> <li>Developed processing sector of agricultural products.</li> </ol>	<ol style="list-style-type: none"> <li>Significant imbalances between districts' economic development.</li> <li>High degree of deterioration of material and technical base of enterprises.</li> <li>Lack of development of agrarian infrastructure (vegetable and fruit storage).</li> <li>High concentration of agricultural lands (in hands of latifundists), lack of control over the use of land resources.</li> <li>Low innovative activity of the economic complex.</li> <li>Lack of foreign investment.</li> <li>High share of seasonal unemployed.</li> <li>Storage on the territory of the region of unknown, unsuitable, and prohibited for using chemical means of protection of plants (waste, pesticides), requiring urgent disposal.</li> </ol>
Possibilities	Threats
<ol style="list-style-type: none"> <li>Transfer of production from East Ukraine in the Cherkasy region.</li> <li>Output to EU markets</li> <li>Devaluation of national currency will enhance the competitiveness of ability of exporters.</li> <li>Cooperation with new foreign partners</li> </ol>	<ol style="list-style-type: none"> <li>High level of unpredictability of inflation due to the instability of the economy.</li> <li>The inequality of foreign and domestic investors.</li> <li>High cost of borrowed funds.</li> <li>Competitive threat associated with the European producers in the market of Ukraine.</li> <li>Loss of markets focused on Russia.</li> <li>Loss of personnel associated with the abolition of the visa regime.</li> <li>Military operations in the East of Ukraine.</li> </ol>

Source: Cherkasy region development strategy for the period up to 2020, supplemented by the authors

events (European integration, Agreement on the Free Trade Area of Ukraine with the EU), a developed sector of processing agricultural products is a significant plus for the region.

## 5. Conclusions

Investment attractiveness of the region is a set of qualitative and quantitative indicators that comprehensively determine ability to multiply invested capital and is derivative characteristic of investment climate formed under the influence of various factors and determines investors' desire or refusal to invest in investment object.

Cherkasy region is a modern investment-attractive region. The agro-industrial complex has powerful potential for increasing the volume of gross agricultural products and providing the population with quality food products.

Analysis of investment attractiveness of Cherkasy region showed that it is satisfactory, has a significant number of profitable commodity producers. Availability of raw materials for waste from agrarian sector can be used for further processing in order to create sources of

alternative energy. Presence of large areas of agricultural land can be used to grow energy plants. In addition, there are energy minerals in the region, companies that have the potential for conversion to alternative fuels, energy production opportunities, using natural energy (water, sun). All this together provides opportunities for the development of alternative energy and energy from renewable sources.

In order for the investor to make a profitable investment in the agrarian sector of this region, it is necessary to eliminate a number of shortcomings, starting with national and most global ones – improving the socio-economic situation, stabilizing national currency.

A particular attention needs to be paid to the introduction of innovations, which is possible only through legislative and investment support, which in turn will contribute to the development of entire infrastructure.

Access to EU markets will surely help increase agricultural output and increase the quantity of grain, vegetable and fruit storage, and consolidate region as a stable exporter. All of this will have a positive effect on employment in the region, as jobs will be created that will positively affect the welfare of the population.

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## FORMATION OF “ELECTRONIC OFFICE” MODEL OF ADMINISTRATIVE SERVICES PROVISION

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**Abstract.** *The purpose of the work* is to form the model of “electronic office” of administrative services provision and justification of advantages of office on the basis of conducted comparative analysis of the existing models of administrative services provision in Ukraine – “departmental” and “integrated”. *Methodology.* A methodological basis for investigation is the logical analysis of theoretical and methodological backgrounds for management over administrative services provision process. For theoretical generalization and formation of the model of “electronic office”, there are used scientific recommendations of Ukrainian scientists regarding the necessity to transform the process of administrative services provision into the electronic form. *Results.* The investigations allowed confirming that the model of “electronic office” gives an opportunity to implement equal interaction between a subject of provision and a subject of an appeal as electronization of governance allows organizing an effective feedback channel. Moreover, the model of “electronic office” allows considering citizens as a source of methods and ways to develop management over administrative services provision system. *Practical meaning.* The model of “electronic office” of administrative services provision gives to subjects of provision and subjects of appeal opportunity to effectuate interrelationship during the management of the system of administrative services provision. *Meaning/Distinction.* The provided model will give an opportunity to involve active citizens in the processes of state governance and to increase their impact on the processes of electronization of national – governance activity.

**Key words:** management, process, procedure, e-governance, model of governance, subject of provision, subject of appeal.

**JEL Classification:** D72, D73

### 1. Introduction

The modern state of the system of administrative services provision requires reinterpretation of ways to improve and develop the model of the system of administrative services provision that corresponds to the spirit of modernity and the requirements of the information society.

In the modern information society, the processes of electronization cover all sectors of the economy with enormous speed, thereby forming a system of relationships of a new format. A system of administrative services provision is not an exception too. However, the processes of electronization in the system make more complicated the range of issues of a different type (economic, regulatory, informational, technological) that are primarily subject to be settled, before the conduction of transformations of the present system of administrative services provision into the electronic form. Besides, the transformation requires significant financial, human, information, and other resources. However, in the long term, “electronic office”

of administrative services provision will be able to settle not only a range of issues that have been typical for the system during many years, but also to reveal wide range of new opportunities both for the parties of administrative services provision and for the parties of referral.

### 2. Analysis of the latest researches and publications devoted to the process of administrative services provision

Primarily, the achievement of the objective of herein investigation means a description of the process of administrative services provision, so we need to differentiate the definitions of terms “process” and “procedure”.

A. Lipentseva and Y. Zhuk strongly believe that the process of an administrative services provision in Ukraine needs to be processed and regulated by legislation as it, firstly, depends on the operating efficiency of the authorities of state governance, state employees and officials, who are directly involved in the

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process of administrative services provision (Lipentsev, 2015).

V. Tymoshchuk (2012; 2015) study the organizational basis for administrative services provision, particularly, during the period of administrative reforms, considering the process of the administrative services provision to be not clear, impractical, and they suppose that this process does not respect interests of citizens. The authors emphasize the necessity to form a high-quality mechanism of administrative services provision to the population, as each citizen estimates care of government pursuant to the quality of administrative services provision.

The official sources (Sistemy menedzhmenta kachestva, 2015) define the process as one or several correlated types of activity that absorb "inputs" in order to obtain results. Within the frame of herein context, the result is considered to be an output. As a rule, the outputs of one process are the inputs for other processes.

Pursuant to these sources (Sistemy menedzhmenta, 2015), a procedure is a certain standardization of activity or process implementation. Thus, a process is a set of activities, and a procedure is a regulation of activity or process implementation.

Correspondingly, in order to start the process of service provision, a party of referral needs to make an application for a certain administrative service. Pursuant to the information card, a party of referral sends an application to the relevant party of services provision. If he/she chooses an electronic communication channel, the process of service provision is being significantly simplified, but in a greater degree, it will depend on the set of factors connected with the technological compatibility of information systems of the state governance.

A completed application needs to be considered as an output of party of referral activity and a starting point for the decision-making procedure by a party of services provision. During the decision-making process, a party of referral is guided with a relevant technological card. If there is an application for the compound service, the process of services provision is being extended by a number of procedures that are equal to the number of services included in the compound service. A supposed positive result of the party of services provision activity is an administrative act that may be considered as an output and, correspondingly, the end of the whole process of administrative services provision.

The Analytical Report to the annual Message of the President of Ukraine to Verkhovna Rada of Ukraine "About the domestic and international position of Ukraine in 2017" (Pro vnutrishnie ta zovnishnie stanovishche Ukrainy v 2017 rotsi, 2017) contains information about the initiative of State Migration Service of Ukraine to the legislation of Ukraine. Pursuant to this initiative, there has been put a set of changes about the delegation of functions to the local authorities

of state governance connected with the Registration of Individual Entities and De-registration at the place of residence. There is also data about the authorization of Administrative Service Centres (hereinafter – ASC) created by local authorities of state governance with a right to compile and issue passports of the citizen of Ukraine in the card form and passports of the citizen of Ukraine for leaving abroad with contact-free electronic data storage device.

### 3. The modern state of the process of administrative services provision

On the example of receipt of passport of the citizen of Ukraine for leaving abroad, we offer to consider the organizational aspect of electronic state governance in the system of administrative services provision. After the entering into force of visa-free regime between Ukraine and EU countries, the excitement for receipt of the passport for leaving abroad provoked a range of problems that were not foreseen both by a system of administrative services provision and by a super system – a system of state governance.

So, the process of getting the international passport starts from the moment of application submission for the service. A submission of application in the electronic form cannot be implemented through any information technology system resources, especially websites of subdivisions of the State Migration Service of Ukraine, Unified State Portal of Administrative Services, and Portal of State Services iGov. All abovementioned resources suppose only the possibility to use a service of the electronic queue. Inaugural project "Electronic queue" has been operating only in several cities of Ukraine: Kyiv, Lviv, Dnipro, Odesa, and Ternopil. It is worth to remark that with consideration of excitement for the considered service, a demand for this service is surpassing supply.

The existing situation that may be considered as first attempts to introduce e-governance in the system of administrative services provision allowed entrepreneurially-inclined citizens to organize their business. The idea of this business is to follow and to reserve a free place in the electronic queues on the electronic resources, having into possession the necessary data about the party of referral. Due to the fact that new free dates and time in the electronic queues are being formed only once per 24-hours day at an unascertained time, it is impossible to reserve a place for yourself. All these conditions make demand and price increase for the service "to reserve a place" from the sites of private advertisements and it destroys again the credibility of the citizens to the state authorities and their expectations that e-governance will allow settling the range of issues, including corruptive ones.

Consequently, a maximum that can be gained from the electronic resources is to obtain requisites for

the preliminary payment transactions, patterns of applications that should be printed out beforehand and completed before the submission. But such conditions for the organizational aspect are not in compliance with “service-oriented state policy” declared by the managerial approach. But, of course, if we compare it with a bureaucratic approach for process organization of administrative service provision, the abundance of forms and access to the current accounts and requisites of the party of services provision may be estimated as an “over-the-top service”.

Taking into consideration that it is impossible to submit an application, necessary documents and confirmation of payment distantly, the procedure will be taking place in one of the subdivisions of the State Migration Service of Ukraine that has an opportunity to draw-up the passport or through ASC.

When a party of services provision accepts an application, the process of provision of considered administrative service may be controlled by a party of referral through the website of State Migration Service of Ukraine. Through the relevant services for requested information and after the completion of several fields designated for the personal information, a party of referral obtains the information about the stage of consideration of his application, for example: the documents were accepted; there is a data check; a permit for personalization was given; a confirmation of the technical capability of personalization; data is personalized; the document is ready. At this stage, advantages of e-governance for parties of referral are finished.

The parties of services provision do not have almost any advantages from e-governance, not due to the fact that their activity process is connected with high technologies, but because of the necessity to print out all documents and to effect necessary procedures with them, then they need to scan documents and etc. Such a state of things is called as “Ukrainian” e-governance.

In that context, there is an urgency to analyse three models of system operation of administrative services provision: “departmental office”, “integrated office” and “electronic office” in order to estimate the established internal environment that is suitable for the formation and development of the appropriate directions. In order to define prospects of each of the offered models, we offer to consider positive and negative sides and to define all pros and cons.

By way of comparison, we offer to take as a basis a following range of criteria: purpose, main task of the model, organizational principle, roles of party of referral and party of services provision in models, personnel skill level, database organization and management, availability, schedule of work, regulation of queue, way to identify a person, submission of documents, related services, possibility to control the process, feedback.

The application for administrative service in the “departmental office” leads to the negative attitude

from the side of parties of referral towards the parties of services provision and pursuant to the questionnaire (Fond “Demokratychni initsiatyvy” im. Ilka Kucheriva, 2015), the consequences are determined with the following factors: a necessity to visit office for several times (30%); paper chase during the consideration of appeal (28%); a necessity to collect necessary data by yourself from other offices (20%).

Moreover, a “departmental office” has a range of problems of the following nature:

- the complexity of procedures and contradictory legal and regulatory framework;
- territorial lack of integration of different authorities of state governance that provide administrative services;
- territorial inaccessibility for the parties of referral from villages;
- artificial “fragmentation” of administrative services by separate “chargeable services”;
- rearrangement of responsibilities related to the collection of references, approvals, agreements and etc. to the parties of referral by authorities of state governance;
- unreasonably big amounts of charges for separate types of administrative services;
- limited number of days and limited time period for reception of citizens;
- unreasonably long terms for the provision of separate administrative services;
- problems with access to information that is necessary in order to obtain administrative services and etc. (Zhuravel, 2016).

A comprehensive settlement of these issues was a policy of powers decentralization in the area of administrative services provision for the local level to the authorities of state governance, particularly, through the delegation instruments. In spite of the necessity to coordinate such actions with reform of the local self-governance and administrative and territorial structure, there were attempts to transfer part of basic administrative services to the local level, as decentralization was defined as a practical mechanism to enhance the influence of the society on the parties of administrative services provision.

In order to justify a necessity to conduct a declared policy, the advantages of decentralization are considered to be the following:

- enhancement of influence of the society on the quality of services;
- efficient organization of services provision (a Head possesses the relevant power and responsibility);
- efficient use of public resources (personnel, premises, equipment technology, etc.).

But, till nowadays, some cities of Ukraine do not have enough technical, financial, and personnel resources in order to accept the delegated powers. The result of such unreadiness – is an assignment of one responsible person from the number of staff of the local authority

of state governance to perform functions for the whole “integrated office” (Dromashko, 2016).

Starting from 2008, due to the initiative of local authorities of self-governance, there were formed first “integrated offices” – centres of administrative services provision, which main functional purpose became a fast and comfortable provision of all necessary administrative services to the party of referral.

The application forms for most administrative services are supposed to be accepted in one place, and a direct consideration of appeal and the provision of result should be performed by different authorized bodies of state governance. Giving it in other words, a party of referral during the appeal to “integrated office” provides an application and minimum list of the required documents and afterward, in a period stipulated by legislation, he/she will take a result of all actions that are being performed by “back office”. Thus, a party of referral does not participate in the decision-making process and its result, which realization is under the responsibility of state employees and officials of the authorities of state government that is being coordinated by an administrator. So, an administrator is considered to be a main state “intermediary”, which makes impossible a direct contact of the party of referral with a party of administrative services provision and, thus, it excludes a corruption element. There is also a simplified access and conditions for services receipt and time period for execution of such services is becoming considerably shorter.

The first “integrated office” under the name “Centre of Administrative Services” “Transparent Office” was set up in Vinnytsia city. The list of administrative services that were provided by this office included all types of services of Vinnytsia City Council and local authorities of state governance.

At the legislative level, there were defined the main requirements for such offices, the principles and order of their functioning. Pursuant to many legislative provisions, there is an idea that such an office should provide a wide range of services, but the certain list of administrative services of the “integrated office” is being defined by an authority that created it (Pro administratyvni posluhy: Zakon Ukrainy № 5203-VI, 2012). From the perspective of interest of the parties of referral, the “integrated office” should certainly provide basic administrative services and, in general, as many services, as it is possible. The main tool for the integration of basic services into the “integrated office” is an approved list by the Cabinet of Ministers of Ukraine (Deiaki pytannia nadannia administratyvnykh posluh orhaniv vykonavchoi vlady cherez tsentry nadannia administratyvnykh posluh: Rozporiadzhennia Kabinetu Ministriv Ukrainy № 523-p, 2014),, but for its realization there should be done changes in the special relative laws that allowed providing “fast” administrative services and administrative services by administrator

and/or representative of parties of administrative services provision in the “integrated office”.

The basic administrative services include the following actions:

- registration of births, deaths, and marriages;
- registration of place of residence and issue (exchange) of passport (identification) documents (“domestic” and “for leaving abroad”);
- registration of title to real property, particularly for the land plot;
- registration of business entities;
- registration of transport vehicles and issue (exchange) of driver’s licenses etc.;
- social administrative services (public welfare payments, subsidies, etc.).

There were also legislatively defined requirements regarding the time of reception of parties of referral in ASC and pursuant to these requirements, the time of reception is not divided by hours for consultations and hours for the acceptance of documents.

It is worth to draw a special attention to the requirements concerning the premise of centre. According to these requirements, a premise is being divided into open and private parts. Open part is designed for reception, advisory work, information distribution, and services provision to the parties of referral. Besides, the service sector should be created pursuant to the principle of demonstrativeness of working places location, so-called “open space”, but it should not be like cabinet system that we can observe in the “departmental office”.

It’s worth to remark that regarding the issue “one-stop-shop” or offices that are operating in accordance with the principle “joint office”, Ukraine was guided by experience of such countries as Germany – offices for citizens, Poland – service departments for citizens, Canada – integrated office, in other words, by countries, which territories and number of population is similar to Ukrainian parameters.

In general, the idea of “integrated office” obviously has a set of advantages that can be defined as positive sides, for example: integration under the principle of “joint office”; actions under the principle “one-stop-shop”; territorial availability; open space; extended work schedule; electronic control of queue; related services.

So, the policy of decentralization through the introduction of “integrated offices” was not expected by both authorities and ASC. During the process of official services transmission to the “integrated offices”, there was lack of collaboration and opposition from the side of some authorities of state governance. Besides, the “integrated offices” faced with many organizational and procedural matters on the way towards efficient administrative services provision, particularly, lack of staff, knowledge and skills, the absence of technical and technological equipment in the premises, absence of documents forms to provide delegate services. The level



of development of “integrated offices” in the country is in an uneven manner. The best-known champions are centres in Lutsk, Ivano-Frankivsk, Vinnytsia, Kyiv or Kharkiv and there are many others that are less efficient, especially of the community-based level, where technical and resource maintenance is much worst in comparison with other cities.

That is why, the “integrated offices” that were initially established for corruption level minimization, better transparency and convenience in services provision to the parties of referral did not achieve the defined purposes and a decentralization policy may be considered to be a failure.

The abovementioned data allows making a conclusion that “integrated office” has some crucial drawbacks, such as: lack of interaction with parties of services provision; unjustified refusals from the parties of services provision; logistical problems connected with transmission of documents; failures to meet a deadline regarding the solution of cases; necessity to work with different informational systems; absence of approved rules and regulations, list of services, informational and technological cards at the moment of establishment of “integrated office”; presence of separate schedule for services, provided by different structural subdivisions; necessity to provide different parties of administrative services provision with permanent working places that require additional non-human resources; parallel acceptance of documents outside the territory of “integrated office”; non-coordination of permissive legislation in the area of business activities and legislation about administrative services; status and professional integrity of the administrators of “integrated office”.

In conclusion about the usefulness of “integrated offices” operation, it is necessary to note that modern information technology and international tendencies in all spheres of activities of the society show a process of getting rid of intermediation if the process can be automated. The role of “integrated office” involves this matter too.

Nowadays, human life and activities are based on the wide usage of Information & Communication Technology (hereinafter – ICT) that essentially make life easier. Taking into consideration a person from the informational society, there are being formed new requirements to the system of administrative services provision and created a background for the integration of “departmental offices” and their transformation into the “electronic office”.

#### **4. Formation of the model of “electronic office” of administrative services provision**

Within the framework of reformations in system of administrative services provision, the introduction of technology of “e-governance” that means information distribution among the parties of referral regarding

the procedures and possible results of process through information terminals, call-centres of state governance authorities, and creation of Portal of administrative services provision allow affirming about signs of appearance of the third model of system of administrative services provision – “electronic office”.

“E-model” of the system of administrative services provision means the automated process of administrative service provision, ranging from the standard information provision to the completion of financial and other transactions, using electronic servers of informational and communicational resources that ensure distant interaction.

Such a model of system will allow performing the provision of administrative services through single access point – Portal, with the help of integration of “departmental offices” in it, informational system of interdepartmental electronic interaction between authorities of state governance and formed electronic registers directly within the mode 24/7, through the usage of application on the personal device of party of referral.

The informational systems should provide request processing of the parties of referral and search of the authorized body of state government to provide the relevant service, to bring information to applicant’s knowledge in online mode with the help of ICT.

On the basis of abovementioned data, we can make a conclusion that operation of “integrated offices” minimized conditions of the system corruption to a certain degree that made consumers satisfied. The usefulness of “integrated offices” operation on the territory of Ukraine is not clear as they were not able to settle any problems in full measure that are peculiar to “departmental office”. Such showings as saving of time for visits of different parties of services provision, possibility to choose convenient time in order to visit office, high informativeness in the office and comfort in general are rather shady too, as in order to obtain service through “electronic office” you need much less time and it has been functioning in the mode 24/7. Besides, most of the citizens prefer to obtain administrative services through ICT, and each year will show the increase of these matters, as the younger generation of citizens is completely into the informational and communicational technology.

During the establishment of “electronic office”, it is necessary to concentrate all efforts on the regulation of problems of “departmental offices” as authorities are able to ensure the following things, for which there were created ASC: open space of the premises, conditions for incapacitated people, electronic queue, information provision, relevant services and etc.

Within this context, a direction for process development of administrative services provision is a policy of “services privatization” that is very popular in many Western countries. In accordance with the

managerial concept, a “privatization” – is an introduction of competition, but what is the essence of such a kind of concept is not clear as parties of services provision are monopolists.

In spite of the adoption of the Law of Ukraine in 2012 “On Administrative Services” (Pro administrativni posluhy, 2012), pursuant to provision of which, all cities of region subordination and district state administrations are obliged to create ASC; many necessary administrative services till now are being provided through the territorial bodies of state governance and subdivisions of different ministries. Thus, the bodies of state governance persistently defend the policy of privatization that supposes to keep a possibility to provide a part of administrative services that are under their competence through own subdivisions or “offices”. Against this background, there are now latest initiatives, for example, the introduction by the Cabinet of Ministers of Ukraine to the Verkhovna Rada of Ukraine a project of Law “On Services and Service Centres of the Ministry of Internal Affairs of Ukraine” (Pro servisni posluhy ta servisni tsentry Ministerstva vnutrishnikh sprav Ukrainy. Zakonoproekt No. 2567, 2015), that foresees a creation of chain of “service centres” of the Ministry of Internal Affairs of Ukraine, draft of legislation of the Ministry of Justice of Ukraine regarding “competition” in the area of registration administrative services of property and business (Pro vnesennia zmin do deiakikh zakonodavchikh aktiv Ukrainy shchodo sproshchennia umov vedennia biznesu (derehulatsiia), 2015), separate passport offices of the State Migration Service of Ukraine and etc. that, on the one hand, make unimpaired operation of ASC more difficult but, on the other hand, lead to the development of governance activity.

There are no doubts that the electronization processes in the “departmental offices” will lead to the establishment of “electronic office” and their obvious advantages will allow creating a basis in order to form and to develop IT infrastructure of “electronic office” and to solve problems of Ukrainian system of administrative services provision connected with fight against corruption; transparency of legislative process regulation of separate service provision and its payment; and proper state control over the justifiability and quality of services.

### 5. Advantages of the model of “electronic office”

Moreover, due to the narrow area of expertise of personnel in the “departmental offices”, the level of advisory work and service rate in the specific process or procedure may be extremely high. The “departmental offices”, as a rule, have better technical and technological software and access to the registers that gives an opportunity to provide “quick services” (extracts,

abstracts issue) immediately and, in some cases, to provide even completed documents.

The model of “electronic office” against the background of models “departmental office” and “integrated office” is being characterized with the widest variety of advantages that makes possible to define it as a promising trend for the further development of administrative services provision system.

Pursuant to the obtained data, a number of advantages of the model of “electronic office” cannot be contested by any of the abovementioned models, that is:

- introduction of the integral IT infrastructure of the whole system of administrative services provision;
- possibility of the electronic interaction of parties of services provision with all life spheres of the party of referral;
- to possess current database organization and management (legislative and other legal acts and regulations);
- reduction of expenses for the creation and operation of “integrated offices”;
- possibility to develop the multinational provision of administrative services;
- absence of problems connected with interoperability of sites of authorities of state governance;
- possibility of application programmatic interface;
- possibility to introduce efficient instruments to involve citizens and parties of referral to the processes of administration development over the system of administrative services provision.

But, at nowadays’ development stage of “electronic office”, the most important factor is a necessity to define clearly state policy and its order. In particular, it is necessary to follow strictly the declared in Ukraine strategic approach of development policy of e-governance and introduction of ICT.

### 6. Conclusions

The conducted analysis definitely shows advantages of the “electronic office” model of administrative services provision. A party of referral has a possibility not only to order and obtain different administrative services in electronic format but to interact with authorities of state governance on a distant basis. From the perspective of parties of services provision, an “electronic office” means a preservation of state financial assets as the creation of comfortable conditions for the reception of visitors in one “integrated office” requires considerable amounts of money, especially for the creation of the same conditions and territorial availability for several separate “departmental offices”.

The “electronic office” model – is a considerable improvement of services quality, operational efficiency during their provision, consistent saving of human resources and financial assets, complete exclusion of the corruption element, and the main advantage is a

possibility to involve parties of referral and citizens to take part in formation and development of state governance of the system of administrative services provision.

A special attention should be paid to ICT during the governance over the system of administrative services provision. Nowadays, they have substantial advantages and drawbacks, but in view of the abovementioned data, we can confirm that they have more negative moments at the present point in time and, in fact, they have been developing spontaneously. Pursuant to our opinion, ICT

in the process of governance will give an opportunity to the system of administrative services provision to operate properly under the following conditions:

- when the provisions of the Ukrainian and international legislation in the area of administrative services provision will be coordinated;
- the process of administrative services provision will be simplified and after that, it will be performed in electronic form;
- after development and systematization of e-governance regulation in Ukraine in general.

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## PROJECT SCOPE MANAGEMENT PROCESS

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**Abstract.** *The purpose of the article* is to define the essence of project scope management process, its components, as well as to develop an algorithm of project scope management in terms of pharmaceutical production. *Methodology.* To carry out the study, available information sources on standards of project management in whole and elements of project scope management in particular are analysed. Methods of system and structural analysis, logical generalization are used to study the totality of subprocesses of project scope management, input and output documents, and to provide each of them. Methods of network planning are used to construct a precedence diagram of project scope management process. *Results* of the research showed that components of the project scope management are managing the scope of the project product and managing the content of project work. It is the second component is investigated in the presented work as a subject of research. Accordingly, it is defined that project scope management process is to substantiate and bring to the realization the necessary amount of work that ensures the successful implementation of the project (achievement of its goal and objectives of individual project participants). It is also determined that the process of managing the project scope takes into account the planning, definition of the project scope, creation of the structure of project work, confirmation of the scope and management of the project scope. Participants of these subprocesses are: customer, investor, and other project participants – external organizations (contractors of the project); project review committee; project manager and project team. It is revealed that the key element of planning the project scope is the formation of the structure of design work, the justification of the number of works, and the sequence of their implementation. It is recommended to use the following sequence of stages for creating the structure of project work: analysis of results of planning the project scope; study of templates of project works' structures, recommendations for the formation of levels of structure; decomposition of the totality of project work; creating a dictionary of the project work structure; updating the description of the project scope and the project scope management plan. *Practical importance.* In order to improve the management of the scope of projects in the pharmacy, the components of subprocesses, participants, input and output documents are investigated and the algorithm for managing the project scope is built. It is determined that the starting elements of project scope management are the justification of the initial data, i.e. the project purpose, impacts of the environment and the internal potential of the enterprise in relation to the project implementation (assets of the organizational process). It is recommended to create a structure of project work starting from the analytical research existing at the enterprise or recommended by standards and guidelines on project management approaches to building a hierarchical structure of works, templates of project work structures. It is noted that the created structure of project work should be audited by participants of the project office. According to the results of planning the sequence and duration of operations for managing the scope of works, a precedence diagram of the investigated process is constructed. *Value/originality.* The developed recommendations regarding the consistency and structure of subprocesses and operations of the project scope management will allow the enterprise to significantly save time for planning the scope of subsequent projects, using the database created in previous periods, statistics on the implementation of the described operations.

**Key words:** project, project management, scope, project scope, project charter, work breakdown structure, project scope management.

**JEL Classification:** M11, L20, O21, O22

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## 1. Introduction

The need to keep pace with development in order to confront competitors leads to the need for a modern pharmaceutical company to introduce new approaches to management. Intensification of activity in the development of new drugs, reconstruction, modernization of production, the search for new markets leads to the urgency of the application of methods and tools of project management. Accordingly, the start of the implementation of any project is related to the definition of its essence, planning the project scope.

Project scope management is related to performing processes that identify, plan, control the execution of the required amount of project work. In fact, scope management is a justification of the required amount of project work to ensure successful completion of the planned project. On the one hand, an insufficient amount of work can lead to the complexity of managing them, loss of management efficiency. On the other hand, too much detail requires large amounts of money and time to plan each work and monitor its execution. Therefore, project scope management determines the number and amount of project work necessary and sufficient for the successful implementation of project works.

The purpose of the article is to define the essence of the project scope management process, its components, as well as to develop an algorithm of project scope management in terms of pharmaceutical production.

To carry out the study, available information sources on standards of project management in whole and elements of project scope management in particular are

analysed. Methods of the system and structural analysis, logical generalization are used to study the totality of subprocesses of project scope management, input and output documents, and to provide each of them. Methods of network planning are used to construct a schedule for project scope management.

## 2. The essence of project scope management

In project management, the term “scope” takes into account three components: product content, the content of works, project content (Fig. 1). According to the Guide to the Project Management Body of Knowledge (PMBOK® Guide, 2008), the term “scope” refers to the content of the product or the content of the project as a whole.

In the paper (Mazur, Shapiro, Ol'derogge, Polkovnikov, 2009), the project scope is considered as the content of works, for the effective management of which it is necessary to determine: the work to be performed; sequence of works; work duration; need for resources, and cost of work. S.H. Moroz and A.S. Nemchenko consider the content of works as “actions, descriptions of works to be performed, and resources to be secured” (Moroz, Nemchenko, 2017). ISO 21500 (ISO 21500:2012, 2012) defines scope as the processes necessary for identifying and defining works and results, as well as only the required work and results.

In terms of ISO 21500 (ISO 21500:2012, 2012), the project scope management takes into account the definition of content, the design of the project work, the definition of the composition of works, content

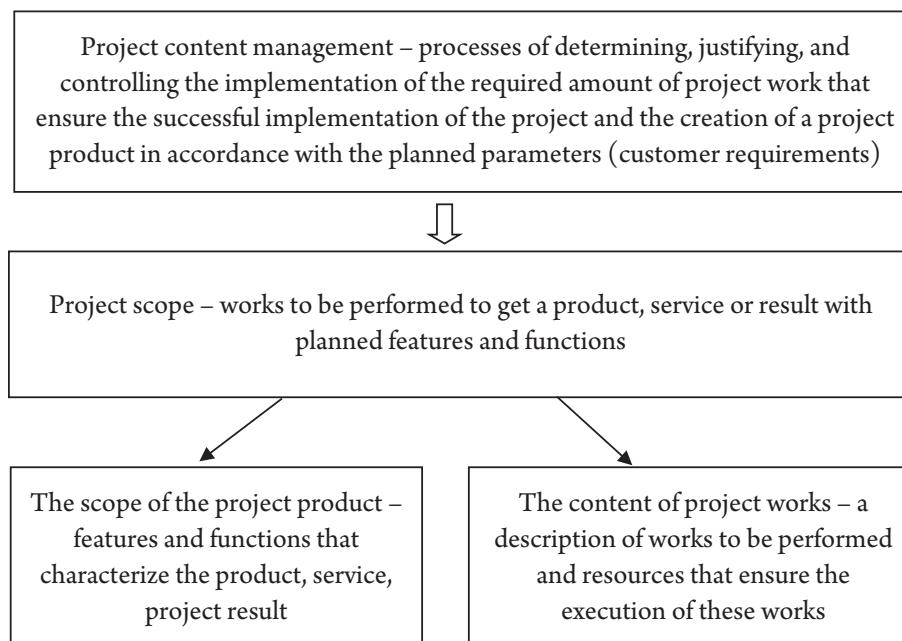


Fig. 1. Components of project scope management

control. The purpose of the definition of the project scope is to identify the essence of the project scope, its purpose, results, requirements, and limits by analysing the final state of the project. Determining the content of the project shows the contribution of the project to the implementation of strategic objectives of the enterprise. A detailed description of the project scope is the basis of all project decisions, a base that links the importance of the project and the benefits that should be gained as a result of a successful project implementation. The main inputs for the process of defining the project scope for ISO 21500 (ISO 21500:2012, 2012) are the project charter and approved changes, and outputs are a description of the scope and requirements.

The purpose of creating a project works' structure is to create a presentation tool for a set of works in the form of a hierarchy of works that must be performed to achieve the purpose of the project. The structure of project works is the basis for splitting the project into more detailed levels and works that are easier to manage (to plan, control, etc.). The structure of design work can be formed on various grounds – phases, main results, functional areas, geographical location. Each subsequent level of structure takes into account a more detailed description of project works (detail may also include results, organizational aspects, risks, accounting of costs, resources, etc.). According to ISO 21500 (ISO 21500:2012, 2012), the main inputs of the process of creating a project work structure are project plans, requirements, approved changes, and outputs – a hierarchical structure of work, a dictionary of the project work structure.

Definition of works is the process of identifying, defining, and documenting all operations that must be planned and implemented to achieve the purpose of the project. In addition, the definition of works may also include processes for identifying, defining, and documenting works that must be implemented at the lowest level of the project work structure. It is from this level that the definition of the work begins, that is, more detailed components form the basis for planning, implementation, control, and further closure of the project. Inputs of the process of determining the work include the hierarchical structure of works, its vocabulary, project plans, approved changes, and outputs – a list of works.

Scope control consists in determining its current status, comparing the current status of the scope with the approved base plan, detecting deviations, forecasting scope as of the project completion date, and implementing relevant changes requests in order to prevent the negative effects of changing the project scope. At the same time, the purpose of scope management is to enhance the positive and mitigate the negative consequences for the project, which arise due to changes in the scope. The process of scope control also involves identifying and managing factors that can

change the scope of a project. From this perspective, scope control is considered in conjunction with the control of change. Scope control is also used to manage actual changes, as uncontrolled changes cause the scope to be offset. The main inputs of the content control process are data on the implementation of the project, a description of the project scope, project work structure, and a list of works, and outputs – requests for changes.

According to S. H. Moroz and A. S. Nemchenko, “management of the scope of the organization's work is a system of strategic integrated approaches to the effective functioning of the organization and its management system, which are aimed at achieving the mission and goals of the organization, provide an opportunity for effective operation of the organization and the effective work of its employees” (Moroz, Nemchenko, 2017).

In our view, processes of managing the scope of works are highlighted in more detail by the Guide to the Project Management Body of Knowledge (PMBOK® Guide, 2008), which links processes of scope planning, scope definition, project design, scope validation, scope management.

### 3. Project scope management processes

The analytical study of existing approaches to the formation of a set of subprocesses of project scope management, as well as taking into account the adaptation of standards for project management, allowed developing a model of the process of project scope management in the conditions of pharmaceutical production (Derenskaya, 2012), which takes into account the implementation of five subprocesses. Participants of these subprocesses are: customer, investor, and other project participants – external organizations (contractors of the project); project review committee; project manager and project team. The encoding of each subprocess includes the code of the scope management (Y3) process and the serial number of the subprocess itself. The process of project scope management is to substantiate and bring to the realization the necessary amount of work that ensures the successful implementation of the project (achieving its goal and objectives of individual project participants).

The first subprocess – “Project scope planning” – is the work on the selection of approaches, methodologies, procedures, data sources, and other factors (which affect the formation of the complexity of the project) in order to create a plan for managing the project scope.

Using the results of the first subprocess, the project team defines a list of specific requirements for project works in terms of requirements of project participants, norms, restrictions. Results of the subprocess include: clearly defined goals of the project, defined project scope, its boundaries, requirements and results, performance criteria, constraints, preliminary schedule, and project estimates.

The next subprocess (“Creating a project work structure”) forms a decomposition of project work, taking into account a certain approach to grouping them. Structuring works can determine their interdependence, which is a prerequisite for the construction of the schedule and calendar plans for the project. In addition to the structure of the project work, the result of the subprocess is the WBS dictionary created, which allows unambiguous interpretation of the project terms by all project participants.

According to the results of the analytical study of project management standards, it is recommended to use the following sequence of stages of creating the structure of project work:

1. Analysis of results of project scope planning (assets of the organizational process, environmental factors, elements of the project scope management plan, charter, and description of the project scope).

2. Investigation of templates of project structures, recommendations for the formation of levels of structure.

3. Decomposition of the totality of project works.

- 3.1. Identification of inputs and outputs (input data and results) for each stage of the project, formation of the first level of the project work structure.

- 3.2. Structuring of the stages, grouping of blocks of works.

- 3.3. Detailing the blocks of work by the results of breaking the upper levels into elements.

- 3.4. Checking the necessity of the work done on the work packages and the adequacy of the degree of decomposition of works.

- 3.5. Identification of elements of the structure of project work (development and assignment of code to each element of the structure).

4. Creation of a dictionary of project work structure, which allows unambiguous interpretation of project terms by all project participants.

5. Updating the description of the project scope and the project scope management plan.

Formation of templates of project work structures allows the project team to save time on project planning as a result of applying corrective actions or updating similar structures that were worked out in the process of implementation of previous projects of the enterprise.

Confirmation of the project scope is a formal acceptance by the project participants of the WBS created. The subprocess takes into account the verification of the project scope by verifying the readiness of the participants to complete the project work and document the appropriate parameters.

If necessary, the corresponding change in the project scope (specific work) is revealed, documented, and substantiated, which requires a certain replanning of the project scope and all its parameters. Project scope management is to ensure that the change of the identified changes at all stages and procedures

for project change management is carried out. This subprocess also manages the current changes in the project work parameters, integrating the project scope management process with the management of terms, cost, quality of the project, and other processes. The results of this subprocess are the updated description of the project scope, project work structure, project scope management plan.

In terms of pharmaceutical production, it is recommended to use the algorithm shown in Fig. 2 to control the scope of executable projects. The starting elements for managing the project scope are the justification of the initial data, that is, the purpose of the project, impacts of the environment and the internal capacity of the enterprise in relation to the project implementation (availability of knowledge base, experience of the project activity – assets of the organizational process). The established Charter, a preliminary description of the scope, and the project management plan are subject to obligatory examination by a project review committee, a project office. Clarifying the needs and expectations of project participants helps to formulate their requirements for results and form a description of the project scope.

The next stage of the project scope management algorithm – the creation of a project work structure – begins with an analytical study of existing at the enterprise or recommended by standards and guidelines for project management approaches to building a hierarchical structure of work, templates of project work structures. The analysis conducted determines the list of works to be done in order to achieve the results previously determined by the project.

Decomposition (distribution by levels and corresponding grouping) of project works allows forming a structure of project works, the description of which is carried out with the help of a dictionary of the structure of project work. Simultaneously with the creation of the structure of project work, changes are made to the planned project documents.

The created structure of project work is subject to audit by project office participants, who, in case of discrepancies or insufficient disclosure of levels or number of works, may formulate relevant requests for changes in the scope of works. In case of necessity of making changes, they are substantiated by calculations of economic indicators (time, costs, change of project efficiency, etc.). Approved by the project review committee and the project office, changes are implemented by adjusting the project plans.

The updated scope of the project, description of the project scope, project work structure, the vocabulary of the project work, scope management plan, project management plan are subject to approval by the project review committee.

Characteristics of operations proposed for managing the project scope is shown in Table 1. Each operation is

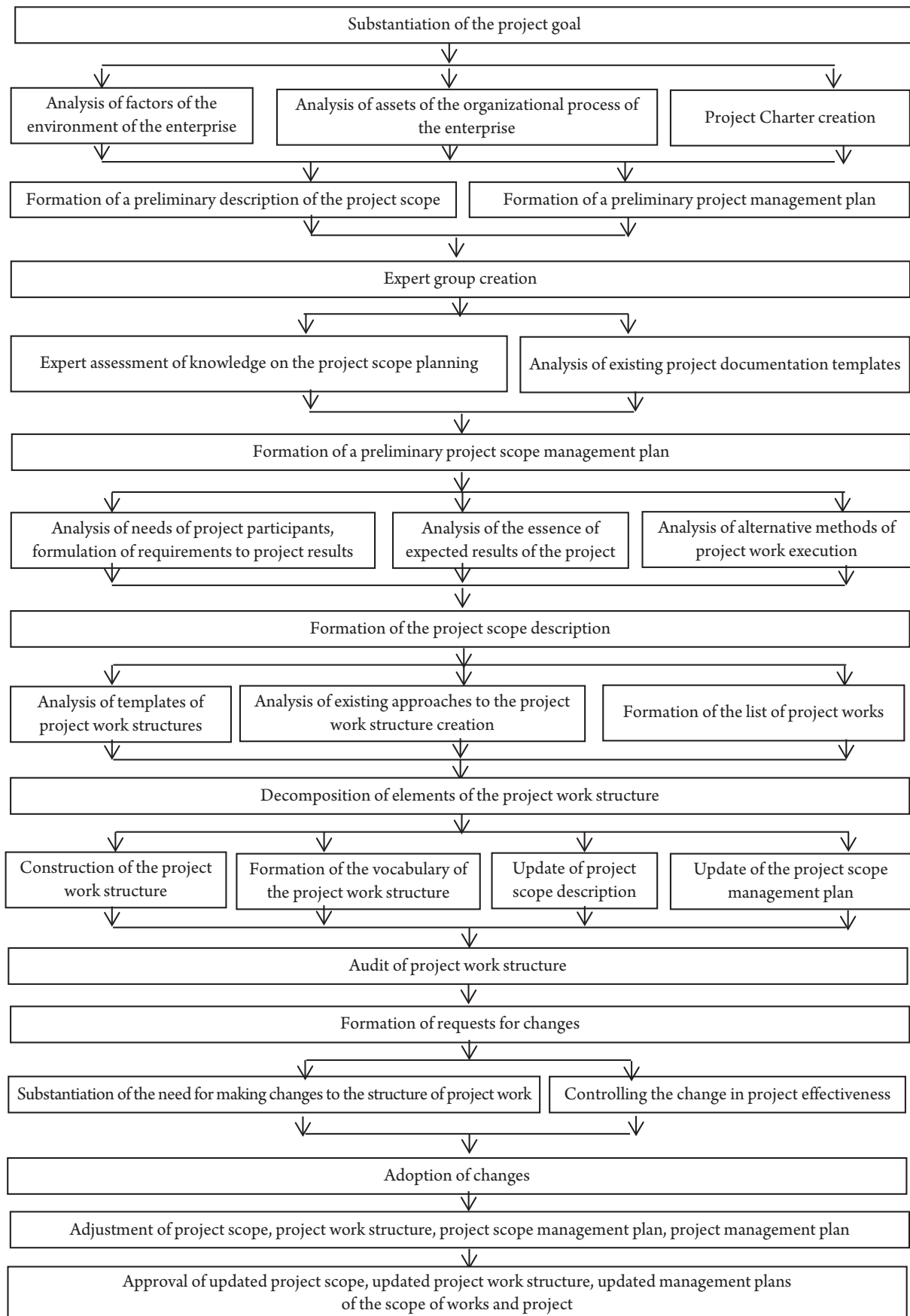


Fig. 2. Project scope management algorithm



coded as follows: Y3 – the name of the process – project scope management; the second digit – subprocess number (1 – scope planning, 2 – definition of the project scope, 3 – creation of the structure of project work, 4 – confirmation of the project scope, 5 – scope management); the third digit of the code is the serial number of the operation of the corresponding subprocess of the project scope management. The duration of operations is determined by the example of managing the scope of a project of one of the Ukrainian pharmaceutical companies.

Based on the results of planning the sequence and duration of operations for managing the scope of works in the absence of an accumulated knowledge base in the enterprise, a precedence diagram of the investigated process is built, which is shown in Fig. 3.

Thus, the critical path is formed by:

Y3.1.1 → Y3.1.4 → Y3.1.6 → Y3.1.7 → Y3.1.8 → Y3.1.10 → Y3.2.1 → Y3.2.2 → Y3.2.5 → Y3.3.3 → Y3.3.4 → Y3.3.5 →

Y3.4.1 → Y3.4.2 → Y3.5.1 → Y3.5.3 → Y3.5.6 → Y3.5.7 → Y3.5.8

According to the enterprise's forecasts, the duration of the scope management process in the absence of an accumulated knowledge base will be 70 days (that is, about 3.5 months).

#### 4. Conclusions

According to the results of the research, the following conclusions can be drawn:

1. One of the processes of project management is the project scope management process, which takes into account the planning, definition of the project scope, creation of the structure of project works, confirmation of the scope, and project scope management.

2. In order to improve the management of the scope of projects in the pharmacy, the components of subprocesses, participants, input and output documents are studied, and the project scope management algorithm

Table 1

#### Characteristics of operations of the project scope management process

Code	Name of operation	Previous operation	Duration, days
Y3.1.1	Substantiation of the project goal	-	1
Y3.1.2	Analysis of factors of the environment of the enterprise	Y3.1.1	5
Y3.1.3	Analysis of assets of the organizational process of the enterprise	Y3.1.1	4
Y3.1.4	Project Charter creation	Y3.1.1	6
Y3.1.5	Formation of a preliminary description of the project scope	Y3.1.2; Y3.1.3; Y3.1.4	4
Y3.1.6	Formation of a preliminary project management plan	Y3.1.2; Y3.1.3; Y3.1.4	5
Y3.1.7	Expert group creation	Y3.1.5; Y3.1.6	3
Y3.1.8	Expert assessment of knowledge on the project scope planning	Y3.1.7	5
Y3.1.9	Analysis of existing project documentation templates	Y3.1.7	2
Y3.1.10	Formation of a preliminary project scope management plan	Y3.1.8; Y3.1.9	3
Y3.2.1	Analysis of needs, requirements, and expectations of project participants	Y3.1.10	3
Y3.2.2	Formulation of requirements of project participants to its results	Y3.2.1	1
Y3.2.3	Analysis of the essence of expected results of the project	Y3.1.10	2
Y3.2.4	Analysis of alternative methods of project work execution	Y3.1.10	2
Y3.2.5	Formation of the project scope description	Y3.2.2; Y3.2.3; Y3.2.4	4
Y3.3.1	Analysis of templates of project work structures	Y3.2.5	2
Y3.3.2	Analysis of existing approaches to the project work structure creation	Y3.2.5	1
Y3.3.3	Formation of the list of project works	Y3.2.5	5
Y3.3.4	Decomposition of elements of the project work structure	Y3.3.1; Y3.3.2; Y3.3.3	4
Y3.3.5	Construction of the project work structure	Y3.3.4	3
Y3.3.6	Formation of the vocabulary of the project work structure	Y3.3.4	2
Y3.3.7	Update of project scope description	Y3.3.4	2
Y3.3.8	Update of the project scope management plan	Y3.3.4	2
Y3.4.1	Audit of project work structure	Y3.3.5; Y3.3.6; Y3.3.7; Y3.3.8	4
Y3.4.2	Formation of requests for changes in the scope of project work	Y3.4.1	2
Y3.5.1	Substantiation of the need for making changes to the structure of project work	Y3.4.2	5
Y3.5.2	Controlling the change in project effectiveness	Y3.4.2	3
Y3.5.3	Adoption of changes to the project work structure	Y3.5.1; Y3.5.2	3
Y3.5.4	Project scope description adjustment	Y3.5.3	2
Y3.5.5	Project work structure review	Y3.5.3	3
Y3.5.6	Project scope management plan adjustment	Y3.5.3	5
Y3.5.7	Project management plan adjustment	Y3.5.4; Y3.5.5; Y3.5.6	7
Y3.5.8	Approval of updated documents (project scope description, project work structure, project scope management plan, project management plan)	Y3.5.7	1

is constructed. It is revealed that the key element of the project scope planning is the formation of the structure of project work, the justification of the number of works, and the sequence of their implementation.

3. As a result of the planning of the sequence and duration of operations for managing the scope of works, a precedence diagram of the investigated process

is constructed. The developed recommendations regarding the consistency and structure of subprocesses and operations of project scope management will allow the enterprise to significantly save the time of planning the scope of subsequent projects, using the database created in previous periods, statistics on the implementation of the described operations.

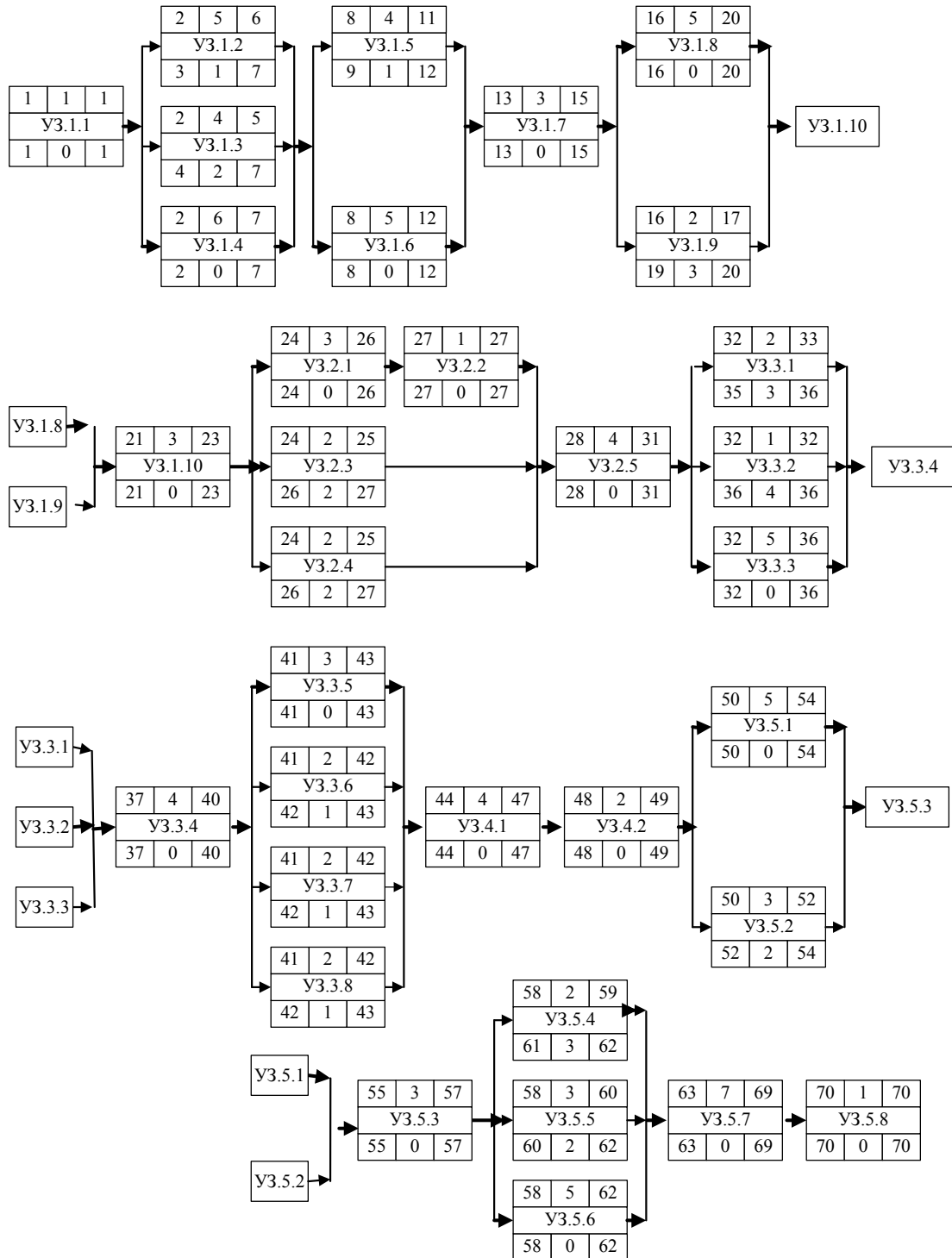


Fig. 3. Precedence diagram of the project scope management process

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# USE OF APPARATUS OF HYBRID NEURAL NETWORKS FOR EVALUATION OF AN INTELLECTUAL COMPONENT OF THE ENERGY-SAVING POLICY OF THE ENTERPRISE

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**Abstract.** Intellectual capital has a significant impact on the energy-saving policy, which is an indicator of levels of competitiveness and efficiency of the enterprise. Making decisions on improving the efficiency of energy-saving policies of the enterprise through intellectual capital can be carried out by assessing qualitative, quantitative, and binary parameters of the state of the investigated object. Researchers on energy saving issues are scientists such as A.M. Asaul, O.I. Amosha, V.M. Heiets, Yu.V. Dziadykevych, V.V. Stadnyk, V. Parkhovnyk, R. Toud. Issues related to the definition of the essence of innovation were investigated by O.F. Androsova, T.P. Bubenko, M.P. Voinarenko, V.M. Heiets, G. Mensch, M. Kaletski, S.V. Phillippova, J. Schumpeter, A.V. Cherep. Issues of intellectual capital management were considered in the works of L. Antoniuk, S.V. Zakharinko, A. Kendiukhov, G.R. Natroshvili, V. Tsipurynda, L. Fedulova. The issue of evaluating the intellectual component of the energy-saving policy, in particular, with the help of the apparatus of hybrid neural networks, remains poorly developed. *The purpose* of the paper is the determination of factors of intellectual capital that influence the energy-saving policy, the formation of a mathematical model based on the theory of hybrid neural networks to determine the indicator of the intellectual component of the energy-saving policy of the enterprise. *Methodology.* Using the theory of hybrid neural networks, a mathematical model has been formed and the simulation has been carried out to determine the indicator of the intellectual component of the energy-saving policy of the enterprise. *Results.* The factors influencing the value of this indicator have been determined as linguistic variables. A mathematical model has been formed and the simulation has been carried out to determine the indicator of the intellectual component of the energy-saving policy of the enterprise. *Practical implications.* If it is necessary, the use of different components of intellectual capital, the proposed mathematical model will allow ranking their degree of attractiveness for energy conservation policies. The expert information can be provided both by an expert and a group of experts and serves as input information for modelling in the proposed mathematical model. Further information and practical experience of implementation of energy saving measures can be used for training mathematical model. *Value/originality.* The use of the proposed mathematical model allows you to determine the indicator of the intellectual component of the energy-saving policy of the enterprise, which in turn allows you to choose those components of intellectual capital for this enterprise that will make the greatest impact on the energy-saving policy.

**Key words:** intellectual capital, energy saving, human capital, organizational capital, market capital, hybrid neural networks.

**JEL Classification:** C45, G32, G31

## 1. Introduction

All transactors are trying to be competitive not only at the regional level but also at the global level. A high level of competitiveness also implies competitive products of the right quality, which would meet the world standards of quality and have the appropriate price. Taking into

account the constant increase in the cost of energy, most enterprises are faced with finding ways to reduce their production cost. Among the promising areas, active implementation of energy saving policy can be highlighted. For this purpose, the management of the

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enterprise should pay attention to its own intellectual capital.

The effective use of intellectual capital can contribute not only to lowering the cost, but also to substantially increase the enterprise's revenues. Making decisions on improving the efficiency of the energy-saving policy of the enterprise through intellectual capital can be carried out by assessing qualitative, quantitative, and binary parameters of the state of the investigated object. That is why further research is needed on the justification of the factors influencing the energy-saving policy of the intellectual capital of the enterprise from the standpoint of the theory of fuzzy logic and hybrid neural networks.

Researchers on energy saving and the formation of energy saving policy are such scientists as A.M. Asaul, O.I. Amosha, V.M. Heiets, Y.V. Dziadykevych, V.V. Stadnyk, V. Parkhovnyk, R. Toud. Energy saving in modern conditions involves the active use of innovations. Issues related to the definition of the essence of innovation were investigated by O.F. Androsova, T.P. Bubenko, M.P. Voinarenko, V.M. Heiets, G. Mensch (1979), M. Kaletski (1963), S.V. Phillippova, J. Schumpeter (1934), A.V. Cherep.

Issues of intellectual capital management, its influence on innovation activity were considered in the works of L. Antoniuk, S.V. Zakharinko, A. Kendiukhov, G.R. Natroshvili, V. Tsipurynda, L. Fedulova. The theory of fuzzy logic and linguistic variable allows using analytical, experimental, and expert input information for the study of causal-consequent relationships of the behaviour of the economic system.

At the same time, the issue of evaluating the intellectual component of the energy-saving policy, in particular, through the apparatus of hybrid neural networks, remains inadequately developed.

The purpose of the study is the determination of factors of intellectual capital that affect the energy saving policy, the formation of a model for determining the indicator of the intellectual component of the energy-saving policy of the enterprise.

## 2. Components of intellectual capital

The ability of the industrial enterprise to implement innovative directions of energy saving is determined not only by the financial position of the enterprise but also by the level of intellectual capital of employees. Non-motivated and not experienced specialists are not sufficiently capable of generating new ideas and creating the energy-saving directions of the enterprise based on their own research. For the formation of a strategy for increasing energy efficiency, enterprise management can attract both detached and its own experts. But the work of attracted energy auditors and energy managers still needs the intellectual support of the specialists of the enterprise. A thorough study of the peculiarities of technological and auxiliary processes is possible only

with multi-day direct contact with the technological and energy systems of the enterprise. Each enterprise owns financial and intellectual capital, which consists of knowledge, skills, competencies, motivation, and experience of employees.

Different authors determine the essence of intellectual capital in different ways. In our opinion, intellectual capital is a set of knowledge, skills, and ideas of employees that can bring certain economic benefits and/or enhance the image of the enterprise.

In general, most authors believe that intellectual capital consists of three components (Denisenko M. P., 2013; Di Stefano, Paul J. Kalbaugh, G. Edward, 1999; Tsipurynda V., 2013; Bontis Nick, 1996; Bassi Laurie J., 1997; Seid Mohammad, Reza, Mirahmadia Ali, Attafara Saideh Ketabia, 2018):

1. Human capital is a set of knowledge, skills, creative abilities, as well as the ability of owners and knowledge-intensive workers to meet the requirements and targets of the enterprise.

2. Organizational or structural capital is computer software, databases, organizational structure, patents, trademarks, organizational mechanisms that ensure the productivity of employees, and the operation of the enterprise.

3. Market or consumer capital is future consumers of products of the enterprise, the ability of the product to meet the needs of consumers.

Thus, intellectual capital is by its nature an intangible asset, an integral part of the goodwill, which, due to skilful management, can bring significant growth in income, profits, and ultimately the competitiveness and market value of the enterprise. An essential advantage of intellectual capital is that it has an exclusive form and has a fairly high added value compared to other resources available at the disposal of the company.

It is difficult to assess the level of intellectual capital since the indicators that characterize it are predominantly evaluated linguistically, qualitatively, and not quantitatively, and even more difficult is the combination of all indicators of intellectual capital into one system and its quantification.

## 3. Fuzzy model for determination of indicator of intellectual component of the energy-saving policy of the industrial enterprise

The use of the hybrid neural network allows for a fairly accurate assessment of the level of intellectual capital in the industrial enterprise. An artificial neural network is a collection of mathematical models of neurons that are interconnected by synapses (Voinarenko M. P., Dzhdzhula V. V., Yepifanova, I. Yu., 2016; Pankevich O. D., Shtovba S. D., 2005; Leonenkov A. V., 2005). The input of the neuron receives the result of the interaction of the activation function with the sum of the signals of the synapses. The synapse's weight characterizes

the binding power and may change in the process of network formation and learning.

Hybrid neural networks allow logical conclusions to be obtained by means of fuzzy logic, and the adjustment of membership functions is carried out by means of neural networks. Hybrid networks allow us not only to combine the quantitative and qualitative characteristics of the object being investigated but also to study, that is, the forecast of its characteristics, which is obtained through the network, changes with the change of parameters of the object. Such features of the hybrid neural networks provide the proposed method of modelling with the advantages over the classical theory of fuzzy logic, where the information bases of knowledge formed by experts are final.

The stages of information transformation in the hybrid neural network are as follows: phasing – calculation of the logical conclusion – the formation of fuzzy logic equations – dephasing. The most common method of dephasing, that is, the transformation of fuzzy information into a clear, is the method of the centroid, the most common method of teaching the hybrid neural networks is the method of reciprocal error propagation.

At the first stage of modelling, a training sample is provided for the input of the neural network and optimal parameters of the network nodes are found in the process. When new knowledge of the research object is entered into the network, a test sample is submitted that allows you to adjust the weighting factors.

The linguistic variable  $I_k$ , which characterizes the value of the intellectual component of the energy-saving policy of an enterprise, can be represented as:

$$I_k = f(B, C, D) \tag{1}$$

where  $B$  is an indicator characterizing human capital;  
 $C$  is an indicator characterizing organizational capital;  
 $D$  is an indicator characterizing market capital.

The linguistic variable characterizing human capital

can be represented as:

$$B = f(b_1, b_2, b_3, b_4, b_5) \tag{2}$$

where  $b_1$  is LV “Potential of workers”;  
 $b_2$  is LV “Level of knowledge of workers”;  
 $b_3$  is LV “Motivation of workers”;  
 $b_4$  is LV “Experience of workers”;  
 $b_5$  – is LV “Ability to work in a team”.

The linguistic variable characterizing the organizational capital can be represented as:

$$C = f(c_1, c_2, c_3, c_4, c_5) \tag{3}$$

where  $c_1$  is LV “Corporate culture”;  
 $c_2$  is LV “Patents”;  
 $c_3$  is LV “Organizational structure”;  
 $c_4$  is LV “Level of information development”;  
 $c_5$  is LV “Technological level of the enterprise”.

The linguistic variable characterizing the market capital can be represented as:

$$D = f(d_1, d_2, d_3, d_4, d_5) \tag{4}$$

where  $d_1$  is LV “Loyalty of consumers”;  
 $d_2$  is LV “Branding”;  
 $d_3$  is LV “Suppliers”;  
 $d_4$  is LV “Social activity of the enterprise”;  
 $d_5$  is LV “Relations with financial institutions”.

The factors of influence as linguistic variables are shown in Table 1.

The mathematical package Matlab has been used for simulation. By compiling the training sample according to the expert estimates, we set the values of the initial indicators within [1 ... 5]. To reduce the computational time and the practical use of the proposed approach on low-power computers, we determine the value of each linguistic variable separately. To select the optimal form of membership functions, we carry out several stages of simulation and define training errors.

Graphical results of the calculation of training error in various forms of membership functions are shown

Table 1  
**The factors of influence as linguistic variables**

Parameter	Symbol and name of the variable	Universal set	Linguistic terms for evaluation
Human capital (B)	$b_1$ – LV “Potential of workers”	$U(b_1) = \{1-4\}$ (points)	absent, low, medium, high
	$b_2$ – LV “Level of knowledge of workers”	$U(b_2) = \{1-4\}$ (points)	absent, low, medium, high
	$b_3$ – LV “Motivation of workers”	$U(b_3) = \{1-4\}$ (points)	absent, material, moral, mixed
	$b_4$ – LV “Experience of workers”	$U(b_4) = \{1-4\}$ (points)	absent, low, medium, high
	$b_5$ – LV “Ability to work in a team”	$U(b_5) = \{1-3\}$ (points)	high, medium, low
Organizational capital (C)	$c_1$ – LV “Corporate culture”;	$U(c_1) = \{1-4\}$ (points)	high, medium, low, absent
	$c_2$ – LV “Patents”	$U(c_2) = \{1-3\}$ (points)	absent, used purchased, own
	$c_3$ – LV “Organizational structure”	$U(c_3) = \{1-3\}$ (points)	effective, not sufficiently effective, ineffective
	$c_4$ – LV “Level of information development”	$U(c_4) = \{1-3\}$ (points)	high, medium, low
	$c_5$ – LV “Technological level of the enterprise”	$U(c_5) = \{1-5\}$ (points)	high, above medium, medium, below medium, low
Market capital (D)	$d_1$ – LV “Loyalty of consumers”;	$U(d_1) = \{1-3\}$ (points)	high, medium, low
	$d_2$ – LV “Branding”	$U(d_2) = \{1-4\}$ (points)	high, medium, low, absent
	$d_3$ – LV “Suppliers”;	$U(d_3) = \{1-3\}$ (points)	reliable, not reliable, missing constant
	$d_4$ – LV “Social activity of the enterprise”	$U(d_4) = \{1-4\}$ (points)	high, medium, low, absent
	$d_5$ – LV “Relations with financial institutions”	$U(d_5) = \{1-3\}$ (points)	reliable, not reliable, absent

in Fig. 1. The upper figure characterizes the error in the functions of the membership of the triangular shape, the lower – Gaussian. As you can see, the Gaussian form of membership functions allows obtaining much greater modelling accuracy for this case.

The overall structure of the hybrid neural network is shown in Fig. 2.

The combination of all neural networks in one model to determine the value of the index of the intellectual

component of the energy-saving policy of the enterprise has been carried out in the mathematical package Simulink for Matlab.

#### 4. Conclusions

The use of the proposed mathematical model will allow us to determine the indicator of the intellectual component of the energy-saving policy of the industrial

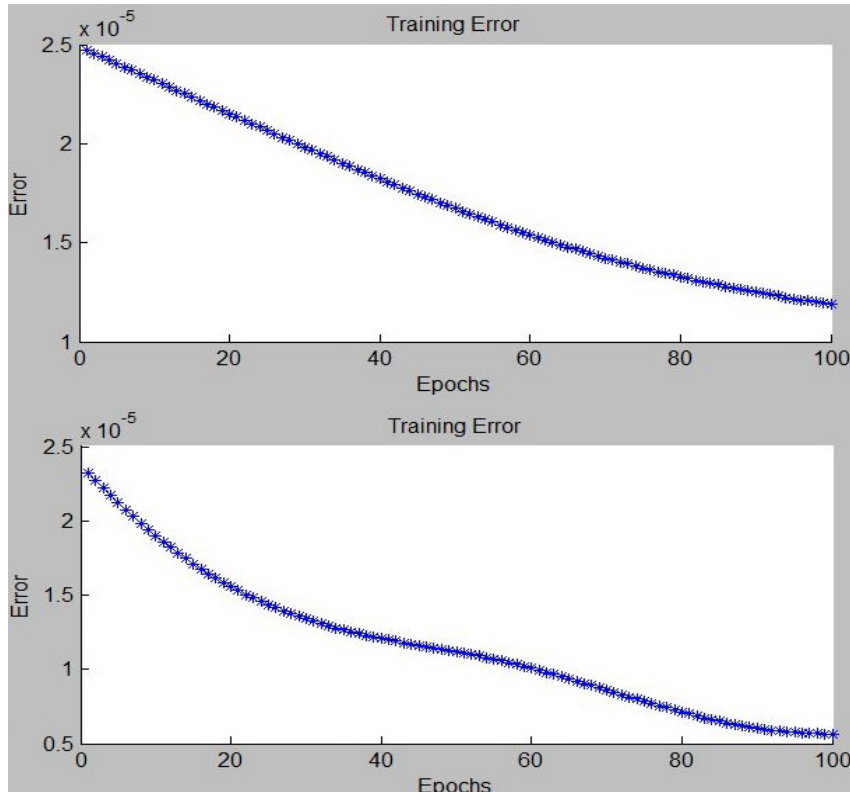


Fig. 1. Graphical results of calculating training error in various forms of membership functions

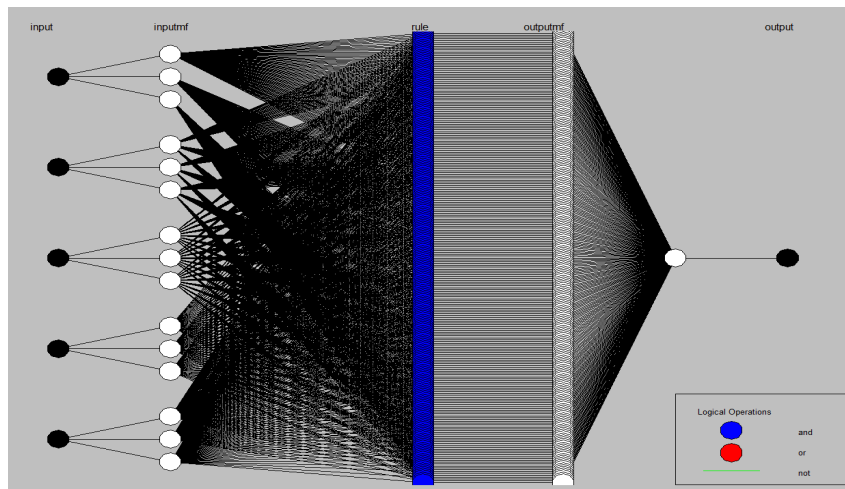


Fig. 2. General view of the structure of the hybrid neural network to determine values of the indicator “B”

enterprise, which in turn provides an opportunity to select those components of intellectual capital that have the greatest influence on the energy-saving policy of the enterprise.

If it is necessary, the use of different components of intellectual capital, the proposed mathematical model will allow ranking their degree of attractiveness for

energy conservation policies. The expert information can be provided by both an expert and a group of experts and serves as input information for modelling in the proposed mathematical model. Further information and practical experience of implementation of energy saving measures can be used for training mathematical model.

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## FORENSIC ACCOUNTING: THE ESSENCE AND PROSPECTS OF DEVELOPMENT IN UKRAINE

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**Abstract.** The *subject of the study* is a set of theoretical, organizational, and methodological principles for the development of forensic accounting in Ukraine. General scientific and special methods of cognition are the *methodological basis of the study*. The content of the concept "forensic accounting" is specified using theoretical generalization methods; the comparison of audit and forensic accounting using comparison method is carried out. Using the abstract-logical method and structural-logical analysis, features, current problems, and obstacles to the development of forensic accounting in Ukraine are determined. The objective of the study is to consider the essence of the concept of "forensic accounting", to introduce the main obstacles, and to propose a list of measures for its development in Ukraine. As a result of the study, it is established that forensic accounting is a combination of legal and financial audit and forensic accounting expertise. Therefore, experts of all these profiles should be involved to the forensic accounting, which will help the company solve the conflict situations related to fraud. It is substantiated that when improving the method of forensic accounting, it is necessary to understand its difference from the audit. The study found that the most common types of fraud faced by Ukrainian companies are asset theft, unreasonable and inappropriate spending. The most common ways to detect fraud in Ukraine are internal audit and informal internal sources. Only 10% of Ukrainian companies have experience in attracting external consultants to independent investigations. However, as practice shows, the very independent, unbiased view of the external specialist on the control system and business processes allows creating a high-quality system of preventive mechanisms for counteracting fraudulent actions and in general, improving the efficiency of business processes of the company. It is substantiated that forensic accounting is one of the effective instruments of an independent economic investigation. It is established that forensic accounting is quite new for Ukraine and audit and specialized companies are only at the beginning of the path in this direction. In order to develop this type of services, audit and specialized companies were suggested to expand the range of services in the direction of forensic accounting and the appropriate procedure for carrying out such activities. In addition, it is necessary to take into account the foreign experience of the training of specialists in the field of forensic accounting, that is, to start the training of specialists by including specialized courses on forensic accounting in the curricula of higher educational institutions. It is also necessary to develop the cooperation of Ukrainian professional organizations with foreign professional organizations in order to provide specialists with the possibility to obtain international certificates, as well as to involve audit, legal, and consulting companies in the process of professional training in forensic accounting. *Study conclusion.* Thus, forensic accounting includes a set of measures for the settlement of financial, economic, legal, commercial, and other issues that involve significant economic risks. The use of forensic accounting by domestic companies will increase the effectiveness of managing their business risks by adopting optimal management decisions and ensuring the profitability of the business.

**Key words:** forensic accounting, audit, economic investigation, fraud, risk.

**JEL Classification:** L84, M20, M40, M49

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### 1. Introduction

When carrying out financial and economic activities, business entities are often faced with various manifestations of fraud, which further adversely affect the results of their activities. Identifying internal economic crimes during the normal operation of a large company is not easy since fraud is often a pre-conceived process. The most popular types of fraudulent operations remain: misappropriation of the assets, financial distortion, bribery. At the same time, the most popular method of concealing fraud abroad is the falsification of various documents. In large companies, corruption is the most widespread method of fraud, and in small ones, there are theft of cash, falsification of checks, etc. Therefore, the detection and termination of unlawful economic actions in the company become a topical task, which can be handled by experienced professionals who have skills in conducting a forensic accounting.

Forensic accounting service is a fairly new phenomenon, even in countries with a developed market economy. The first consulting and audit firms that provide such a service are only appearing in Ukraine. Therefore, a number of relevant issues related to the development and spread of forensic accounting service remain open and require more in-depth research and decision.

The objective of the study is to consider the essence of the concept of “forensic accounting”, to introduce the main obstacles, and to propose a list of measures for its development in Ukraine.

General scientific and special methods of cognition are the methodological basis of the study. The content of the concept “forensic accounting” is specified using theoretical generalization methods; the comparison of audit and forensic accounting using comparison method is carried out. Using the abstract-logical method and structural-logical analysis, features, current problems, and obstacles to the development of forensic accounting in Ukraine are determined.

### 2. The essence of the concept of “forensic accounting”

Forensic accounting is interpreted as an independent economic investigation, which is usually carried out in the interests of the owners (shareholders) of companies.

In general, the term “forensic” is used to characterize independent initiative activities related to investigation, examination, analysis, evaluation, settlement of situations, and the development of procedures aimed at counteracting fraud, corruption, commercial bribery, evaluating contractual activities, resolving disagreements between parties regarding financial and business issues (Suits, Khoryn, Kozeltseva, 2015).

Forensic is at the same time the science and art of investigating and preventing the facts of fraudulent actions by offenders, which are often the managers of large companies. It helps to identify potential financial and nonfinancial issues and focuses on both internal and

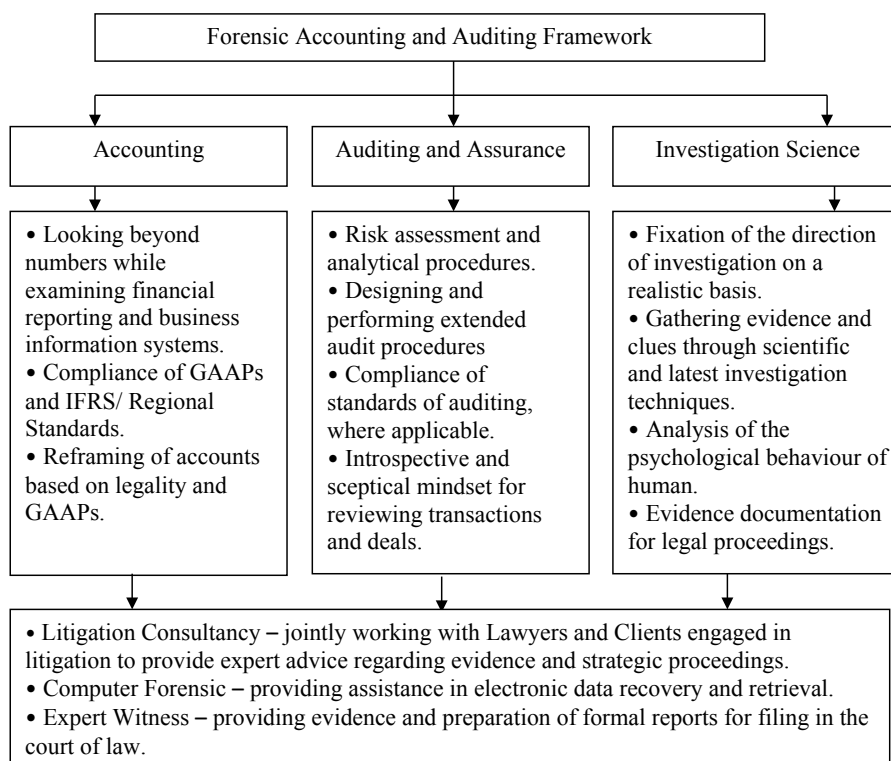


Fig. 1. Forensic accounting and auditing services: anatomical sketch

Source: (Crumbley, 2006)

external analysis of corporate intelligence – the analysis of related individuals and the personal dynamics of the financial position of the top manager (Kovbyl, 2017).

When analysing the internal corporate intelligence:

- identification of the risks of fraudulent operations (according to fraud tree – this is the appropriation of assets, intentional distortion of financial reporting, bribery, kickbacks);
- analysis of the internal control system (financial, informational, legal, physical security);
- identification of inefficient managers in the company;
- transparency of tender procurement;
- efficiency of spending company's expenses;
- transparency of sales.

When analysing the external corporate intelligence:

- provision of preventive measures for raider attacks on the enterprise;
- elimination of conflicts of interest and ensuring transparency in the implementation of procurement;
- provision of company information security with the OSINT, HUMINT, and others procedures (Kovbel, 2017).

Along with the term of “forensic accounting”, there is also used the term of “forensic auditing” (Weaver, 2008), which is usually understood as the study and evaluation of the financial information of the entity, the results of which can be used as evidence in court. Obviously, there is no fundamental difference between these concepts since results of forensic accounting can also serve as evidence in the litigation process.

(Crumbley, 2006) stated that forensic accounting is an accounting that is suitable for legal review offering the highest level of assurance and including the now generally accepted connotation of having been arrived at in a scientific fashion (Fig. 1).

Forensic accounting is a combination of legal and financial audit and forensic accounting expertise. Therefore, experts of all these profiles should be involved in the forensic accounting, which will be able to comprehensively check every transaction, find violations where it, at first glance, does not exist.

Thus, the term “forensic accounting” should be understood as a set of measures for the settlement of financial, economic, legal, commercial, and other issues that involve significant economic risks by auditing, consulting, and specialized companies to meet the interests of owners (shareholders) of companies of various organizational and legal forms.

### 3. The main differences between forensic accounting and audit

The main difference between the audit of the forensic accounting is that the audit activity is regulated at the legislative level, but the requirements for carrying out forensic accounting are not established by law. Thus, the main legislative and regulatory documents regulating audit activity in Ukraine are the Law of Ukraine “On Audit Activity” on April 22, 1993 No. 3125-XII and the Law of Ukraine “On Audit of Financial Reporting and Audit Activity” on January 21, 2017 No. 2258-VIII (effective from October 01, 2018). In addition, international auditing standards are used while the implementation of audit activity published in the official language on the official website of the central executive authority, which ensures the formation and implementation of state policy in the field of accounting and auditing, which ensures their updating.

Also, there are other differences that are presented in Table 1.

Table 1

#### Comparative characteristics of audit and forensic accounting

Criteria for comparison	Audit	Forensic accounting
Objective	Expressing an independent opinion of the auditor on the compliance of the financial statements of the organization in all material respects with the requirements of national accounting requirements (standards), international financial reporting standards or other requirements.	Search, termination, and prevention of economic crimes in the organization
Subjects	Auditors, audit companies	Audit, consulting and law firms
The presence of requirements for mandatory conduct in cases established by law	Yes	No
Reporting	Audit report and other official documents	List of possible reporting documents: - report on conducting analytical procedures; - report on established evidence of fraud; - list of deficiencies in internal control of processes and results; - possible fraud scenarios and schemes; - recommendations on the risk management system

Source: formed by the authors

At the same time, forensic accounting involves a wider range of analytical procedures than an audit. The auditor expresses an independent opinion as to the reliability of financial reporting, and the inspector discovers data indicating signs of violations and crimes. Moreover, for their detection, other methods and mechanisms are used than during the audit.

The fact that forensic accounting is based on both official and unofficial sources, in addition, independent economic analysis analyses not only the initial documentation, accounting, and management reporting, but also the testimony of employees, counteragents, independent experts, and former partners.

In addition, the report on the inspection may be in the interest of one interested person, for example, one owner who suspected a partner in fraudulent acts or in relation to the general director of the company selected in the competition, in case of suspicion of fraud of the company's funds (Shestakova, 2013).

#### 4. The prospects of development in Ukraine

The economic crisis in Ukraine and the deterioration of the financial performance of business entities force the owners to take measures aimed at improving the efficiency of companies. One of the reasons for the deterioration of the financial performance of business entities is fraudulent actions and negligence of the personnel.

So, in June 2017, Kreston GCG, a part of the international auditing network Kreston International,

conducted an independent study "Fraud in Ukrainian Companies." The study covered 130 companies throughout the country, including recognized leaders in the fields of agriculture, construction, industrial production, food industry, pharmaceutical business, and many others. Among the participants in the study, there were owners, directors general, and financial directors, first managers, heads of the internal security service etc.

The key task of the study was: to estimate the extent of the spread of fraud in companies in Ukraine; to establish measures taken to prevent fraudulent schemes in companies and organizations.

The study found that more than half of companies (61.5%) had ever faced fraud, with nearly a third of companies recording some or other cases of fraud during the past 3 years. However, another group of companies (about 40% of respondents) points out that they have never faced fraud. In the opinion of (Kovbel, 2017) Kreston GCG's partner, most likely, the reason consists not in the unique favourable atmosphere of companies, but in the absence or lack of effectiveness of control systems that create the illusion of no fraud.

It is characteristic that in the sectoral section, representatives of the following sectors faced the cases of fraud significantly more often than in the whole market: industrial production, trade, food industry, and agriculture.

The most common types of fraud faced by Ukrainian companies are: asset theft, unreasonable and inappropriate spending (Fig. 2).

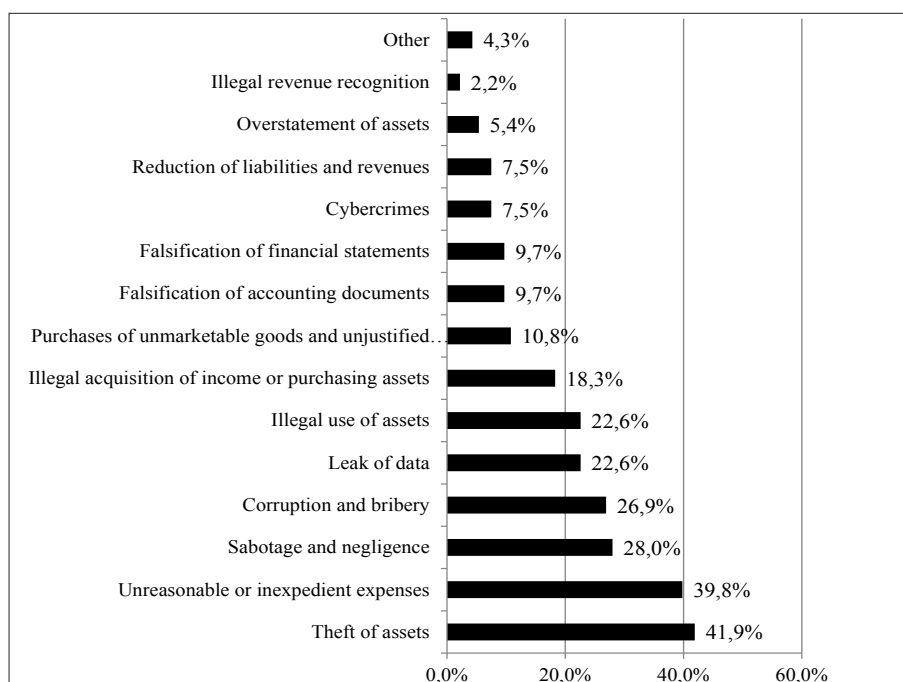


Fig. 2. Types of fraud faced by Ukrainian companies, %

Source: (Data of Kreston GCG Report "Fraud in Ukrainian companies: current situation, mechanisms of counteraction", 2017)

A little more than a quarter of companies faced with such manifestations of fraud as sabotage, negligence, corruption, and bribery (28% and 26.9% respectively). The third group, which was faced by more than 20% of the companies in general, is theft of information and illegal use of assets.

The most common methods for detecting fraud in Ukrainian companies are an internal audit and informal internal sources (Fig. 3). The latter ones are the most common way of detecting in the world as well, but unlike in Ukraine, an efficient and secure channel for receiving information – a hotline

(telephone or online) is developed for their use. In Ukraine, only 9% of companies use it and about the same number are perceived as an effective channel (Kovbel, 2017).

Almost a third of cases of fraud were detected by chance. At the same time, more often the practice of accidental detection is noted by representatives of the sectors of trade and industry, which often show cases of fraud. Informal internal sources more often contribute to the detection of fraud in the field of agriculture, technology, transport and logistics (Table 2).

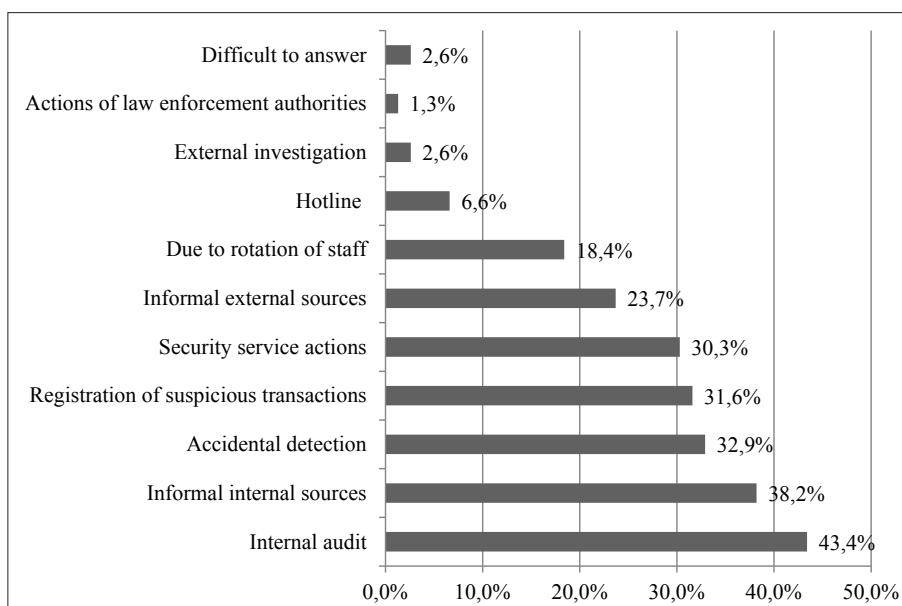


Fig. 3. Operations for detecting fraud in Ukrainian companies, %

Source: (Data of Kreston GCG Report “Fraud in Ukrainian companies: current situation, mechanisms of counteraction”, 2017)

Table 2

Operations for detecting fraud in the sectors of the economy, %

Means of fraud detection	Sectors of the economy					
	Trade	Agriculture	Food industry	Industrial production	Transport and logistics	Technology
Internal audit						
Informal internal sources						
Accidental detection						
Registration of suspicious transactions						
Security service actions						
Informal external sources						
Due to rotation of staff						
Hotline						
External investigations						
Actions of law enforcement authorities						

Notes. The colour saturation (from darker to lighter) shows the intensity of using one or another method of detecting fraud. The lightest colour means that this method was not used to register a fraud

Source: (Data of Kreston GCG Report “Fraud in Ukrainian companies: current situation, mechanisms of counteraction”, 2017)

Only 10% of Ukrainian companies have experience in attracting external consultants to independent investigations. However, as practice shows, the very independent, unbiased view of the external specialist on the control system and business processes allows creating a high-quality system of preventive mechanisms for counteracting fraudulent actions and in general, improving the efficiency of business processes of the company.

At present, foreign companies actively use independent economic investigations such as forensic accounting.

With the help of forensic accounting, it is possible: to evaluate the effectiveness of organization of internal business processes; to conduct an independent financial examination; to discover the facts of financial fraud within the company; to protect own interests in court; to develop an effective individual system of internal financial security; to ensure effective and transparent interaction with counterparties; to protect the company from aggressive external interference by competitors.

The concept of “forensic accounting” in Ukraine is understood only by few experts. Today this specific service has just started to be offered to domestic businesses. So far, small companies pay attention to it.

Among the services provided by domestic audit, legal and consulting companies, there is a forensic accounting service. However, forensic accounting companies (Spencer & Kauffmann, Kreston GCG, Deloitte Consulting, Otten Consulting, Credo-Audit Company) provide a very narrow range of services in this direction.

Therefore, in order to develop forensic accounting in the domestic market, we offer companies to expand the content of services for forensic accounting. The main content of the proposed forensic accounting service is presented in Table 3.

Also, during the forensic accounting, we propose the following list of procedures, shown in Figure 3.

In order to develop this type of service in Ukraine, it is also necessary to take into account the foreign experience of the training of specialists in the field of forensic accounting. Namely, it is necessary to begin the training of specialists on forensic accounting by including specialized courses on forensic accounting in the curricula of higher educational institutions. It is also necessary to develop the cooperation of Ukrainian professional organizations with foreign professional organizations in order to provide specialists with the possibility to obtain international certificates, as well as to involve audit, legal, and consulting companies in the process of professional training in forensic accounting.

Table 3

**The proposed structure and content of forensic accounting services**

Type of service	Content of the service
Financial investigations	Analysis of existing security systems of the company. Assessment of procedures and internal policies. Check of the effectiveness of the activity and evaluation of financial losses in the processes of production, supply, and sale. Detection of facts and causes of fraud. Search for stolen assets. Organization of management and control to prevent financial fraud and fraud
Development of a fraud counteraction system	Preparation of a fraud counteraction plan. Organization of the corporate hotline. Organization of work of economic security and internal control service
Corporate intelligence	Collection and analysis of data on the reputation of business partners. Information support in the course of financial investigations. Search for stolen assets. Information support in lawsuits and conflict situations. Search for new business opportunities
Expertise	Forensic expertise – preparation of information for the adoption of administrative measures. Pre-trial expertise – preparation of information for court proceedings. Forensic examination – judicial support in Ukraine and abroad; providing expert evidence
Protection of intellectual property, fulfilment of contractual terms	Investigation of the situation with the relationships arising from the licensing of various forms of intellectual property rights. A comprehensive investigation of problems related to the fulfilment of contractual terms
Automation of anti-fraud solutions	Diagnosis of existing fraud management practices. Development and implementation of a target system for monitoring and managing fraud risk. Development and implementation of anti-fraud systems

Source: formed by the authors

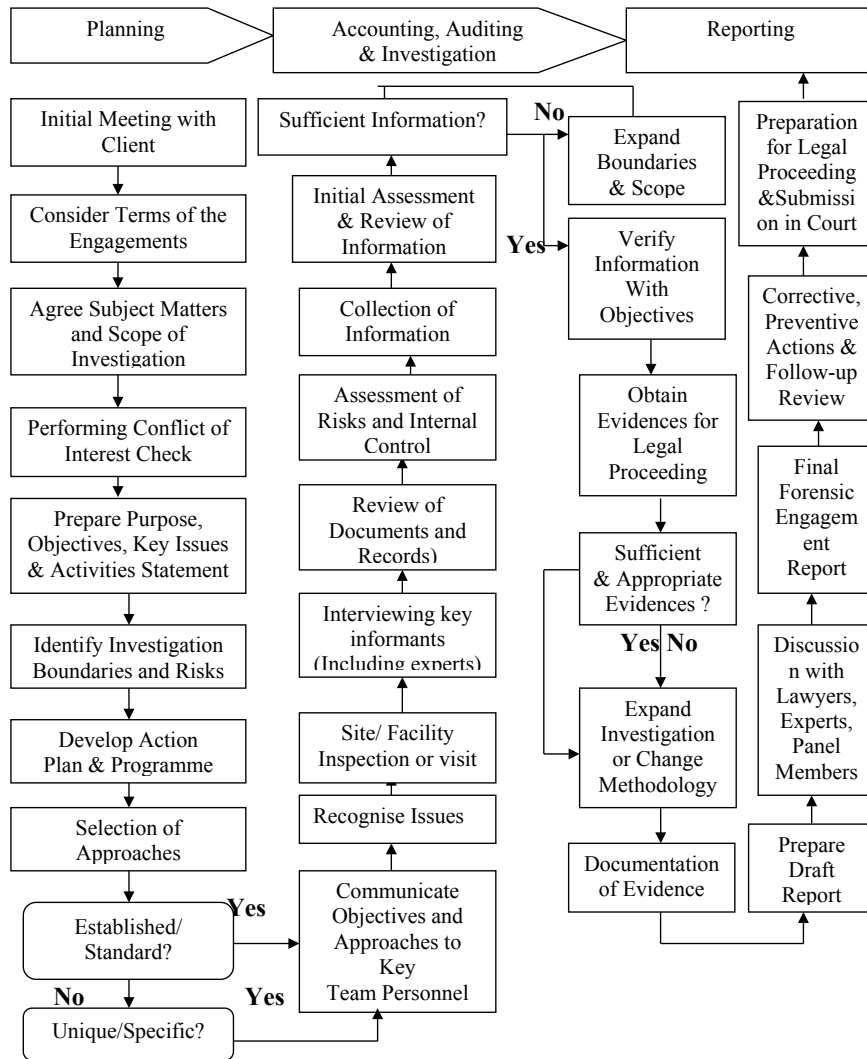


Fig. 3. Flow chart of forensic/investigative accounting

Source: (CA Anandaraj Saha, 2014)

**5. Conclusions**

Thus, we can conclude that forensic accounting includes a set of measures for the settlement of financial, economic, legal, commercial, and other issues that involve significant economic risks.

Forensic accounting services may be provided by the audit, consulting, and specialized companies to owners (shareholders) of companies of various organizational and legal forms. Unlike the audit, the procedure for the implementation of forensic accounting in Ukraine at the legislative level is not regulated.

In order to develop and expand the forensic accounting, it is necessary to take into account the foreign experience of the training of specialists in this direction; audit, consulting and legal companies need to expand the range of services in forensic accounting.

The use of forensic accounting by domestic companies will increase the effectiveness of managing their business risks by adopting optimal management decisions and ensuring the profitability of their business.

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## PUBLIC ADMINISTRATION OF ECONOMIC DEVELOPMENT IN THE CONTEXT OF THE INSTITUTIONAL THEORY

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**Abstract.** One of the priorities of socio-economic reform in Ukraine is the modernization of the structure of the national economy and its growth. An effective structure of the economy, which will correspond to a socially oriented model of economic growth and will be based on the use of both the country's competitive advantages in the global division of labour and the economic benefits of cooperation, will guarantee the independence of any country and will be the key to its dynamic development. The development of economic theory is due to the emergence of fundamentally new ideas, sustainable accumulation of knowledge, intellectual and meaningful updating of established concepts and theories, the formation of new scientific schools. A new paradigm of economic theory should explain the real processes in real economies, which operate on the principles of complex systems of synergistic nature and the theory of nonlinear dynamics. There is a process of theoretical polystructuredness both of mainstream and heterodoxy. An important task is to form an interdisciplinary dialogue between economists and scientists, which stipulates the relevance of the research topic. *The subject of the study* is the theoretical and methodological foundations and approaches to state management of economic development in the context of the institutional theory. *The purpose of the study* is to determine the role and influence of public administration of the development of the economy in the context of institutional theory and to develop strategic goals of the state's innovation policy. *Methodology.* Directions of correlation of the system of economic development of the country and the potential of the state development with the historical preconditions for the emergence and development of the institutional doctrine of economic theory are investigated. Based on the revealed interrelations, the necessity of using instruments of institutionalism for studying the economic development system is substantiated. The state, in all available ways, should encourage economic actors to develop and implement innovations, thereby creating favourable conditions for innovative and technological development of production, saturation of the domestic market with highly competitive goods and services, which, in turn, will strengthen export potential, fill the budgets of all levels, increase incomes of business entities, reduce unemployment and improve working conditions, increase social security of the population, and also strengthen the positive image of public administration and local self-government bodies. That is, the socio-economic development of the country depends directly on the innovation-technological potential and on the efficiency of public administration in its development at all levels of the economy. *Conclusions.* The author generalizes the theoretical and methodological foundations of the country's development in the context of the institutional theory: the system of economic development of the state has a set of direct and indirect links with the historical background of the emergence and development of an institutional doctrine of economic theory; the revealed directions of correlation contribute to the formation of a scientific and methodological basis for further study of economic development and economic potential of a country (state) in the context of the institutional doctrine of economic theory in its relation to the public administration theory; the economic development of a country (state) depends on the institutional environment, in which it operates, and is both an object of its influence and a subject that determines its transformation. The author investigates the theoretical principles of state regulation of innovative and technological development of the country's economy. The existing strategies and programs of innovative development and innovation activity in Ukraine are explored. The state of innovation and technology of the national economy and the potential of key sectors of the economy in terms of innovative development are analysed.

**Key words:** institutional doctrine, public administration, stimulation mechanism, innovative and technological development, state regulation, innovation strategy.

**JEL Classification:** H76, H83, H72, O31

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## 1. Introduction

Issues of institutional architectonics have developed within the limits of modern scientific thought and have become the object of attention in most scientific studies, the content of which is associated with social dynamics and its management issues. The theoretical basis for the development of ideas of institutionalism can be considered works of T. Veblen, W. Hamilton, A. Hobson, J. Commons, and W. Mitchell, which laid the foundation for the formation of a modern institutional paradigm. The emergence of institutionalism is associated with the failure of the idea of economic liberalism and general equilibrium (harmony of interests and non-interference of the state in economic life) to effectively solve the problems of the cyclical economic development of the economy (economic and social instability). Traditionally, the main provisions of the institutional doctrine are used mainly within the limits of economic theory, which, of course, is quite a logical direction for scientific inquiry. At the same time, institutionalism as a direction of economic thought is used not only to “study the totality of socio-economic factors (institutions) in time but also to introduce social control over the economy” (Andriushenko, 2009). Such a competence of institutionalism creates prerequisites for considering the possibility of using its toolkit in other scientific fields. For example, the issue of social control of a society in one form or another can be considered as one of the number of variants of manifestation of the subject of the scientific field of “public administration”, namely, due to the interrelation of this category with the problem of “assessing social, economic, political, cultural, environmental consequences” of state-management activity (Bazylevych, Leonenko, Hrazhevska [ta in.], 2005). In addition, among the most important aspects of public administration, from a methodological point of view, along with others, “institutional (a set of institutions, state bodies, organizations involved in the implementation of management activities)” aspect is also distinguished (Kniazev, 2010), which creates preconditions for using the theoretical and methodological basis of institutionalism to find effective ways to use resources in order to achieve sustainable economic development of the state (Pokryshka, Zhalilo, Liapin [ta in.], 2010).

In today's conditions of development of the world economy, the economic role of the state depends on the level of participation in ensuring the conditions for the effective sustainable functioning of the national economy, which is based on the creation and use of innovative science-intensive products. Therefore, to create development conditions, the state forms goals and principles of its policy and its own priorities (Martynyuk, 2014).

The purpose of the study is to determine the role and influence of public administration in the development

of the economy in the context of institutional theory and to develop strategic goals of the state's innovation policy.

## 2. Methodology

Recently, the attention of domestic and foreign scientific thought to the problems of institutionalism has increased, which has led to the formation of separate scientific groups, centres of institutional research, specialized departments, etc. For example, at the Institute for Economics and Forecasting of the National Academy of Sciences of Ukraine, around the topic “Institutional Architectonics and Dynamics of Economic Transformations”, a group of scientists led by A. Hritsenko was formed, whose studies led to a new direction in scientific research within institutionalism. These researches are connected with the development of such an institutional model of social relations, the essence of which is natural in relation to the basic system of value orientations of citizens and their cultural and mental peculiarities of development. Among the powerful scientific schools in Russia, the issues of which include certain aspects of the institutional doctrine, it is necessary to highlight the Volgograd Scientific School of Evolutionary and Regional Economics, headed by its founder O. V. Inshakov, a team of scientists of the Institute of Economics of the Russian Academy of Sciences, centred within the scientific direction “Institutes of Modern Economics and Innovative Development” led by A. E. Gordetskyi, a group of researchers from the Institute for Institutional Studies at the National Research University – Higher School of Economics, led by Ya. I. Kuzmin, and so on.

Among the scholars, whose scientific interests included institutionalism issues, are V. V. Volchik, D. P. Gavra, V. V. Dementieva, V. V. Dementiev, S. G. Kirdina, O. V. Kochetkova, P. M. Nureiev, V. L. Tambovtsev, V. M. Tarasevych. Despite the strong dynamics of the development of institutional doctrine, there are many promising areas of research, the general classification of which can be given by the main branches of socio-economic knowledge: economics, politology, sociology, public administration, law, etc. Each of these areas has its own range of scientific competence within the scope of institutionalism, the framework of which is not stable and such that unambiguously determines the subject of scientific issues. For example, within the framework of public administration science, institutionalism problems were reflected in works of V. H. Bodrov, N. V. Kovalenko, A. F. Kolodii, V. V. Korzhenko, A. O. Kuznetsov, E. M. Kuchmenko, O. Ya. Lazor, V. Yu. Streltsov, and many others. Given the multifaceted manifestation of the connections of public administration with the issues of institutional theory, one should pay attention to the existence of a plurality of possible areas of scientific research, each of

which is unique and deserves the attention of scholars.

To the issues of the state regulation of innovation activity at the national level, the works of the following domestic scientists are devoted: O. Amosha, V. Heiets, O. Datsii, T. Zhuravlova, L. Lebedieva, O. Melnychenko, P. Sabluk, and others. However, considering the research results of these authors on the management of the innovation process and the identification of innovation potential, it should be noted that they do not adequately cover state measures aimed at achieving the strategic goals of innovative development of the national economy.

### 3. The main text

To explain our study of economic development from the standpoint of the theory of institutionalism, we consider it necessary to present the main factors that have led to the formation of these ideas in a separate direction of scientific thought. According to the team of authors led by Professor V. D. Bazylevych, the historical preconditions for the emergence of institutionalism were linked with: 1) monopolization and corporatization of the economy (transformational shifts in the market system); 2) instability of the market system; 3) aggravation of the problem of employment; 4) increased influence of social organizations; 5) emergence of the need for public control over the market mechanism; 6) aggravation of social contradictions; 7) a gradual loss of the position of the neoclassical doctrine of the self-sufficiency of a competitive market (Bazylevych, Leonenko, Hrazhevska [ta in.], 2005). It is clear that these issues in one form or another have their own manifestation in the modern practice of the functioning of the socio-economic system of society. In our opinion, the above factors can be attributed to the determinants of influence on the process of economic development of the state and its innovative potential.

*The first direction.* Monopolization of the market of goods and services leads not only to the destruction of market principles of the functioning of the economic system but also to the distortion of the motivation mechanism of the development of business entities: 1) monopolization at the first stage of its development leads to the destruction of the market pricing mechanism, the basis of which is the task of solving the problem of maximizing profits (for example, unjustified from an economic point of view, lowering the price of goods or services (dumping pricing) is aimed at the elimination of competitors); 2) the system of remuneration within the monopoly has a fundamental difference from the system of remuneration in a competitive environment (the monopolist, without having to compete for consumers' preferences, may set wages at a level that is significantly different from the economically justified one. These features of manifestation of the influence

of a monopoly on economic development cause its deformation. Such a deformation is manifested through: excess supply of labour; distortion of the mechanism of pricing, including the cost of labour. In addition, the indirect effects of monopoly influence include: under-utilization of the productive potential of society, lowering the pace of the country's socio-economic development; reduction of wages of employees as a result of increased competition in the labour market; increasing tax burden on the employed as a result of the necessary social compensation and support for the unemployed; increase in society's expenditures on retraining unemployed people; exacerbation of the crime situation and the growth of crime; increasing social tension and political instability (Zajchuk, 2006).

In order to demonstrate the extent of possible losses of society (state) only from cyclical unemployment, the indirect source of which may be the process of monopolizing the markets for goods and services, one should mention the dependence that exists between the GDP of the state and cyclical unemployment. The mathematical model of this dependence was substantiated by A. Okun, who proved that the excess of unemployment by 1% of the minimum sustainable level causes the lagging of the actual GDP volume from the potential by 2.5% (Okun, 1981).

*The second direction.* Market system instability determines the lack of clear development prospects both for the socio-economic system as a whole and its components. The comparatively low probability of transformation of the social system according to the elaborated forecasts (development scenarios) leaves a set of options for developing existent potentials. Target development direction of the economy of the country remains uncertain (given the impossibility to determine). One should pay attention to the fact that instability of functioning of the market subsystem of society considerably affects the political stability that, in its turn, is one of the conditions for the development of potentials of a personality (society). Aggravation of political contradictions in social life diverts a large share of resources to solving conflicts and regulating economic relations (Vejmer, 1998).

*The third direction.* Increasing influence of social organization under certain conditions can influence the economic development of society. For example, one of the methods of activities of labour union organizations is a strike, which depending on its duration can affect the skill level and professional qualities of employees. In this context, one should turn attention to the indirect influence of strikes conducted by trade unions. An illustrative example of such a multiplier is mass protests in Greece in 2010–2011 against tough anti-crisis measures of the national government. According to estimates of economists from the European Commission's expert group, Greece's state budget in 2011 has received over 60 billion euros in taxes only, accounting for about 28%

of the country's GDP. One should pay attention to the fact that in countries with a low level of development of civil society, often the governing elite applies the practice of using the workers of certain enterprises (whose leadership is dependent on the authorities) to conduct political actions in support of a certain idea (Afoncev, 2012).

*The fourth direction.* Solving the issue of social supervision over the market mechanism (public goods, externalities, natural monopolies, and information asymmetry (Zajchuk, 2006) is possible through the state mechanism that, in correcting traditional market failures, exacerbates the problems associated with the power failure (direct democracy, representative power, bureaucratic provision, decentralization). In this context, the system of economic development is under the influence of externalities, which are determined both by market failures and power failures of governance. Determination of directions of correlation for each of them with the social development system requires a separate research, thus we consider it possible only to give some generalizations (Osypova, Vodnik, Klimova [ta in], 2003).

Market failures are traditionally associated with the imperfectness of a competitive model. By this model, participants of market exchange, on the one hand, strive for maximizing utility and, on the other, for maximizing income; moreover, it concerns both to a potential consumer of goods and services and to their producer. An ideal model of such a correlation is Pareto optimal state (impossibility to improve economic status without worsening another one). In this context, a man as a carrier of labour potential is both a producer and a consumer of goods (services) and, accordingly, should achieve the efficiency by Pareto, first of all, within his own personality. This is about, first of all, the correlation between public and private, spiritual and material, social and individual in the process of formation, development, and use of labour potential. For example, to satisfy each level of personal needs, an individual should use the relevant share of own labour opportunities, i.e. carry out a peculiar exchange of the result of the realization of the opportunities to a state of rest as a result of needs' satisfaction. In terms of ideal state (Pareto efficiency), each part of labour potential of an individual should be consistent with the hypothetically usable good (Bazylevych, Leonenko, Hrazhevska, 2005). At the same time, the practice of functioning of market mechanisms testifies the existence of a certain limit both in the use of work opportunities of an individual (the existence of a potential, physiologically available for use) and in the correlation between the potential used and the resulting good. A result of this imbalance can be a condition, at which a person's own labour potential unit, which is additionally used by a person, does not provide satisfaction for the corresponding share of needs. The process of maximizing utility and

income sets a conditional limit, at which a person agrees to use the available labour opportunities and a business agrees to compensate (in the form of wages and employment benefits) lost opportunities for the person. There is no doubt that in such conditions, the establishment of Pareto efficiency is impossible, and the process of approaching its status becomes possible only with the participation of society through the use of the state mechanism.

Power failures also have an impact on the process of forming, using, and developing labour potential. There is a situation, in which state power, by increasing the position of a person in the labour market (in the context of finding balances of interest between labour and capital), creates additional burdens on the person himself. For example, each society produces and distributes goods through a combination of individual and collective choices. The majority of individual choices, expressed by participation in markets and other voluntary exchanges, "promote such social values as economic efficiency and freedom. However, some individual choices that appear in situations that we qualify as market failures are departed from public values in predictable ways. The collective choice made by the bodies of government creates at least the opportunity to correct the conscious mistakes of an individual choice. An individual choice is sometimes unable to promote social values in a desirable and predictable way ..." (Vejmer, 1998).

In addition, the establishment of necessary for the functioning of the socio-economic system as a whole bureaucratic procedure by the state creates additional obstacles, to overcome which people are forced to spend their own labour opportunities (for example, the execution of procedures related to the issuance of permits, certificates, reports, etc.). By the way, in the rating of tax systems Paying Taxes 2010, prepared by the World Bank together with Price Waterhouse Coopers, Ukraine took the 181st place out of 183 countries under study. According to the research results, the average Ukrainian enterprise pays for the year 147 taxes and payments, which is the worst indicator in the world (183rd place). As a comparison: in Poland, the number of payments equals to 40, Czech Republic – 12, Belarus – 107, Georgia – 18, the USA – 10, France – 7, China – 7. Most taxes and payments (96) in Ukraine are associated with labour taxation (Pokryshka, Zhailo, Liapin, 2010). Execution of obligatory tax procedures, such as tax accounting, preparation and submission of reports, payment of taxes, etc., take 736 business hours (175th place) from entrepreneurs annually. As a comparison: in Poland, similar costs are 395 hours, Czech Republic – 613, Georgia – 387, the USA – 187, France – 132, China – 504, Belarus – 900. Given the fact that only 3-5% of the total population have a bent for entrepreneurial activity, the use of their abilities outside the main activity becomes an unacceptable loss for society (Reva, 2015).

*The fifth direction.* A gradual loss of the position of the neoclassical doctrine of the self-sufficiency of a competitive market left a set of unresolved issues. Ideology of market mechanism perfection and self-sufficiency of spontaneous market regulation (the basis of neoclassical direction of the economic theory) has appeared incapable of “studying dual economy characterized by a high level of concentration of production and capital along with predominant small and medium business sector” (Kniazev, 2010; Bazylevych, Leonenko, Hrazhevskaja [in.], 2005). The difference in views and value orientations of representatives of enterprises, different by the scale of production, and different opportunities of their influence on authorities determined a dislocation of balance in the business environment. New market disproportions (supremacy of the will of representatives of large capital) along with the aggravation of social contradictions create a real threat to the system of labour potential. For example, given the limited organizational resources, organizational structures of small and medium business have considerably fewer opportunities to support their competitiveness. This relates both to the labour productivity itself within the activities of entities of small and medium entrepreneurship (SME) and the system of administration of organizational activity. The situation occurs, at which representatives of SME, when not withstand administrative and tax burdens, are forced to reorganize their own organizational structures and sometimes terminate the business activity. Given the fact that 60.5% of workplaces in the country account for the very organizational structure of SME that realize 54.4% of the total production (Petrashevskaja, Zhadanovaja, 2012), the issue of their transformation can considerably affect the supply-and-demand situation in the labour market.

#### 4. Result

Under the influence of global principal socio-economic shifts in terms of formation of world information economy, the discussions on issues of the modern economic theory regarding its ability to explain, analyse, and suggest ways to develop a real market economy, became actual. An idea of consensus breaking in the economic theory, which was based on an orthodox Keynes's economic model, is being discussed in the Western literature since the 70s of the XX century. At the beginning of the 90s of XX century, an American researcher M. Bleaney said that the crisis of economic theory was caused not by its real content but the perception in society, normalization of the situation in the economy restored the reputation of economists and also their self-assurance (Datsij, 2010). The foreign and domestic literature emphasizes that the evolution of economic theory has always been under the influence of various shifts of the real world economy. This is a

dialectical process of mutual dependence and influence that contributes to the accumulation and formation of new theoretical knowledge. However, the modern economic reality is so multi-variant and movable that the rate of change is ahead of the pace of its study.

In the message of the President of Ukraine to the Verkhovna Rada of Ukraine “European Choice” it was proclaimed that “stimulation of scientific and technological development, implementation of structural and innovation strategy should become one of the main goals of the Government, the Verkhovna Rada, executive and representative bodies in the field,” as well as that “the state can become the direct leader of innovative development, the customer and the organizer of research and development in the most modern areas of scientific and technological advance” (Kontseptsija naukovo-tehnichnoho ta innovatsijnoho rozvytku Ukrainy, 2016; Amosha, 2005). At the national level, not only the priority of the innovative development of the national economy but also the place of the state in this process is determined. Therefore, nowadays, innovative and technological development is becoming not only a strategic perspective but also a tactic of state economic policy.

That is, the socio-economic development of the country depends directly on the innovative-technological potential and on the effectiveness of the state's stimulation of its development at all levels of the national economy.

The state regulates the process of innovative development through the purposeful influence of the subject of public administration, which represents state power in the form of specially formed bodies and their systems, on the object of management, as a result of which the needs of the state and society in the innovation development are met. The spheres of state activity are directly transformed into the spheres of public administration, such as the development and implementation of state strategies, domestic and foreign policy, legal definition and regulation of relations throughout the society, the formation and implementation of the state budget, etc. (Martynyuk, 2014).

Depending on the scope of managerial measures that are applied at various stages of state regulation, in the economic theory, the following groups of government-management decisions are distinguished (Melnychenko, 2011; Bakumenko, 2012):

- political government-management decisions. They are implemented in the form of doctrines, concepts, strategies, state programs and projects, the state budget, the formation and reform of the system of state power, state programs and state policy in various spheres of management and public life;
- legal state-management decisions. Public administration is carried out through the constitution, laws, international agreements and treaties, decrees of the President, resolutions of the parliament and

government, bylaws, orders of heads of central executive bodies, state and industry standards, etc.;

- organizational or administrative government-management decisions. A form of implementation – provisions on central government bodies, orders, directions, minutes of meetings, instructions, and other organizational-subordinate and organizational-coordination decisions, as well as measures of higher and central bodies of state power.

If we analyse government-management decisions in more detail, taking into account the specifics of innovation-technological development, administrative measures (other than legal regulation) used by the state to manage this sphere of economy, L. Lebedeva (Lebedeva, 2016) distinguishes the following methods of state regulation of innovation processes, and direct methods among them:

- State target programs that provide funding for innovation in the priority sectors of the economy, which is determined by the state;
- Administrative regulation, which provides direct subsidy financing provided in accordance with the current legislation;
- Contract financing – a system of contracts between customers and contractors, where the state acts as a customer and consumer of research and development, and executors – business entities.

Among the measures of indirect influence, the author considers those aimed at stimulating innovation processes and creating a favourable environment for innovation, which is, first and foremost, legal standards that outline the legal framework for active innovation activities and the protection of their intellectual property and information infrastructure.

However, in our opinion, comprehensive state leadership in the results-oriented innovation field should include direct public-management measures: budget financing; targeted state programs; resource support; creation of service infrastructure; government orders (R&D contracts); creation of scientific and technical zones with a special regime of innovation and investment activity.

Measures of indirect influence should include: tax regulation; subsidy assistance; creation of a legal base aimed at protecting intellectual property rights (copyright); creation of social infrastructure; international cooperation; preferential lending; insurance of investments, etc.

All these measures of public administration are carried out in accordance with the directions specified in the main statutory and legislative documents. First of all, the Concept of Scientific and Technological and Innovative Development of Ukraine, approved by the Verkhovna Rada of Ukraine Resolution in July 1999, determines the priority directions of state support for innovative and technological development (Amosha, 2005; Kontseptsiia naukovo-tekhnichnoho ta innovatsijnoho rozvytku Ukrainy, 2016). They include:

*In the field of scientific development:* the fundamental science, first of all, developments of domestic scientific groups that have world-wide recognition; applied research and technologies, in which Ukraine has substantial scientific, technological, and production potential and which can ensure the output of domestic products to the world market; higher education, training of scientific and academic personnel on the priority directions of scientific and technological development; development of scientific principles for the development of a socially oriented market economy; scientific provision of the solution to issues of human health and environmental security; system of informational and logistical support of scientific activity;

*In the field of technological development:* research and creation of conditions for highly productive work and modern life of a person; the development of means for the preservation and protection of human health, the provision of population with medical equipment, drugs, means of prevention and treatment; development of resource and energy-saving technologies; development of modern technologies and equipment for power industry, processing industries, in particular, agro-industrial complex, light and food industry;

*In the field of production:* the formation of high-tech manufacturing processes, promotion of creation and functioning of innovative structures; the creation of competitive processing facilities; technical and technological updating of basic branches of the economy; the introduction of highly profitable innovation and investment projects, the realization of which can provide the fastest return and launch progressive changes in the structure of production and its development trends.

At the same time, in 2009, the state developed the Strategy of Ukraine's Innovative Development for the years of 2015–2025 in terms of globalization challenges that identifies a number of key areas of activity of public authorities on innovation issues (Androschuk, Zhyliaiev, Chyzhevskij, Shevchenko, 2015):

1. Provision of financial resources for the implementation of provisions of laws related to innovation and scientific and technological activities, including at the expense of the State Budget of Ukraine for 2015 and subsequent years.

2. Improvement of the structure of public administration in the field of scientific and technical and innovation activities in the direction of clear delimitation and avoidance of duplication of functions of central executive authorities, the introduction of principles of individual responsibility and stability of the system of public administration in this area.

3. Improving the efficiency and expanding the use of state support tools for innovation through mechanisms: provision of grants; direct investment; provision of financial guarantees; stimulating the participation of commercial banks in investing in innovation; provision

of non-financial services and other types of non-financial support; state order for the development of the most important latest technologies in the priority directions of development of science and technology; development of the material and technical base of scientific and scientific-technical activities; insurance of objects of intellectual property rights, comprehensive protection of a fair producer from counterfeit products, anti-competitive actions through a system of economic, legal, organizational measures related to the system of management of industrial property (Androschuk, Zhyliaiev, Chyzhevskiy, Shevchenko, 2015).

4. Working out the issue of tax incentives for business entities that: use a part of their profits to finance costs associated with scientific research and scientific and technical developments; direct their own funds for advanced training and retraining of scientific personnel; provide sponsorship to scientific establishments and higher educational institutions for scientific and scientific-technological activities.

5. The use of measures to determine the possibilities of state support and prospects for organizing production of competitive innovative products of the sixth technological mode (nano-, bio-, information-telecommunication, and CALS-technologies) in the territory of Ukraine in the following directions: microelectronics; vehicles with hybrid engines; highly efficient agricultural production; computerized medical service; alternative energy sources and energy-saving technologies; intelligent mobile robotics.

6. Promoting the development of information and analytical support for innovative development through: development of the system of state statistical observation in the field of scientific and technical and innovation activity, based on the indicators and standards used in the EU and OECD; development of the system of scientific-technical and patent-license information with the maximum use of possibilities of the Internet; improvement of the system of evaluation of scientific works of the fundamental direction.

7. Implementation of measures for the development of innovation infrastructure in Ukraine: innovative business incubators, innovative development centres, technology transfer centres, and other organizational forms of infrastructure support for innovation, combining science, production, and business, including through state support.

8. Carrying out: modernization of higher education, expansion of autonomy of higher educational institutions in educational, scientific, financial and economic activity; optimization of the network of higher educational institutions; creation of enlarged regional universities, transforming them into powerful scientific and technical, educational and scientific-innovation centres; changes in approaches to the formation of a state order for the training of specialists with higher education, including the training of

highly skilled personnel on innovation issues (management, marketing, technology transfer, finance, commercialization); creation of a unified scientific and teaching-methodical mechanism of personnel training for the innovation sphere; state support to young people, who undergo training and probation in leading foreign universities and research centres on innovation activities; improvement of educational and scientific infrastructure and the system of fundamental and applied scientific research in higher educational establishments, implementation of scientific results in the educational process; comprehensive support of scientific and scientific-technical activities concerning further development of science in leading higher educational institutions, updating their material and technical base, in particular, by providing modern high-value equipment, developing the structure of innovation activity and technology transfer for the implementation of scientific and technical developments (Androschuk, Zhyliaiev, Chyzhevskiy, 2015).

According to the Strategy for the Development of High-Tech Industries by 2025, developed by the Ministry of Economic Development and Trade of Ukraine in May 2016, there are strategic directions for the modernization of high-tech industries that would contribute to the formation of an innovative economy, increase in technological efficiency, growth of competitiveness, and increase in the efficiency of existing national production:

- preservation and support for intellectual capital;
- provision of financial support for innovation, research and development of high technology;
- introduction of effective institutional mechanisms for the development of high-tech industries;
- creation of modern information and communication infrastructure;
- increase of exports of high-tech products and services;
- stimulation of the development of the latest future-oriented and advanced technologies;
- reduction of import dependence of the domestic high-tech sector;
- providing a supportive regulatory environment and an independent regulator with appropriate powers;
- creation of economic incentives for the digitization of production.

In addition, the Strategy outlines the main 10 key and perspective sectors and areas of the economy that should become high-tech: the agrarian sector; military-industrial complex; creation of new substances, materials, and nanotechnologies; information and communication technologies; power engineering; high-tech construction; development of human sciences, biomedical engineering, cellular medicine, pharmacy; development of transit infrastructure; tourism, recreation, and other directions.

In general, the main areas of public administration declared in different periods are partly repeating and

complementing one another. Despite the fact that for Ukraine the transformation of the raw material economy into the modern intellectual one is highly relevant, in recent years, there has been no significant progress in the field of the creation and introduction of high technologies in national production.

Describing the main economic indicators of national production according to technological modes (Fig. 1), it can be stated that in 2016 almost 58% and 38% of total production of Ukrainian products accounted for branches of respectively the 3rd and 4th technological modes, in particular, ferrous and nonferrous metallurgy, power engineering, universal and precision engineering and instruments industry, electronic engineering industry, inorganic and organic chemistry, polymers, motor transportation, coal and oil consumption, petroleum refining, etc. (Yerokhin, 2006; Dani Derzhavnoi sluzhby statystyky Ukrainy, 2016).

As for capital investments in equipment retrofitting and modernization and investments, their extremely large share (83% and 75%, respectively) falls on these modes. This proves their outdatedness and the need for constant updating and repair. In addition, a significant part of the funds allocated for innovation and scientific development also falls on the 4th technological mode (correspondingly 60.8% and 69.8% respectively) but further development of the medium-tech sector will not contribute to the growth of the global competitiveness of the country. To this end, it is necessary to develop sectors of the 5th and 6th modes.

Unfortunately, the output of enterprises of the 5th and 6th technological modes accounts for an extremely small share – only 4% and 0.1%. Also, not much money is invested in scientific and technological and innovative development: the 5th mode – 23% in the total amount of financing of R&D and 8.6% in the amount of expenses

for innovation; the 6th mode – 0.2% in both directions. However, this situation leads to an even more lagging economy of the state and its individual sectors or enterprises from the leaders of the world economy, who are already starting to introduce elements of the 7th technological mode based on cognitive technologies (Data of the State Statistics Service of Ukraine, 2014-2016).

### 5. Conclusions

In accordance with the foregoing, one can formulate the following main conclusions:

1. Generalization of the theoretical direction of the development of institutional theory:

- the system of economic development of society (state) has a plurality of direct and indirect links with the historical background of the emergence and development of the institutional doctrine of economic theory;
- the revealed directions of correlation contribute to the formation of the scientific and methodological basis for further study of economic development and economic potential of a country (state) in the context of the institutional doctrine of economic theory in its relation to the theory of public administration;
- the economic development of a country (state) depends on the institutional environment, in which it operates, and is both an object of its influence and a subject that causes its transformation;
- the revealed relationships allow formulating assumptions about the possibility (necessity) of using tools of institutionalism to study economic development and formation of the economic potential of society (state) within the theory of public administration.

In general, it can be stated that while the economy of Ukraine is not developing in an innovative and

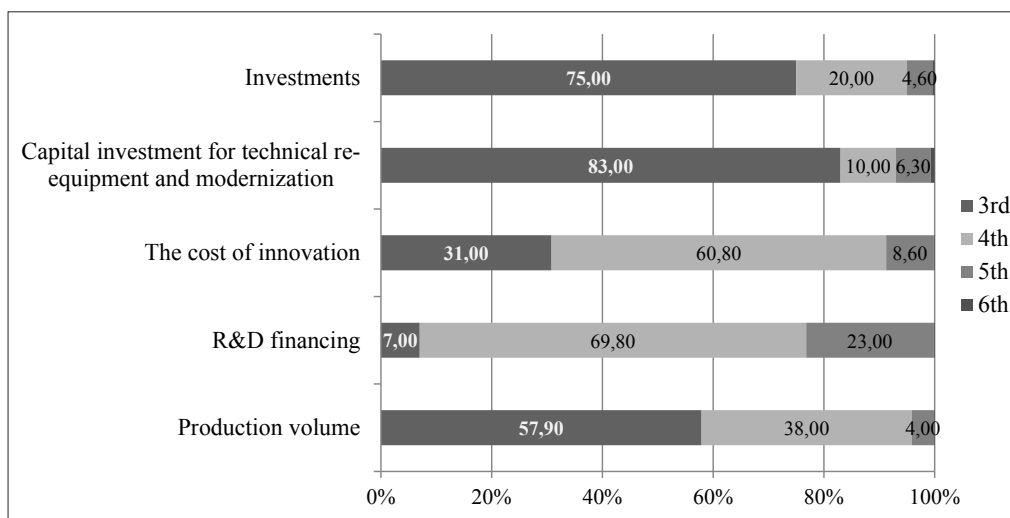


Fig. 1. Tentative distribution of economic indicators depending on technological modes in 2016

Source: calculated by the author (Data of the State Statistics Service of Ukraine, 2014-2016)



technological way, and the state is trying to develop industries, which are deliberately outdated in terms of technological progress while ignoring high-tech advanced fields of production. In this regard, the state strategy and tactics of development should

include support for innovation, aimed at activating the creation and use of the latest high technologies, products, modernization of production processes, management and implementation of advanced innovative products.

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# ADMINISTRATIVE AND LEGAL REGULATION OF BANKING SYSTEM IN UKRAINE AND FOREIGN COUNTRIES

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**Abstract.** *The purpose of the article* is to conduct a comparative analysis of the administrative and legal principles of the functioning of the banking system of Ukraine and foreign countries and to determine on this basis ways to improve domestic legislation in this area. *The subject of the study* is world experience in the field of state regulation of the banking system. *Methodology.* The study is based on a comparison of foreign experience in the legal regulation of the functioning of the banking system on the example of the USA, Great Britain, Japan, Germany, and France with the current state of the state regulation of the banking system in Ukraine. Due to the use of the arsenal of general scientific and special-scientific methods and techniques of scientific knowledge, the content of administrative and legal regulation of the banking system under conditions of reorientation of the country's economy from the planned form to the market one, liberalization of foreign economic relations, strengthening of integration and globalization processes in the international financial and commodity markets was characterized and determined. *Results* of the comparative legal study showed the inefficiency and excessive "transparency" of the national model of the administrative-legal regulation of the banking system in comparison with foreign systems, as well as the imperfection of the legal and regulatory framework for its functioning. *Practical implications.* Administrative and legal principles of functioning of the banking system in certain foreign countries reflect the greater effectiveness of the mechanism of its state regulation in comparison with Ukraine. In most countries, this mechanism is oriented to the distribution of regulatory and control powers between the central bank and other government departments, which, in turn, reduces the risk of administrative pressure on individual banking institutions and the banking system as a whole. It is expedient to include this experience in the legal system of our state in order to increase its economic stability. *Value/originality.* A comparative legal study of world experience in the administrative and legal regulation of the functioning of the banking system of Ukraine and foreign countries provides a better understanding of prospects for the development of national administrative legislation in this area.

**Key words:** administrative and legal regulation, banking system, foreign experience.

**JEL Classification:** M1, G24

## 1. Relevance

Ukraine's acquisition of independence was an initial step towards the evolution of our state and also led to its accession to the world community. The country obtained an opportunity to develop as a social, democratic state, where securing the rights and freedoms of citizens is one of the main prerogatives. At the same time, there was a situation where the regulation in certain spheres

of vital activity of society was considerably complicated as a result of the rapid change in the vector of the functioning of the state apparatus, the legal system, etc. For example, a large number of problem points arose in the financial sector of the state, namely, the construction of the banking system. The reorientation of the country's economy from the planned to the market form has necessitated the development of a fundamentally new

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model of legal regulation and practical coordination of the entire array of banking institutions. In this regard, the issue of administrative and legal regulation of the banking system has acquired a high level of relevance in the legal environment.

At the same time, one should not forget that in recent years the development of our state is entirely aimed at joining the European environment, which requires a large number of reforms in various areas of Ukraine's functioning, in particular, the banking system. In this context, a scientific analysis of foreign experience in the field of state-legal coordination of this category is appropriate for the purpose of its further implementation within the framework of the national legal system. On the basis of this thesis, we believe it necessary to consider the peculiarities of the administrative and legal regulation of the banking system in Ukraine and foreign countries.

## 2. The degree of development

Different aspects of the administrative-legal regulation and activity of the banking system as an independent financial-legal category were investigated in the works of many domestic and foreign scholars such as: Aharkov M.M., Adamyk B.P., Andriiko O.F., Bernaziuk Ya.O., Voronova L.K., Hetmantsev D.O., Starynskyi M.B., Lavrushyn O.I., Kovalchuk A.T., Kostiuchenko O.A., Orliuk O.P., Shamrai I.A., Shemshuchenko H.Yu., and others. Instead, a proper scientific review of the foreign experience of administrative and legal regulation of the banking system was not carried out by scientists.

The purpose of the article is to conduct a comparative analysis of the administrative and legal regulation of the banking system in Ukraine and foreign countries.

## 3. Presentation of the main material

Administrative-legal regulation of the banking system is a complex legal mechanism, which constitutes a large number of legal rules. At the same time, the mechanism itself is a kind of classical category of legal regulation, which largely determines its specificity.

Note that in the dictionary literature, the term "regulate" is interpreted as:

- 1) to order something, manage something, subordinating it to the relevant rules, to a particular system;
- 2) to demand the normal operation of the machine, installation, mechanism, to ensure the coordinated interaction of the components, parts (Bilodid, 1977; Explanatory Dictionary of Contemporary Ukrainian Language, 2005).

In the Legal Encyclopaedia, edited by Shemshuchenko Yu.S., the category of legal regulation is defined as one of the main means of state influence on social relations with a view to organizing them in the interests of man,

society, and the state. It is a kind of social regulation. The subject of the category are relations, the ordering of which is impossible without the use of the law. In addition, the author emphasizes that legal regulation has the expression in the form of a mechanism, the constituent elements of which are: the rules of law, legal facts, actually legal relations (social relations, mediated by the rules of law), acts of realization of rights and obligations of subjects of social relations and legal sanctions used to violators of the rule of law (Shemshuchenko, 1998). It should be noted that the definition described characterizes the category of legal regulation in general. Instead, administrative law is one of its varieties, which acquires its own particularities in connection with its membership in a particular legal field.

When analysing the content of the administrative-legal regulation mechanism, it is expedient to indicate that, in accordance with the Great Interpretative Dictionary of Modern Ukrainian Language under the general editorship of Busel V.T., the term "administer" is interpreted as bureaucratic management, with orders and instructions, instead of specific (Busel, 2005). That is, it is about the presence of a power, management aspect within the legal regulation. In addition, the phrase "administrative-legal" shows that the mechanism of legal regulation of this type is carried out through the legal rules of the administrative branch of law. The latter, according to Alforov S.M., Vashchenko S.V., Dolhopolov M.M., and Kupin A.P. – a branch of law (a set of legal rules) that regulates, in order to fulfil tasks and functions of the state, public relations of a managerial nature, which consist in the sphere of executive power, the internal organization of other state bodies, as well as in the process of implementation by public organizations, their bodies of external legal-power authorities (Alforov, Vashchenko, Dolhopolova, Kupin, 2011).

In the scientific environment, there are a large number of views on the content of specifically administrative-legal regulation. For example, Malko A.V. believes that the latter – a system of legal means organized in the most consistent manner in order to streamline public relations and promote the satisfaction of interests of subjects of law (Malko, Matuzov, 2004). According to Holosnichenko I.P., it is necessary to understand the mechanism of administrative-legal regulation as the totality of administrative and legal means, by which there is the influence on relations arising in the process of implementation of executive power (Holosnichenko, Stakhurskyi, 2005). Quite meaningful as regards to the characteristics of administrative-legal regulation is the approach of Kozlov Yu.M. He notes that this mechanism is characterized by legal means of regulatory type, that is, the regulations (including prohibitions), which find their direct expression in the fact that one of the parties to the regulated relationship has been given a certain amount of legally binding powers addressed to

the other party. That is, it is a form of legal mediation of relations, in which one of the parties acts as a manager (the subject of management), and the other – who is managed (the object of management) (Kozlov, 2002; Khomiachenko, Yeriashov, 2014). In turn, Lazarenko V.A. to a certain extent shares this opinion. In defining the essence of the administrative and legal regulation of environmental security, the latter emphasizes that it is an integral part of public administration exercised by authorized state bodies, local self-government bodies, and the public, whose authorities are responsible for ensuring environmental security in Ukraine (Lazarenko, 2010; Budnyk, Muliavka, 2017).

Consequently, on the basis of the above-mentioned information, we have formed the proper definition of administrative-legal regulation, according to which, it represents a holistic mechanism, which is expressed in the effect of authorized state bodies on a specific group of social relations, that is, a certain object, carried out on the basis of administrative rules of law and with the help of statutory legal means. In the context of this study, such an object is the social relations in the field of the functioning of the banking system.

It should be emphasized that the category of the banking system is differently defined in the legal literature. For example, in the textbook on banking law by Kostiuchenko O.A., the banking system is considered as a part of the monetary system, an element of the economic basis of a society that develops in accordance with the laws of a market economy (Kostiuchenko, 2006). Orliuk O.P. observes a similar opinion, which indicates that the banking system is an integral part of the credit system of the state, which is a combination of different organizational and legal forms and the specialization of banking institutions operating within a single financial system and a single monetary and credit mechanism in a certain period of time (Orliuk, 2005). Fomin H.F. offers a slightly different approach to the definition of the banking system. He points out that the banking system is a legally defined set of different types of banks, through which the mobilization of funds of legal entities and individuals is carried out and various services for receiving deposits, calculations, and loans are provided to them (Fomin, 2008). Quite interesting and broad is the definition that the banking system is interpreted as complex system that belongs to a higher level and that is self-organized and historically formed under the influence of external and internal processes, is an integrated set of institutions that carry out banking activities, and banking institutions that carry out the function of internal management. This system is characterized by reactive legislative and adaptive internal ordering of links between individual elements and the external environment, as well as the ability to actively influence it and its regulatory action (Maslennikov, Sokolov, 2003; Stoiko, 2010).

Definition of the banking system also exists at the legislative level. In accordance with Article 4 of the Law of Ukraine “On Banks and Banking”, the banking system of Ukraine consists of the National Bank of Ukraine and other banks, as well as branches of foreign banks established and operating in the territory of Ukraine in accordance with the provisions of the current legislation (On Banks and Banking : Law on 07.12.2000 №2121-III, 2001).

In our opinion, the legislative definition of a banking system is not entirely correct since it does not fully disclose features of this category. So, in our opinion, the banking system is not only a set of all banking institutions that are created and operate in the territory of Ukraine in accordance with the current legislation but also a set of legal relations that arise in the field of their functioning.

So, after revealing the theoretical content of the mechanism of administrative and legal regulation of the banking system, we can proceed to the analysis of its practical implementation in Ukraine and foreign countries. In the territory of our country, the National Bank of Ukraine (hereinafter – the NBU) plays a key role in the sphere of state influence and coordination of the banking system. The said body is the central bank of the state, the special central body of state administration, legal status, tasks, functions, powers, and principles of organization of which are determined by the Constitution and other legislation (On the National Bank of Ukraine : Law on 20.06.1999 №679-XIV, 1999). The legislation defines quite a wide range of functions of the NBU, which, for example, includes:

- ensuring the stability of the monetary unit;
- development and implementation of monetary policy;
- implementation of the issue of the national currency of Ukraine on the basis of monopoly;
- providing lending to banks in the last resort;
- organization of the refinancing system;
- regulation of payment systems and systems of settlements in the territory of the state, determination of the order and forms of payments, including between banks;
- conducting bank regulation and supervision on individuality and on a consolidated basis, etc. (On the National Bank of Ukraine : Law on 20.06.1999 №679-XIV, 1999; Constitution of Ukraine : Law on 28.06.1996 №254к/96-ВР, 1996).

It should be noted that according to Article 1 of the Law of Ukraine “On the National Bank of Ukraine”, the essence of the regulation of the banking system of the National Bank is to establish a system of rules governing banks, determine general principles of banking activities, the procedure for conducting banking supervision, the responsibility for violation of banking legislation (On the National Bank of Ukraine : Law on 20.06.1999 №679-XIV, 1999). The basic forms of the administrative and legal regulation of the banking system and activities of banks for today are defined:

- 1) firstly, administrative regulation, which includes:
  - registration of banks and licensing of their activities;
  - establishment of requirements and restrictions on the activities of banks;
  - application of sanctions of an administrative or financial nature;
  - supervising the activities of banks;
  - providing recommendations on the activities of banks;
- 2) secondly, indicative regulation, which includes:
  - establishment of mandatory economic standards;
  - definition of the standard of mandatory reserves for banks;
  - establishment of rates of deductions to reserves for covering risks from active banking operations;
  - determination of interest rate policy;
  - refinancing of banks;
  - correspondent relations;
  - management of foreign exchange reserves, including foreign exchange interventions;
  - transactions in securities in the open market;
  - import and export of capital.
- 3) thirdly, banking supervision (On Banks and Banking: Law on 07.12.2000 №2121-III, 2001).

The latter form is undoubtedly a priority over others, taking into account the fact that the purpose of banking supervision is the stability of the banking system and the protection of interests of depositors and creditors of the bank regarding the safety of keeping customers' funds in bank accounts. In addition, the exclusive feature of the administrative and legal regulation in the form of banking supervision is confirmed by the following aspects:

- the volume of implementation, because in accordance with the law, the NBU's supervisory activities cover all banking institutions operating in the territory of Ukraine, as well as participants of banking groups abroad;
- the possibility of obtaining information, including conference, from state authorities and other persons for the purposes of banking supervision;
- the existence of the right to demand from banks and their managers, as well as banking groups, bank group participants, elimination of violations of banking legislation, implementation of regulatory acts of the NBU, etc.;
- the existence of the right to introduce a special regime of control over the activities of banks and the appointment of curators, and so on (On Banks and Banking : Law on 07.12.2000 №2121-III, 2001).

Some issues of the administrative and legal regulation of the banking system are regulated at the sub-legislative level, namely, in the provisions of the resolutions of the National Bank. The resolutions fix the number of regulations and instructions that govern specific aspects of the conduct of banking activities. They are usually of an imperative nature, that is, they require a strict compliance with certain banking institutions and bodies of the NBU.

Interesting in our opinion is the scientific view of Iskizarov O.M., who believes that along with the forms of administrative and legal regulation of the banking system established in the Law of Ukraine "On Banks and Banking" and the Law of Ukraine "On the National Bank of Ukraine", certain powers in the realization of this mechanism has the Individual Deposit Guarantee Fund. Based on the provisions of the Law of Ukraine "On Individuals' Deposit Guarantee System", the scientist emphasizes that this legal act clearly establishes and delimits the powers of the Fund and the National Bank of Ukraine regarding the procedure for withdrawal from the market and the liquidation of insolvent commercial banks. Moreover, he notes that the whole section IX of the analysed Law is devoted to the coordinating activities of the Individual Deposit Guarantee Fund and the National Bank of Ukraine, which indicates the importance of this issue (Iskizarov, 2017; On Individuals' Deposit Guarantee System : Law on 23.02.2012 №4452-VI, 2012).

Thus, the conducted analysis showed that in Ukraine, the mechanism of administrative-legal regulation of the banking system is fully consolidated within the framework of the activities of the National Bank of Ukraine, which acts as the main body in the mentioned industry. The positive point is that the legislation clearly lays down the authority of the NBU regarding the implementation of the mechanism of state influence on the banking system. Instead, some scholars point to the general imperfection of the legal framework of the latter, noting its cumbersome nature. For example, Senyshch P.M. indicates that the administrative and legal regulation of the banking system is complicated, firstly, by the presence of a large number of legal acts, secondly, by frequent changes and additions to them, and thirdly, the lack of a single codified act on banking activities (Senyshch, 2014). That is, there is a situation where the powers of the relevant bodies in the field of state regulation of the banking system are legally enshrined in the provisions of several acts of various hierarchical subordinations at once. Their provisions often contradict each other, which ultimately complicates the practical implementation of the mechanism of administrative and legal regulation of the banking system as a whole.

World experience in the administrative and legal regulation of the banking system is significantly different from the national one. This, above all, is related to the fact that a large number of foreign countries built their banking systems and mechanisms of influence on them over the ages in terms of a market economy. For example, Great Britain can rightly be considered the original source of traditions in the field of administrative and legal regulation of the banking system because it was this country in 1694 where the first central bank in the world was created (Official website of the Bank of England). At the same time, for quite a long time, there was no legislative basis in Great Britain

regarding the state regulation of the banking system. In particular, banking supervision was carried out on the basis of the Joint Stock Companies Act. The result of such a system of regulation was the emergence of large banking associations with a wide system of branches and offices in the country and abroad. Since the late 70s, the situation has begun to change, as the control and regulation of the credit and financial sector has been strengthened in the country. In accordance with the 1979 Law, the mandatory licensing of commercial banks was introduced and a nationwide deposit protection fund was established. The Banking Law of 1987 defined the rules for the activities of commercial banks, the procedure for merging banks, and introduced audits (Pavliuk, 2015; Bus, 2009). To date, the banking system of Great Britain has a well-developed infrastructure, is based on a strong money market, closely linked to the main financial centres of the world, mainly focused on servicing international economic relations. The Bank of England is a financial institution independent of the government. However, it is formally still subordinated to the Ministry of Finance (Podplietnii, 2010). The key powers of the Bank of England are:

- conducting monetary policy and issuing national currency;
- supporting the stability of the financial system;
- regulation and supervision of other banks and financial institutions (Official website of the Bank of England).

No less interesting is the mechanism of administrative and legal regulation of the banking system of the United States of America. For a long time, the state influence on the banking system in the USA was superficial and was aimed solely at securing deposits and supporting banking institutions in order to prevent the bankruptcy of the latter. This was due to the fact that in the United States until the XX century, there was virtually no central issuing bank (The Encyclopedia Americana – International Edition, 1997).

To date, the administrative and legal regulation of the banking system is carried out on two levels: national and state levels. The central government body in this mechanism is the Federal Reserve System (hereinafter referred to as the FRS). It is comprised of Federal Reserve Banks, as well as the Board of Governors, serving as the key supervisory and regulatory body within the FRS. The latter in its activity implements four main functions, namely:

- 1) effect on the offer of money and credit;
- 2) regulation of activities and supervision of financial institutions;
- 3) the role of the bank and financial representative of the state;
- 4) the offer of payment services to citizens through deposit-taking institutions (The Encyclopedia Americana – International Edition, 1997; Official website of the U.S. Federal Reserve System; Buriak, 2015).

That is, unlike many European states, the banking system in the USA is regulated by the Federal Reserve System – a set of interconnected institutions, but not the only government agency in the person of the central bank.

Commercial banks in the USA are governed by state law. In addition, each commercial bank is the subject of federal regulation and supervision and also has the right to join the Federal Reserve System if it meets specific requirements. It should also be noted that the control over banks and their activities at the state level is also laid upon state departments. At the same time, in addition to special local authorities, administrative and legal influence is exercised by decisions of other federal bodies, namely: the U.S. Department of Justice (merger), the U.S. Securities and Exchange Commission (admission to the stock exchange and issue of shares), the U.S. Chamber of Commerce (servicing consumers), etc. There are also non-governmental bodies controlling the work of individual groups of credit institutions. For example, such bodies include the American Bankers Association, the Independent Community Bankers of America, and others (Buriak, 2015).

Despite the fact that the American model of administrative and legal regulation of the banking system is rather complex and, at first glance, not effective, it is this model, based on which the mechanism of state regulation of the banking system of Japan is built, of course, with a significant proportion of national characteristics. So, the Banking System of Japan consists of the Central Bank, public and private financial institutions. A group of public and private financial institutions includes city banks, trust banks, large regional banks, medium and small regional banks. The central bank manages all the banks of the country. Along with the Ministry of Finance and the Federation of Economic Organizations, it carries out monetary regulation in the country. In addition, the Bank of Japan solves three main tasks. Firstly, it forms the course of the national currency, regulating the volume of money in circulation, maintaining the stable value of the yen inside the country and abroad. Secondly, it regulates money circulation by setting interest rates. Thirdly, this is a bank that solves the problem of maintaining the stability of the country's financial system and its sustainable economic development (Shapiro, Liashenko, 2016).

One of the most perfect in the world is the German model of administrative and legal regulation of the banking system (Podplietnii, 2010; Sarkisians, 2006). The German banking system in general consists of the Federal Bank (Bundesbank), universal banks, which include private, cooperative, and public law banks and specialized banks, which are private and public law banks. The central place in this system is occupied by the Bundesbank. It is entrusted with the implementation of regulation with the help of currency and monetary powers granted to it by law, monetary circulation and

credit provision of the economy in order to maintain the currency stability. In addition, the Bundesbank “cares” about the banking performance of the settlement system in the country and abroad. At its disposal, there are a number of monetary and political instruments used by it independently, without interference by other agencies (Official website of the Federal Bank of Germany; Zlatina, 2010).

An important role in the mechanism of administrative and legal regulation of the banking system is played by the central landesbanken (state banks). The task of these agencies is to carry out operations and administrative management in their region. Their competence also includes the right to conclude under their responsibility for transactions with land administrations and credit institutions in their region (Melnyk, Taranhul, Hordei, 2010).

Directly administrative and supervisory powers over the banking system and its individual components in Germany are entrusted to the Federal Office of Control, which is subject to instructions and oversight by the Federal Minister of Finance. The control function is not within the competence of the Bundesbank in order to prevent administrative pressure on banks. The Office is an independent federal supreme body that manages a system of credit institutions, issues licenses for banking activities, establishes mandatory requirements for banking institutions, supervises compliance with banking legislation, and has the right to demand from banks any information, audits, interfere with operational activities, and issue orders for the immediate cessation of operations (Zlatina, 2010; Starynskyi, 2006).

The mechanism of administrative and legal regulation of the banking system in France is characterized by a high level of efficiency. The main feature of the banking system of the specified country is that it is completely under state control. French banks not only have no right to hide from the relevant public services the size and form of accounts and the movement of capital but are obliged to inform them of significant operations, especially with foreign countries (Stukalo, Lytvyn, Derkach, 2014).

A key authority in the banking system regulation is the Bank of France. The latter has the right to make regulations and to develop rules of professional activity. It is also empowered to give an opinion on all issues of credit policy, participates in the preparation and implementation of activities carried out in this area on the basis of government resolutions. Characteristic is the centralization of the entire administrative power in the hands of the head, appointed by decree. The Central Bank is traditionally the guardian of gold and foreign exchange reserves.

The main methods of monetary regulation of the economy and the banking system of France by the Central Bank are:

- accounting operations;

- open market operations;

- changes in the standards of obligatory reserves of credit institutions in the central bank;

- control over loans (Stukalo, Lytvyn, Derkach, 2014).

Along with the Bank of France, the Committee on Banking Regulation and the Banking Commission are responsible for the administrative and legal regulation of the banking system within the limits of its powers. The first body is involved in the development and adoption of legal acts on the coordination of the activities of banks and credit institutions. In essence, the Committee adopts mandatory economic standards. In turn, the Banking Commission ensures the security of the French banking system (Oksin, 2014; Bank portfolio).

#### 4. Conclusions

So, having conducted a comparative analysis of the peculiarities of the mechanism of administrative and legal regulation of the banking system in the territory of Ukraine and foreign countries, we have come to a number of conclusions.

1. The national experience of state-legal influence on the banking system is based on the consolidation of powers in this area within the framework of activities of the National Bank of Ukraine. This model of administrative and legal regulation of the banking system is not generally effective and “transparent” in comparison with the foreign model and its implementation is complicated by an imperfect regulatory framework, which provisions are often contradictory.

2. An analysis of foreign experience in the administrative and legal regulation of the banking system has shown that in most countries this mechanism is focused on the distribution of powers between different state authorities. In other words, regulation of the banking system is carried out by several agencies within their authority. The purpose of this approach is to ensure the security of the banking system against the pressure from the central bank of the country.

3. At the same time, excessive allocation of powers between many public authorities can significantly impede the administrative and legal regulation of the banking system. This is most clearly expressed in the experience of the United States. The presence of a large number of regulatory governmental and non-governmental bodies in addition to a special legal system, which has general federal and state levels, negatively affects the mechanism of state influence on the banking system, causing its bulkiness. In this regard, it is not appropriate to take over and introduce the experience of this country into the legal system of Ukraine.

As a result, it should be noted that the mechanism of administrative and legal regulation in the territory of our state should be changed. In this context, the experience of Germany and France where regulatory

and control powers are shared between the central bank and other government departments, which, in turn, reduces the risk of administrative pressure on individual banking institutions and the banking system as a whole, is most appropriate for implementation. In

addition, the construction of an efficient and effective mechanism of administrative and legal regulation of the banking system requires systematization of the current legislation in this area, in order to eliminate contradictions and gaps.

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## CONSUMER BEHAVIOUR FORMATION IN THE CUSTOMIZED SERVICE MARKETS: A CASE OF UKRAINE

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**Abstract.** *Targetsetting.* In modern conditions, in some markets for goods in mass demand, companies are increasingly beginning to introduce customization in marketing activities, which involves the implementation of marketing tools aimed at ensuring a wide differentiation of the trade offer, the establishment of direct communication with the target audience, which provides an opportunity to attract the consumer to the production of goods and to adjust product under its certain requirements. *Uninvestigated parts of general matters defining.* The study of the market behaviour of consumers is a branch of knowledge that is rapidly and dynamically developing and falls within the scope of scientific interests of a large number of scientists. The emphasis in existing studies of consumer market behaviour is made on the study of commodity markets. There are publications devoted to questions of consumer behaviour research in the service markets, but there are practically no publications on the study of behavioural patterns in service markets on an orderly basis. *The purpose* of the article is to study features of the market behaviour of consumers on the Ukrainian market of exclusive confectionery products to order. *Methodology.* The authors of the article conducted a marketing research on the motivation and behaviour of consumers on the Ukrainian market of exclusive confectionery products to order. The sample comprised 117 people, of which 71% of the respondents were women, 29% of respondents were men. *The statement of basic materials.* The main purchasing motives of the consumer who decides to order exclusive confectionery products are investigated and it is revealed that the ordered product is characterized by a high level of emotional consumer value. The description of the customer's motivation field is presented and consumer risks, which influence the market behaviour of consumers of exclusive desserts, are viewed. According to the results of the study, such existing areas of dissatisfaction of target consumers are identified, namely, design mismatch expectations, unjustified prices, dissatisfaction with taste, the inconsistency of packaging, complex order procedure, which requires time and effort. *Conclusions.* Using the results of the conducted marketing research, recommendations for producers of exclusive desserts to reduce possible dissatisfaction of the consumer when ordering exclusive desserts are presented. First of all, manufacturers should try to provide as much as possible a clear description of the offered services, try to visualize and materialize the offer to the consumer, thus reducing his perceived risks.

**Key words:** consumer behaviour, buying process, information search, customization.

**JEL Classification:** D12, D91, D83, L11

### 1. Introduction

The current stage of socio-economic development of our society is characterized by the tendency to individualize the process of consumption in certain commodity markets and services markets. The high intensity of globalization processes and increased competition lead to certain transformational phenomena in the market and information environments, in which the modern consumer is overwhelmed by market information, faces the problem of choosing markets for mass-market products, "tired" from "faceless" goods and complicated choices. This

leads to increased consumer demands, the appearance of significantly higher queries regarding the qualitative characteristics of the product, design, ergonomic and aesthetic indicators, the need for individual service. In some markets for goods in mass demand, companies are increasingly beginning to introduce customization in marketing activities, which involves the implementation of marketing tools aimed at ensuring a wide differentiation of the trade offer, the establishment of direct communication with the target audience, which provides the opportunity to attract the consumer to the production of goods and to adjust product under its certain requirements.

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## 2. Review of theory and literature

Recently, the study of the market behaviour of consumers is a branch of knowledge that is rapidly and dynamically developing and falls within the scope of scientific interests of a large number of scientists. During the last decades, a large number of scientific and practical works devoted to this topic have been published. This interest is primarily due to the fact that the problem of market behaviour of consumers is a key issue in marketing activities of companies since the realization of its economic interests directly depends on the company's ability to predict the actions of the target audience and to influence consumer decisions through the use of communication strategies and marketing tools. Among the main areas of consumer behaviour research, which reflect the modern approaches and aspects studied by scientists in previous centuries, including the position of marketing concept, one can distinguish the following: consumer behaviour studies in the classical economic theory, where the focus is done on clarifying the causes economic decisions of a person (A. Smith, D. Ricardo, H. Gossen, K. Menger); research of the decision-making process by the consumer under the influence of a set of incentive incentives: marketing, situational, psychological, environmental factors (F. Kotler 1999, 2005, 2008, J. Engell, R. Blackwell, P. Miniard 2006, Michael R. Solomon 1992, David A. Statt 1997, G. Foxol); formation of the concept of "demonstrative consumption" as a social phenomenon from the standpoint of socio-economic stratification of society (T. Veblen 1899, G. Simmel 1905, J. Baudrillard 1970, P. Bourdieu 2000, A. Toffler 2006); studying the impact of cultural aspects and gender factors on consumer behaviour (P. Lunt, S. Livingstone 1992, H. Dittmar 1995); research on the influence of mass communication on consumers, the impact of advertising on consumer behaviour (R. Cialdini 2005, A. Pratkanis 2007, E. Aronson 2001, D. Ogilvy 1983); the formation of the concept of "behavioural economics", in which, with the help of experimental methods, human behaviour is investigated in conditions of uncertainty, which proves that irrational behaviour of a person is not accidental, it is predictable (D. Kahneman 2000, A. Tversky 1982, 2000, P. Slovic 1981, 2007, D. Ariely 2010). Consequently, the degree of development of the problem is characterized by a rather high level and indicates its relevance and urgency for economic science and society.

Consumer market behaviour is the human activity associated with the selection, acquisition, and consumption of products or services to meet the current needs. Being on the market, the consumer goes through certain stages, namely: awareness of the need, seeking information on possible options for satisfying it, offered in the market, assessing existing market alternatives, buying decisions and consumer reaction

to the purchase, which is to evaluate the used product based on the feeling his satisfaction.

It is becoming more popular in Ukraine to buy exclusive confectionery products for a present and order them on own holidays, this trend contributes to the rapid growth of demand in this market and activates the marketing activities of companies serving this segment. The aim of this article is to study the features of the market behaviour of consumers in the Ukrainian market of exclusive confectionery products and describe the stages of the buying process such as need recognition, information search, alternatives evaluation, purchase decision, and post-purchase behaviour.

## 3. The statement of basic materials

The authors of the article conducted a marketing research on the motivation and behaviour of consumers on the Ukrainian market of exclusive confectionery products to order. The sample comprised 117 people, of which 71% of the respondents were women, 29% of respondents were men. The sample was formed on an occasional basis: different types of consumers took part in the survey – those who had already ordered confectionery products earlier, and those who never had such experience; those who like sweets and constantly buys it, and those who absolutely do not feel the tendency to consume desserts but consider such a purchase as a gift or element of a desert. Let's consider the details of each of the stages of the consumer buying process: need recognition, information search, evaluation of market alternatives, purchase decisions, and after-purchase evaluation.

## 4. Need recognition

According to the results of the study, the main consumer motives of the consumer who decides to order exclusive confectionery products is the desire to make a lovely one, raise your mood, have fun, impress guests. About 85% of respondents said that they ordered a dessert not for personal consumption, but for a gift to their loved ones, colleagues, friends, family holidays or celebrities. The customer pays for the emotional reaction of the person who receives this gift, and even more – for the emotional satisfaction of this reaction. Consequently, the ordered product is characterized by a high level of emotional consumer value, which indicates a special attention of the customer and his high involvement in the purchasing process. Let's analyse the concept of value orientations of consumers in the market under study by M. Rokeach [1], in which the researcher proposes to consider the values of two types: terminal and instrumental. Terminal values are a person's conviction of the goals and ends of the world, to which he aspires, namely happiness, wisdom, freedom, and so on. Instrumental values relate to representations about desirable behaviours aimed at

achieving terminal values (honesty, responsibility, courtesy, etc.). Table 1 provides instrumental and terminal values that are inherent to consumers based on the results of the study.

Consequently, the consumer’s motivation field consists of the following main motives:

- the motive of satisfaction with the pleasure of relatives and close people. From 68% to 76% of consumers get pleasure from showing their attention to their relatives and observing their emotional response;
- the motive of the product usefulness and safety of consumption. From 46 to 54% of consumers are confident that exclusive confectionery products do not contain artificial flavours, GMOs, and other harmful ingredients;
- the motive of belonging to a certain group of people who make individual orders and do not consume mass-market products. From 46 to 56% of the target audience associate themselves with a group of people who are aesthetes, have a good taste, can afford to order exclusive desserts;
- the motive of freedom and creativity. From 24 to 36% of consumers like to have the freedom to choose, realize their own vision of the product, and not be limited in their choice;
- epistemic motive. From 24 to 36% of consumers believe that the order process is associated with the expectations of novelty and new emotions, they try to taste something new and special.

### 5. Information search

After the realization of the needs, the consumer faces a choice: where to order an exclusive dessert, which sources to attract to find the necessary information, where to start? Therefore, the next stage in consumer behaviour is Information search – it is a motivated

process of activating a consumer of knowledge stored in his memory (internal search) or acquiring information from external sources (external search). It is not always the consumer who needs external search, sometimes he has enough internal searches to make a purchasing decision, during which there is indirect and direct internal search activity. Indirect internal search activity is carried out when the consumer extracts from memory that knowledge that was unconsciously incorporated into his long-term memory. Direct internal search activity occurs when the consumer deliberately extracts from the memory information related to a specific problem.

The need to attract all possible sources of information and components of a search depends on a number of factors: the existence of a customer’s already established pattern of behaviour, the loyalty to a particular manufacturer/brand/product, the individual’s propensity to innovate and the desire to taste something new, consumer experience and satisfaction/dissatisfaction with the previous orders and so on.

We have determined that in the investigated market the consumer does not always turn to the external search, but always first turns to his own experience of solving the existing problem, then to the memories of the experience of friends and only later – to the external search. The majority of respondents (87% of respondents) noted that the positive past experience of cooperation with a certain confectionery manufacturer on request was a key factor in encouraging them to re-order and save time and effort in solving the problem. Nevertheless, certain respondents (36%) noted that after 5-6 orders from the same manufacturer and being satisfied with the quality of the product and service, they are thinking about finding another confectionery, trying

Table 1

**The scale of the value of target consumers of exclusive confectionery products to order**

Instrumental Values	Terminal Values
<b>High queries:</b> the desire to get a quality product with a special, unique design for the appropriate fee.	<b>The happiness of others:</b> when ordering exclusive desserts, a person gets emotional satisfaction precisely because this product brings pleasure and joy to others – those to whom he was appointed as a present or guests on his own holiday.
<b>Feelings, caring:</b> the desire to make pleasure to relatives.	<b>Life in beauty (the beauty of art):</b> special desserts are ordered by aesthetes, who understand its value as a work of art, not just as a combination of confectionery ingredients.
<b>Creativity:</b> an opportunity for the consumer to prove himself through the order of an exclusive dessert, something absolutely unique.	<b>Health:</b> A person orders a high-quality dessert, in which only natural ingredients are used because they are aware of the value of such foods for their health and the health of their family.
<b>Ability to love:</b> ordering a product as a manifestation of love for a loved one.	<b>Public recognition:</b> In fact, the consumption of an exclusive dessert takes place in the environment of other people and in fact is demonstrative. A person is pleased when the people approve of such a choice of product, make compliments on this account, want to follow the example, are interested in the manufacturer.
<b>Rationalism:</b> It’s rational to spend a certain amount of money on a quality product that is made from natural and safe ingredients.	<b>An interesting life:</b> a person seeks to diversify his own life, seeks to receive new emotions even in everyday consumption and to make certain moments in his life special.
<b>Courage:</b> the ability to dare for something unusual, try something new, risk and experiment with taste and design.	<b>Cognition:</b> exclusive desserts are every time absolutely new emotions, the search for new tastes and designs.

Source: compiled by the authors on the results of marketing research

to get “something new and interesting.” Consequently, according to the results of the study, the following factors were identified, which determine the need for additional information:

- 1) consumer loyalty to a brand, which is formed under the influence of high emotional commitment of customers and a high level of satisfaction with the previous order and service;
- 2) the quality of existing knowledge and the availability of information that directly affects whether the consumer will base his choice only on internal search or still decides to supplement the lack of knowledge by external search;
- 3) time factor, in the situation when a pre-order was made by the consumer for a long time, therefore, he is not sure that the quality of products is still maintained at the proper level and the confectionery will be able to satisfy all its requirements;
- 4) the degree of involvement of the consumer in the process of solving the problem, which is mainly determined by the personal significance for the customer as much as possible to meet the existing needs and, accordingly, determines the level of motivation;
- 5) the individual's willingness to change the manufacturer and try new tastes.

There are two groups of specific factors influencing the external search for information that can lead to an increase or weakening of the user's search activity – situational and individual factors. Table 2 provides a

comprehensive matrix of factors of influence on the search for external information on the purchase of exclusive confectionery products.

## 6. Evaluation of market alternatives

Before taking a final decision in favour of a particular brand, the consumer always assesses existing market alternatives by applying a particular consumer choice strategy. The rules for making consumer decisions are divided into two groups: compensation rules that provide consumer compensation for the low level of some attributes of the product due to the high level of other attributes and non-compensation, which does not allow compensation of low ratings of one attribute with high estimates of another attribute. We have determined that a significant proportion of consumers (82% of respondents) of exclusive confectionery products make a purchasing decision using a non-compensated consumer choice model. They choose exclusive desserts precisely because of the criterion of exclusivity (peculiarities, individuality, specificity), which are not ready to yield, even if other attributes of goods are highly appreciated.

Among the non-compensation rules, in our opinion, the target consumer's behaviour is characterized by a disjunctive decision rule when the consumer has the minimum requirements only for the most significant criteria. That is, the consumer shares all attributes of the

Table 2

### The matrix of factors influencing the search for external information by the consumer of exclusive confectionery products

Direction of influence	Influencing factors	
	Situational factors	Individual factors
Increasing search activity	<ul style="list-style-type: none"> <li>- social pressure from the surrounding and friends who buy confectionery products on an individual order;</li> <li>- high price of the product – confectionery products on an exclusive order are more expensive than usual products;</li> <li>- intense competition in the market and a high level of differentiation of the product offer, which complicates the choice of potential consumers;</li> <li>- clear competitive positioning by the criterion of a special product group, which distinguishes confectionery products on request from mass-market products.</li> </ul>	<ul style="list-style-type: none"> <li>- high level of consumer involvement as a consequence of the special significance of the purchase;</li> <li>- satisfaction with the process of knowledge, opening of new opportunities when ordering desserts;</li> <li>- satisfaction directly from the process of ordering a product, tasting ingredients, developing your own design;</li> <li>- focusing on the health benefits of consuming products made of high quality and natural ingredients;</li> <li>- belonging to a particular social group that consumes exclusive goods.</li> </ul>
Weakening search activity	<ul style="list-style-type: none"> <li>- lack of time in search for market information;</li> <li>- influence of a competent specialist / recommendation of friends;</li> <li>- complexity of obtaining market information (low level of communication activity of existing manufacturers).</li> </ul>	<ul style="list-style-type: none"> <li>- high affection for a particular brand (unwillingness to look for something new if there is a confectioner that fully meets the requirements of the consumer);</li> <li>- lack of knowledge about the subtleties of the technological process of manufacturing products and the possibilities / restrictions of manufacturers specializing in individual orders;</li> <li>- low level of involvement of the consumer in the process of purchase.</li> </ul>

Source: compiled by the authors on the results of marketing research

product on essentially important and secondary, and considers only those variants, which receive from it the best estimation according to certain dominant attributes. Thus, even the best positions of the alternative option for non-dominant attributes are not taken into account at all, because it does not compensate for the insufficient level of the dominant attribute.

According to the research, it was determined that the customer of exclusive desserts is motivated by such key attributes of the product as the exclusive design, taste and naturalness of the ingredients used. Although among these characteristics of the product in the vast majority of respondents the design predominates, and the position in the rating of the significance of the attributes of the taste and the naturalness of the ingredients varies. It is determined that there are a number of biased attitudes and beliefs among target consumers:

- the first, exclusive confectionery products “should” be expensive (62% of respondents indicated a high price segment, 32% of respondents – the price segment

is above average, 6% of respondents – the average price segment);

- the second, exclusive confectionery products are made exclusively of natural and safe ingredients for health (about 89% of respondents adhere to this position);

- the third, custom-made confectionery cannot be tasteless, as it is made “with love and with soul” by high-level professionals (90% of respondents fully agree with this statement).

When assessing market alternatives and choosing a confectioner, the consumer assesses the risks that the manufacturer has the ability to influence and to use certain tactical actions to reduce their negative impact on the consumer. Table 3 provides information on the main types of consumer risks in the market under study and possible consumer actions aimed at preventing these risks and tactical actions of the manufacturer, which are recommended to reduce the risk.

Table 3

**Consumer risks affecting the market behaviour of consumers of exclusive desserts**

The type of risk and its essence	Possible actions of the consumer to prevent the risk	Possible tactical actions of the manufacturer, which are recommended to reduce the risk
<b>Functional</b> The ordered product may not perform the basic functional purpose due to a misunderstanding between the customer and the manufacturer, due to a lack of clearly defined technical specification.	Describe all wishes and reservations in detail, send referrals, draw a sketch as needed.	To maximize the process of drawing up the technical task, to offer testing of samples of the main components of the product, to receive written confirmation of the requirements for the future product.
<b>Financial</b> The discrepancy between product price and quality, price discrepancy and design.	Detailed study of the price, components of the value of the order, taking into account the importance and the necessity of each of them.	Avoiding unjustified overpricing, providing the appropriate high quality at a set price, informing the consumer about all the cost components, about possible additional costs during production
<b>Social</b> A negative assessment by the representatives of the desired social group, dissatisfaction with those whom the customer planned to impress (taste, design, reputation of the confectionery).	Studying the reputation of the confectionery through reviews, comments, recommendations of friends and experts.	Continuous reputation process by demonstrating the satisfaction and loyalty of customers who have already made orders and avoided this risk, disseminating positive brand information through engaging social networks, professional circles, serving social content events to promote the brand.
<b>Time</b> Significant time spent searching for confectionery, discussing all details and ordering.	Do not waste time searching and turning to a confectioner, where he has already made an order or advised by his friends/colleagues. To trust the professional and not to discuss every detail of the order, choose a ready-made option among the offered	Provide as much information as possible about the product and pricing policy of the company on its website (on the page on the social network). Correctly build communication, develop an algorithm that can create the technical task for each order as quickly and efficiently as possible. Availability of testing of the main components of the order.
<b>Physical</b> Health damage over the use of ingredients of poor quality.	Maximize the composition of products, require quality certificates on the components of the product. Carrying out an order in a proven manufacturer’s own experience / based on a positive feedback from an authoritative expert.	Production of quality products, without the components harmful to human health. Obligatory clarification of the fact of the presence of allergic reactions, intolerance of certain components. Formation of the image of natural production and a safe brand.

Source: compiled by the authors according to the research results

## 7. Post-purchase behaviour

At the fourth stage of the behavioural process, the consumer directly decides on the order and, on the last, fifth stage, assesses the purchase, based on a sense of satisfaction or dissatisfaction with consumption. Consumer satisfaction is a positive opinion of the consumer as to the suitability of the benefits received from consumption of the product in its expectations, which influences its purchasing decisions.

The key factors that influence the level of consumer satisfaction include: attributes of the product (the quality of the product perceived by the consumer and its price). Mostly, consumers perceive the price of a product as an indicator of its quality: the more expensive it is, the higher quality is. A level of consumers' profit is one of the key factors that influence forming the target audience. Consumers with a low level of profit fully refuse to buy such service on the stage of decision-making about the purchase of dessert or a gift because of the high price, following the position "pastry products shouldn't be so expensive." Consumers with a middle level of profit make a reasonable choice and use possibilities to save on certain components, follow the position "better, but the best," buying a small size of the exclusive product instead of large, that it is offered to in ordinary shops. Consumers with the level of profit higher than middle are less sensible to the price and follow the principle "let it be expensive, but I can pay for exclusive and quality product, and for the impression of the person whom this dessert is intended to." Consumers with a high level of profit are not sensitive to price, they follow the position "price is not important, there are no limitations on a budget, the main point is to get a unique and delicious product, from which we will get a pleasure."

There is also a psychological perception of the price by the buyer, consisting of determining its fairness or injustice, that is, the correspondence of the value received to the amount of money spent.); quality of service; availability of products (presence of goods in the trading network and ease of purchase); latitude of the product range (variety in meeting needs).

If the advertisement or the manufacturer exaggerates both the taste and components of the product, then the expectations of the buyer will be overestimated, and after purchase, it will be either completely satisfied or somewhat disappointed (depends on many factors). The greater the difference between expectations and the actual result, the more disappointed the buyer will be. To avoid this, it is necessary to optimize work with the client, to maximize detail the technical task. But even if the manufacturer, for his part, will make every effort, there is still a risk of dissatisfaction that accompanies individual orders in any sphere, not only in the confectionery industry, since the understanding of these or other concepts may differ from the customer and the performer, because very often the customer

himself does not understand what exactly he wants to get as a final result.

According to the results of the study, the following areas of dissatisfaction with target consumers are identified:

- design mismatch with expectations (12% of respondents);
- unjustified price (4% of respondents);
- dissatisfaction with taste (4% of respondents);
- inconsistency of packaging (9% of respondents);
- complicated order procedure, which requires time and effort (8% of respondents).

We stand on the position that there is a tradition in Ukraine in the consumption of pastries on all holidays and celebrations of personal and domestic character, during a meeting with family and friends. Some celebration or holiday is associated for consumers with something special that creates a stimulus to order exclusive pastries. In this situation, rational reasons of behaviour yield irrational and emotions prevail as the main reason for purchase in the consciousness of consumers.

Modern transformations in consumers' behaviour in the market of pastries are caused by the influence of situational and individual consumer factors, and also factors of the environment. These factors are: the level of profits of the population, growing demand on the ordering of ready dishes and pastries for the celebration of special events, tradition to order exclusive desserts and use in the meal high-quality and natural products, trust to the quality of products of national producers that are basic suppliers for confectionery industry.

After Rokeach value scale, the consumer of exclusive desserts has such terminal values as the happiness of friends and family, life in beauty, health, public confession, interesting life and cognition; and corresponding instrumental consumer's values are high queries, sensitiveness, work, ability to love, rationalism, and braveness. Basic situational factors, which strengthen searching activity of consumer, are: social norms and pressure from referent groups and friends, who make an order of exclusive desserts at every case, and accordingly, expect similar behaviour, the high price of the order, intensive competition and high level of differentiation of products in the market.

Among individual factors that strengthen searching of the consumer activity, it should be noted such factors as high level of consumer's involvement to the process of purchase, his satisfaction from the process of cognition and process of order, tasting of components, development of consumers' own design, orientation on benefits for health from the consumption of the products made from high-quality and natural ingredients. Basic factors that weaken consumer's searching activity are a shortage of time on information search, consumer's preference to a certain brand or producer, the sophisticated process of getting of market

information because of low communication activity of producers in the market.

To form the positive attitude of target consumers' audience to exclusive desserts and to create their personal interest in the following orders, it is necessary to build such integral character of product/brand/confectionery that would allow the consumer to get great emotional pleasure and feel confidence in a good and right choice.

## 8. Conclusions

Marketing research on the motivation and behaviour of consumers on the Ukrainian market of exclusive confectionery products showed that these products are characterized by high level of emotional consumer value. The consumer's motivation field consists of the following main motives: motive of satisfaction with the pleasure of relatives and close people; the motive of the product's usefulness and safety of consumption; the motive of belonging to a certain group of people who make individual orders; the motive of freedom and creativity.

Areas of dissatisfaction of target consumers while purchasing exclusive confectionery products are design mismatch expectations, unjustified prices, dissatisfaction with taste, the inconsistency of packaging, complex order procedure, which requires time and effort. The existence of dissatisfaction with consumers regarding the discrepancy between the design of the ordered product and the expectations is predictable. It can be explained by the fact that the consumer usually "idealizes" his order, hopes to get something

extraordinary and exceptional. We also note that in this case, the manifestations of the effects of Gestalt psychology are very clearly manifested: the consumer treats an exclusive dessert not as a combination of the ingredients necessary for his production, but he perceives a holistic image of the final product.

In order to reduce potential dissatisfaction of the consumer, companies should try to provide as much as possible clear description of the services offered, try to visualize and materialize the offer to the consumer, thus reducing its perceived risks:

- to provide additional details and standardize the process of obtaining an order, receive written confirmation of the requirements for the future product;
- to offer consumer testing of the main components of the order, demonstration of its main components;
- to inform the consumer about all components of the product cost, and possible additional costs;
- to show variants of already existing offers that were previously made and offered to consumers, demonstrate loyalty to customers who have already made an order;
- to use the elements of computer graphics to propose to develop for a customer a "graphic model" of the future dessert for the most possible visualization, to offer different design options, packaging;
- to build such integral character of product/brand/confectionery, that would allow the consumer to get great emotional pleasure and feel confidence in a good and right choice.

Of course, all these proposals will only work in the case of the production of high-quality products, without the content of harmful components, which will create the image of natural production and a safe brand.

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# THE CORRECTNESS OF THE CAPM-MODEL APPLICATION IN THE UKRAINIAN REALITY IN TERMS OF INVESTORS FINANCIAL SECURITY\*

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**Abstract.** *Purpose.* The purpose of this article is the research of correctness of CAPM-model application in the Ukrainian stock market and the analysis of the time factor's influence on the results of this model application. This problem acquires a special relevance for the provision of the investors' financial security, who act in the conditions of significant uncertainty and high risk of the Ukrainian stock market. *Methodology.* In this work, methods of dynamic lines' analysis, statistical, structural, comparative, correlation-regressive analysis were used. As the initial data during the research of profitability of the Ukrainian enterprises' shares, the data of the exchanging prices of the Ukrainian emitters' securities, according to the results of the trades in the Public JSC "Ukrainian Exchange", were used. *Results.* Contemporary approaches to the CAPM-model application in the markets, which are being developed, were analysed. As the result of this analysis, it was revealed that most of the scientific researches in this area emphasize incorrectness and unreliability of the results as to the prediction of the profitability indexes on such markets. Calculation of the  $\beta$ -coefficient for the Ukrainian emitters' securities for the various investments' horizon periods was done. The results of the calculation showed that the value of the  $\beta$ -coefficient varies greatly on the terms of investment and is not of the strictly consistent pattern. Stock market profitability per month based on UX-index and considering the investment horizon period was calculated. The expected profitability of the Ukrainian emitters' securities was distinguished and compared to their real rate of returns. During the profitability analysis in the investment intervals, exponential moving average with its further shift for a month was used. It gave an opportunity to distinguish an average monthly profitability in the various investment horizon periods (1 till 12 months). *Practical significance.* The application of the suggested approach can become an additional technique for the estimation of the investment attractiveness of securities of the stock market emitters in the various investment horizon periods that, in its turn, will increase the safety of such investment. *Conclusions.* The conclusion was made as to the correctness of the CAPM-model application in the Ukrainian reality, according to which it is almost impossible to define the exact regularity of the behaviour of indexes of the expected and real profitability depending on the investment horizon period. It casts doubt on the possibility of the appropriate and correct application of the CAPM-model in the Ukrainian stock market. This conclusion, in general, coincides with the conclusions of many scientists, who conducted similar researches in the stock markets of other developing countries.

**Key words:** stock market, profitability, beta-coefficient, stock index, investment horizon.

**JEL Classification:** G10, G14

## 1. Introduction

One of the widely-discussed topics of the stock market is the issue of the manifold definition of the relation of profitability to risks, that is common for different financial investment tools. Investigation of this point started in the 1950s (Markowitz, 1952;

Sharpe, 1964) and was developed later by such well-known scientists and experts (Treynor, 1962; Lintner, 1965; Mossin, 1966; Black, Jensen, Scholes, 1972) and others and, as the result of their scientific researches, the contemporary model of the capital assets estimation (CAPM) was formed. Later, this model was corrected

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and modified considering different conditions of the stock markets.

Despite the huge quantity of the research papers in this sphere, there appears the necessity to check the possibility of the application of the CAPM-model in the Ukrainian stock market, which is much more fluctuating and unstable than contemporary European markets, according to the studies (Zakharkin, Zakharkina, Antoniuk, 2017). Especial interest in such studies is paid to the problem of considering investment horizon period, as in the majority of the research works the profitability of the market tools is measured annually, though at the same time very often financial investors work within much shorter investment periods. The reasons for this are fast movement and fluctuating of the contemporary stock markets that make investors re-structure investment portfolio.

Thus, the research works in this field are very relative. They go in line with "Complex Program of Development of Ukrainian Financial Sector till 2020", the main purpose of which is the creation of the financial system that is able to provide stable economic development by means of effective re-distribution of the financial resources in the economics based on the development of the appropriate market competitive environment according to the EU standards.

**The aim of the study** is a study of the correctness of the CAPM-model application in the Ukrainian stock market and influence of the time factors on the results of this model application.

**The subject of the study** is theoretical, methodical, and practical aspects of the CAPM-model application in the Ukrainian stock market based on the estimation of the profitability indexes of the securities, which, in its turn, is an indicator of the decision-making for the financial investors.

## 2. Analysis of the global approaches to the CAPM-model application

Active investigations as to the possibilities of application of CAPM-model and its modifications go back to the 1970s, among which one can distinguish classical works (Black, Jensen, Scholes, 1972; Fama, French, 1992), which the background and the main issues of this model were settled. The further scientific works of this sphere were devoted to the critical analysis of the model and ways of its improvement. For example, in the paper (Roll, 1977), the issues of market portfolio and assessment of its profitability were examined. As the portfolio, the appropriate stock indexes were used. Along with that, the choice of such portfolio will influence on the result of the calculation of the  $\beta$ -coefficient, and consequently, the total result of the application of this model. The issues of the distinguishing of the  $\beta$ -coefficient, which is the key characteristic of the CAPM-model and problems

of its stability, are examined in the works (Levy, 1971, Blume, 1975, Scholes, Williams 1977). Researches of these scientists showed irregularity of the approach, on which the calculation of  $\beta$ -coefficient was based, for the prediction of future profitability and risks of the financial actives – definite shares. Along with that, for the investment portfolio, the value of the  $\beta$ -coefficient is quite stable and tends to one with time that means that the risk tends to the mid-market rate.

Recently, studies of the possibilities and special features of the CAPM-model application in the developing markets became widely spread. Along with this, the majority of the authors emphasize the incorrectness and unreliability of the results as to the expected profitability indexes in such markets. This is explained by the difficulties of definition and substantiation of the basic characteristics of the model (riskless profitability, expected market profitability,  $\beta$ -coefficient) because of the underdevelopment of appropriate stock markets, absence of their informational effect, specific set of risks, that is characteristic to the developing economies.

Very important factor, which influences the results of the CAPM-model application, is the orientation on the investment horizon periods, issues of consideration of which were studied in works (Merton, 1973; Harvey, 1989; Robertson, Wright, 1998; Ibbotson, Chen, 2002; Gibson, 2013) and by others. The results of the researches of these scientists, which were conducted on the factual basis of American stock market, showed that in different investment horizon periods, there exist different interconnections between profitability and risks of financial assets, which differ greatly both within the type of assets (shares, stocks, treasury bills) and within duration of investment horizon periods.

Similar investigations were conducted by the Russian scientists (Berzon 2014; Abramov, Radygin, Chernova 2015, Boyarskiy 2016), who, taking as an example young developing Russian market (which is very much alike with Ukrainian one), analysed the time factors of influence on the profitability and risk in the stock market and came to various and sometimes controversy conclusions, as to the investment attractiveness of different financial tools.

Among Ukrainian scientists, who made a valuable impact into the development of methodology and practice of decision of stated above problems, one can distinguish works (Diakonov, Oleksich, 2010; Zavorotnii, 2014; Kukhta, 2005; Lukianenko, 2007).

Despite the presence of these and other publications, the actual absence of the studies of the behaviour of CAPM-model components in Ukrainian stock market substantiates the relevance of this paper. The issue of the influence of investment horizon periods on the CAPM-model characteristics and, first of all, on the value of  $\beta$ -coefficient, which measures the securities' volatility relative to the mid-market risks.

### 3. Application of concepts of the CAPM-model to the securities of Ukrainian emitters

As it is known, CAPM-model characterizes the process of formation of the market price on definite securities (other objects of real and financial investments) in conditions of the perfect capital market and considering systematic risks, which are not diversified. According to it the expected asset profitability, that is assets portfolio, is equal to the sum of riskless interest rate and awards for the investment risks in the definite asset, which is defined as the multiplication of the systematic risk level, characteristic for this asset and midmarket award for risks (Sharpe, 1964; Capital Asset Pricing Model):

$$r_i = r_f + (r_m - r_f) \cdot \beta_i \quad (1)$$

where  $r_i$  – expected profitability of  $i$ -asset;

$r_f$  – profitability of the riskless asset;

$r_m$  – expected market profitability;

$\beta_i$  –  $\beta$ -coefficient of  $i$ -asset, which estimates the rate of its profitability to the fluctuations of the market profitability (Mertens, 1997), or measures the systematic risks (market risk).

$\beta$ -coefficient can be calculated relatively to the definite shares, other investment objects or investment portfolio. To calculate  $\beta$ -coefficient, it is necessary to process statistical data, which characterize variations (fluctuations) of the efficiency of the chosen investment object for several previous periods, riskless interest rate, and an average profitability of the market portfolio. For this, it is necessary to calculate such indexes:

- Mean square (standard) deviation of values of analysed asset's efficiency in the definite periods from the average asset efficiency during the studied period;
- The correlation coefficient, strong connection between the rate of profitability of the studied asset and the average rate of profitability in the market in general;
- Mean square (standard) deviation of the profitability of the investments (RM) in the market in general (Capital Asset Pricing Model).

The commonly-known equation for the calculation of the  $\beta$ -coefficient can be written as follows (Kojefficient beta. Formula. Sovremennye modifikacii):

$$\beta = \frac{\text{Cov}(r_i, r_m)}{\sigma_m^2} \quad (2)$$

where  $r_i$  – profitability of  $i$ -asset;

$r_m$  – market profitability;

$\sigma_m^2$  – distribution of the market profitability.

At this, asset profitability and market profitability are defined according to the data of historical observations. As the input data during the examination of profitability of Ukrainian enterprises shares, the data about the stock rates of Ukrainian emitters' securities according to the results of the trades in the JSC "Ukrainian Exchange" were used. For calculation of historical data of the market profitability, the UX index of Ukrainian shares was used. Calculations were based on the five-year period from 1 January till 31 December 2016. On this horizon period, the studies were conducted in such possible investment intervals: 1, 2 ... 12 months. In the profitability analysis in the investment intervals, exponential moving average with its further shift for 1 month was used. Such an investigation technique was chosen considering the existing analogue approach presented in works by (Berzon 2014; Boyarskiy 2016) and by other scientists. Calculation of market tools' profitability per month was done with the help of formula:

$$r_m = \frac{(I_i - I_0)}{I_0 \cdot t} \times 100, \quad (3)$$

where  $r_m$  – profitability per month in  $i$ -period;

$I_i$  – securities exchange rate (UX index) at the beginning of investment period;

$I_0$  – securities exchange rate (UX index) at the end of investment period;

$t$  – the number of months in the investment period.

$\beta$ -coefficient calculation for various investment horizon periods was done using the possibilities of Excel program. For example, for the Public JSC Raiffeisen

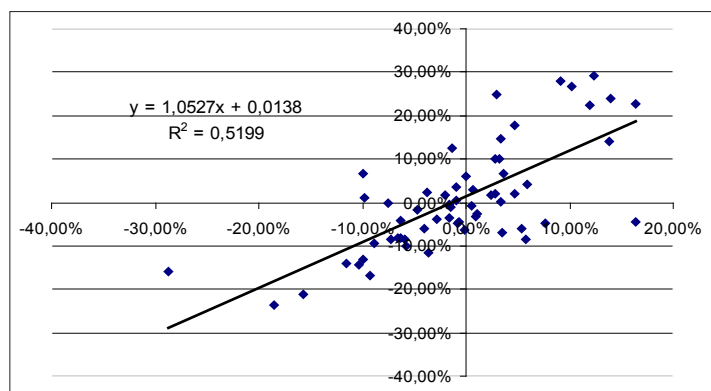


Fig. 1. Results of the  $\beta$ -coefficient calculation for the Public JSC Raiffeisen Bank Aval for the investment horizon period 1 month (2012–2016)

Source: compiled by the authors

Bank Aval, the results of the  $\beta$ -coefficient calculations for the investment horizon period 1 month is the following (presented in Fig. 1). B-coefficient is equal to 1,0527.

Similar calculations were done for 10 Ukrainian securities emitters for various investment horizon periods. Results of the calculations are presented in Table 1.

The further investigation of the correctness of application of the CAPM-model in Ukrainian market was conducted by calculation of the expected profitability of the Ukrainian emitters' securities using Formula 1 and comparing it to the actual profitability indexes ( $r_{ia}$ ), which were shown by the securities in 2017. At this, as the riskless profitability, there was accepted the profitability of the bond certificate of domestic government loan (BCDGL), which was equal to 14% annually in 2017 (in hryvnia), which constitutes 1.17% monthly.

The procedure of distinguishing the expected profitability in Formula 1 settles definite questions. Generalizing the contemporary scientific-methodological approaches to the definition of such profitability and considering that this investigation is based on its actual indexes for 2017, there was calculated the monthly profitability based on the UX-index and considering investment horizon periods. Calculation results are presented in Table 2.

Thus, substituting the stated above data into Formula 1, the expected value of the listed above Ukrainian emitters' securities for 2017 was calculated and it was compared to the real profitability of the securities in various investment horizon periods – from 1 till 12 months. The results of these calculations are stated in Table 3. The difference between the real and expected profitability presents the coefficient  $a$  ( $a_i$ ),

Table 1

**$\beta$ -coefficients of the Ukrainian emitters' securities in various investment horizon periods (based on 2012–2016 data)**

Emitters' securities	Investment horizon periods (months)											
	1m.	2 m.	3 m.	4 m.	5 m.	6 m.	7 m.	8 m.	9 m.	10 m.	11 m.	12 m.
PJSC Raiffeisen Bank Aval	1,05	1,22	1,24	1,32	1,39	1,42	1,49	1,54	1,60	1,68	1,74	1,84
PJSC "Ukrasotsbank"	0,72	0,50	0,41	0,39	0,33	0,41	0,45	0,46	0,49	0,53	0,57	0,58
PJSC "Ukrtelekom"	0,38	0,64	0,64	0,61	0,65	0,63	0,58	0,53	0,46	0,47	0,42	0,39
PJSC "DTEK Dniproblenerho"	0,11	0,37	0,39	0,57	0,81	0,99	1,12	1,24	1,75	2,25	2,25	2,59
PJSC "DTEK Dneproenergo"	0,66	0,93	0,79	0,90	1,17	1,40	1,56	1,76	2,04	2,28	2,33	2,43
PJSC "Centrenergo"	1,14	1,22	1,19	1,15	1,16	1,13	1,15	1,13	1,11	1,05	1,01	0,98
PJSC "MOTOR SICH"	0,85	0,78	0,74	0,66	0,59	0,58	0,57	0,58	0,56	0,55	0,55	0,55
PJSC "Ukrnafta"	1,36	1,54	1,62	1,64	1,70	1,76	1,72	1,63	1,56	1,47	1,39	1,28
PJSC "Kryukov Railway Car Building Works"	0,69	0,67	0,62	0,60	0,63	0,66	0,64	0,61	0,60	0,60	0,57	0,53
PJSC "Automobile Company" Bogdan Motors"	1,09	1,51	1,67	1,64	1,75	1,65	1,58	1,48	1,37	1,32	1,19	1,14

Source: compiled by the authors

Table 2

**Monthly profitability of Ukrainian stock market in 2017 (based on the UX index) in various horizon periods, %**

Investment horizon periods (months)											
1m.	2 m.	3 m.	4 m.	5 m.	6 m.	7 m.	8 m.	9 m.	10 m.	11 m.	12 m.
4,61	4,51	4,34	4,03	3,96	4,19	4,27	4,19	4,42	4,91	5,32	5,80

Source: calculated by the authors

Table 3

**Expected and real monthly profitability of the Ukrainian emitters' securities in various investment horizon periods in 2017, %**

Emitters' securities		Investment horizon periods (months)											
		1m.	2 m.	3 m.	4 m.	5 m.	6 m.	7 m.	8 m.	9 m.	10 m.	11 m.	12 m.
PJSC Raiffeisen Bank Aval	$r_i$	4,80	5,24	5,10	4,95	5,04	5,47	5,78	5,83	6,38	7,45	8,39	9,68
	$r_{ia}$	7,89	8,53	8,92	7,54	6,99	7,44	7,85	7,90	8,61	9,98	9,83	9,95
	$a_i$	3,09	3,30	3,82	2,59	1,94	1,97	2,07	2,07	2,23	2,53	1,44	0,27
PJSC "Ukrasotsbank"	$r_i$	3,65	2,83	2,48	2,27	2,08	2,42	2,58	2,57	2,77	3,13	3,52	3,84
	$r_{ia}$	3,37	3,43	3,53	2,95	2,68	2,57	2,53	2,75	3,12	3,72	3,63	3,51
	$a_i$	-0,27	0,61	1,04	0,67	0,61	0,15	-0,05	0,18	0,35	0,59	0,11	-0,33

End of Table 3

PJSC "Ukrtelekom"	$r_i$	2,48	3,30	3,18	2,90	2,98	3,06	2,98	2,76	2,67	2,91	2,93	2,99
	$r_{ia}$	0,77	0,37	0,85	1,23	1,10	1,11	1,13	1,08	1,09	0,74	0,12	0,29
	$\alpha_i$	-1,72	-2,93	-2,33	-1,67	-1,88	-1,95	-1,85	-1,68	-1,58	-2,17	-2,81	-2,70
PJSC "DTEK Dniprooblenerho"	$r_i$	1,55	2,42	2,41	2,79	3,43	4,15	4,65	4,90	6,86	9,59	10,51	13,18
	$r_{ia}$	16,57	19,00	17,93	20,44	22,38	23,10	25,56	30,36	27,00	20,50	20,99	13,01
	$\alpha_i$	15,01	16,58	15,51	17,65	18,95	18,96	20,91	25,45	20,14	10,90	10,47	-0,17
PJSC "DTEK Dneproenergo"	$r_i$	3,45	4,28	3,66	3,74	4,44	5,40	6,02	6,48	7,80	9,69	10,84	12,43
	$r_{ia}$	15,07	18,34	21,32	25,64	28,77	26,92	24,54	25,51	23,72	18,47	17,14	19,43
	$\alpha_i$	11,62	14,06	17,65	21,90	24,33	21,52	18,52	19,03	15,92	8,79	6,29	6,99
PJSC "Centrenergo"	$r_i$	5,10	5,25	4,95	4,46	4,41	4,59	4,75	4,59	4,76	5,09	5,38	5,73
	$r_{ia}$	1,88	1,21	0,82	0,57	0,65	0,86	0,88	0,68	0,56	0,75	1,12	1,86
	$\alpha_i$	-3,22	-4,04	-4,13	-3,89	-3,76	-3,74	-3,87	-3,91	-4,20	-4,34	-4,26	-3,87
PJSC "MOTOR SICH"	$r_i$	4,08	3,77	3,53	3,07	2,80	2,92	2,94	2,90	2,99	3,24	3,45	3,71
	$r_{ia}$	6,09	5,88	5,57	5,67	5,70	5,79	5,94	6,10	6,35	6,61	7,38	8,25
	$\alpha_i$	2,01	2,11	2,04	2,60	2,90	2,87	3,00	3,20	3,35	3,37	3,93	4,54
PJSC "Ukrnafta"	$r_i$	5,87	6,32	6,32	5,85	5,91	6,48	6,52	6,10	6,23	6,68	6,93	7,10
	$r_{ia}$	3,04	2,99	2,32	2,35	2,66	2,81	2,74	2,55	2,29	2,07	2,62	2,69
	$\alpha_i$	-2,82	-3,33	-4,00	-3,50	-3,25	-3,68	-3,78	-3,55	-3,94	-4,61	-4,30	-4,41
PJSC "Kryukov Railway Car Building Works"	$r_i$	3,56	3,42	3,15	2,87	2,94	3,17	3,16	3,02	3,12	3,41	3,52	3,62
	$r_{ia}$	1,96	0,65	0,48	0,67	0,31	0,42	0,43	0,28	0,57	0,39	0,50	1,64
	$\alpha_i$	-1,60	-2,77	-2,67	-2,21	-2,63	-2,74	-2,73	-2,74	-2,56	-3,02	-3,02	-1,99
PJSC "Automobile Company" Bogdan Motors"	$r_i$	4,92	6,21	6,49	5,86	6,05	6,16	6,08	5,65	5,63	6,12	6,09	6,47
	$r_{ia}$	3,34	1,77	1,08	0,64	0,93	0,97	1,08	0,93	0,44	0,79	1,20	2,64
	$\alpha_i$	-1,58	-4,44	-5,41	-5,22	-5,12	-5,18	-5,00	-4,71	-5,19	-5,33	-4,89	-3,83

Source: calculated by the authors

which characterize the excess profitability witness about the underestimation or overestimation of the financial assets (Mertens, 1997).

#### 4. Conclusions

Summarizing the conducted research, it can be stated that the application of the CAPM-model in Ukrainian stock market does not give the reliable results in any investment horizon period. The closest to the real value expected profitability result was shown by the shares of the emitters of the bank group – Public JSC Raiffeisen Bank Aval and Public JSC "Ukrsoobank". The securities of all other investigated Ukrainian emitters are characterized by the great value deviation of the real profitability from the expected one that is proved by the high

value of the coefficient  $\alpha$ , which, sometimes, gets abnormal values (for example: Public JSC "DTEK Dniprooblenergo" and Public JSC "DTEK Dneproenergo"). At this, it is almost impossible to state the clear consistency of behaviour of indexes of expected and real profitability depending on the investment horizon periods. It casts doubt on the possibility of the adequate and correct application of the CAPM-model in Ukrainian stock market. This conclusion, in general, coincides with the conclusions of many scientists, who conducted similar studies in the stock markets of other developing countries.

Considering what is stated above, the perspective of the further researches is an attempt to adapt the CAPM-model to Ukrainian realities, through taking into account the factors, which influence the profitability of the securities in Ukrainian stock market.

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# THE ISSUE OF CRYPTOCURRENCY LEGAL REGULATION IN UKRAINE AND ALL OVER THE WORLD: A COMPARATIVE ANALYSIS

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**Abstract.** As soon as the usage of cryptocurrency in the last few years has been gaining popularity all over the world, and this global trend has affected Ukraine, the *purpose* of the paper is to examine the essence of cryptocurrency, to identify the issues of its legal regulation in Ukraine, as well as using the analysis of world experience in this sphere, to identify ways of the improvement for relevant domestic legislation. The authors have indicated that the cryptocurrency market (or “virtual” money) operates successfully and provides an opportunity to analyse dynamics of the cost, supply, and demand of about 90-100 different cryptocurrency. *Problem’s setting.* The authors of the paper have emphasized that despite increasing popularity of cryptocurrency in Ukraine and throughout the world, there is no single clear definition of this concept. Therefore, the authors of this article state that cryptocurrency is a digital decentralized currency, a unit of which is a coin cryptographically protected against tampering since it is encrypted information that cannot be copied, while all information about transactions is stored in the blockchain system. *Methodology.* The study primarily uses comparative methods for the purposes of examination of the approaches taken under different jurisdictions towards cryptocurrency. Additionally, analysis of the body of theoretical literature on the matter was conducted. *Results* of the study allowed drawing several conclusions on the prospects of further development of the legal framework for cryptocurrencies in Ukraine since nowadays the country is neutral in the issue of using and regulating cryptocurrency and consequently it is losing precious time, because: first, potentially loses money, which could enter the state budget from individuals, who receive income from transactions on cryptocurrency markets; and secondly, the state runs a risk of citizens’ rights violation because of no real instruments for their protection. *Practical implications* of these are proposals to adopt certain amendments to the current legislation in this sphere, including setting up control over brokerage of cryptocurrency, licensing of the industry, and legal definition of the cryptocurrency for the purposes of taxation, etc. *Value/originality.* The paper represents one of the first comprehensive studies of the current state and prospects of development of the legal framework for the cryptocurrency in Ukraine. Its conclusions provide both proposals for the development of legislation in this sphere and may serve as a basis for the future studies of this topic.

**Key words:** cryptocurrency, blockchain, transaction.

**JEL Classification:** K24, K34

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## 1. Introduction

The beginning of the 21st century is marked by a rapid development of information technology, which inevitably has caused the emergence of new institutions. One of these institutions is the cryptocurrency market. In the last few years, the use of cryptocurrency has been gaining popularity all over the world, and this global trend has affected Ukraine certainly. Even though the National Bank of Ukraine has determined cryptocurrency, in particular, Bitcoin, as a “money surrogate”, people are becoming interested in it (cryptocurrency) more. Thus, in mid-2016, one of the largest banks in Ukraine provided the opportunity to buy and sell the most common cryptocurrency Bitcoin. Moreover, almost in a year, in Ukraine, for the first time in the world, an agreement on sale and purchase of real estate for cryptocurrency (Ethereum) was signed. From the US, the owner of the apartment in Kyiv sold his property through his representative. This fact confirms the undisputed popularity of cryptocurrency in the state. However, Ukraine has many problematic issues in this sphere; in particular, it concerns legal regulation of cryptocurrency usage.

## 2. Definition of the cryptocurrency

To begin with, it is important to define the essence of the concept “cryptocurrency”. The first cryptocurrency appeared in 2008, when the anonym (a programmer or a group of programmers, whose identities are still unknown) under the pseudonym Satoshi Nakamoto described initially operation of the payment system in the form of a peer-to-peer network, which was presented by him as an open code of the client program Bitcoin on the Internet in 2009 (Official website of Bitcoin, n.d.). Lubenets, a programmer, explains the meaning of the concept “cryptocurrency” in terms of information technology and notes that this category means the type of digital currency, based on complex calculations of a function, which can be verified easily by reverse mathematical actions, while the main scheme of its emission is the proof of execution principle (Lubenets, 2014). It is worth noting that today a very large number of cryptocurrency exists. Cryptocurrency market (or “virtual” money) operates successfully and provides an opportunity to analyse dynamics of the cost, supply, and demand of about 90-100 different cryptocurrency. Among the largest in terms of capitalization cryptocurrency, such as Bitcoin, Ethereum, Ethereum Classic, Dash, Ripple, Monero, Litecoin, NEM, Augur, MaidSafeCoin, and others (The exchange rate of Bitcoin, n.d.). The most common and most expensive cryptocurrency is Bitcoin. The term “Bitcoin” is formed by merging the words: “bit” (a unit of computer memory) and “coin” (money) (Likhachov, 2017).

Despite increasing popularity of cryptocurrency in Ukraine and throughout the world, a single clear definition of this concept has not been provided for yet. This article maintains that cryptocurrency is a digital decentralized currency, a unit of which is a coin cryptographically protected against tampering, since it is an encrypted information that cannot be copied, while all information about transactions is stored in the blockchain system (Cryptocurrency: collect in the crypt, n.d.). According to Nikitin, cryptocurrency, for example, Bitcoin, possesses following features: 1) it is an electronic monetary unit, a virtual means for mutual settlements and accumulation; 2) it does not depend on any national currency; 3) Bitcoin is based on the “peering principle” that determines decentralization of Bitcoin, that is, its separation from administration by any government agency; 4) zero intrinsic value (Nikitin, 2014).

Frequently, ordinary citizens identify cryptocurrency with “electronic money,” which is not correct certainly. Therefore, in order to avoid confusion in this matter, the viewpoint of Senior Lawyer of the international company “LEMAN International Law Group” S. Nakonechnyi is worth noting, whereby the main differences between cryptocurrency and electronic money are: first, cryptocurrency does not mean debt obligations of its owner, holder or issuer (in fact, the issuer of cryptocurrency does not exist at all); second, cryptocurrency system has neither a single emission centre nor a central administrator; third, payments within certain cryptocurrency system can be made completely anonymous, that is, payers and recipients of cryptocurrency are not under control by any third party, including public authorities (because electronic keys, which are used for the identification of the parties of cryptocurrency payments, do not contain any personal data of such participants of payments, and therefore, it is impossible to identify such parties of cryptocurrency payments); fourth, possible creation of new cryptocurrency types or increase of cryptocurrency within one cryptocurrency system (mining) that lead to enlargement of the number of cryptocurrency units without any further affixed obligations to ensure such cryptocurrency, as well as ability of provision based on mathematical algorithms using the calculating power of computers of persons, who mine cryptocurrency additional units. Accordingly, the rate of new cryptocurrency unit generation decreases together with the increase in total weight of cryptocurrency, while in case of reaching a certain total number of units, generation of additional cryptocurrency units will be technically impossible (for example, in the case of achieving 21 million Bitcoins); fifth, legally electronic money is tied to a sovereign national currency and the issuer, while cryptocurrency cannot be tied to any currency of the world, and in essence, is an independent currency (Nakonechnyi, 2017).



### 3. Current legal status of cryptocurrency in Ukraine

In Ukraine, an attitude to any cryptocurrency is ambiguous, while lawyers and economists assess its existence and active use differently. In particular, the former see only shortcomings in it and the latter note mainly positive points. Therefore, scientists advocate cryptocurrency as an alternative expression of normal currency with several advantages (Bitcoin system: pros and cons, 2015): 1) cryptocurrency transactions are completely anonymous and confidential. All transaction information is encrypted in a set of characters, personal data is not linked up to a cryptocurrency wallet; 2) each cryptocurrency unit has a unique code and is protected against forgery; 3) cryptocurrency is decentralized, with no control centre, which is why the founder of digital money or any financial institution cannot affect its existence. The users of electronic wallets regulate currency exchange and transactions; 4) each unit of cryptocurrency is not tied up to any of the banks that significantly reduces commission for transactions. The commission is usually the cost of energy resources spent on the transaction; 5) the absence of a bind to banks contributes to a significant reduction in time expenditures for cryptocurrency transactions. Usually confirmation of cryptocurrency transactions comes in a few seconds; 6) transactions are carried out directly between different owners of electronic wallets that contributes to speeding up of transactions and decreasing of commission; 7) the emission of most of the cryptocurrency types has the maximum threshold caused by the finite number of all possible combinations of characters that form each new cryptocurrency unit. This contributes to the reduction of unjustified money supply in circulation and reduction of inflation (Bitcoin system: pros and cons, 2015). The aforementioned opinion is substantiated and undoubtedly worthy of attention.

However, despite seeming advantages, lawyers are sceptical about cryptocurrency. For example, Andrii Chornous, a lawyer at the international law firm "INTEGRITES", notes the negative court practice in Bitcoin cases. According to him, only a clear definition of cryptocurrency in the regulations can correct this situation (Bitcoin in Ukraine: legal status, n.d.). K. Nikitin, a Russian lawyer, concludes that Bitcoin is a money surrogate and refers to an information message from Russian Financial Monitoring Service "On Cryptocurrency Use" of 06 February 2014, which directly states this term ("money surrogate") and emphasizes that the price for Bitcoin is determined solely by speculative actions, which create a risk of loss of value and, as a consequence, violation of rights of individuals holding Bitcoin (Nikitin, 2014).

Moreover, not only lawyers have a negative attitude towards cryptocurrency. Thus, in a letter of the NBU

No. 29-208/72889, dated 2014, December 08, the issuance of the virtual currency Bitcoin is provided for as one that has no intrinsic value, is not a liability of any individual or institution, nor backed by any authority. Therefore, according to the NBU, Bitcoin is a money surrogate, which has no intrinsic value. The National Bank emphasizes that purchase and sale of Bitcoin for US dollars or other foreign currency have signs of the so-called "financial pyramids" functioning and may indicate a potential involvement in dubious transactions in accordance with the legislation on counteraction to legalization (laundering) of proceeds from crime and terrorist financing (National Bank of Ukraine, 2014). Moreover, in the above-mentioned letter, the NBU warns citizens and legal entities about exchange of virtual currencies for goods or cash, as this implicates the risk of complete loss of funds in such transactions, as well as the risk of involving such persons in activities, related to the legalization (laundering) of proceeds from crime and terrorist financing. In order to protect the rights of consumers, safety of funds transfer, the National Bank of Ukraine recommends citizens to use only services of those payment systems, transaction systems, included by the National Bank of Ukraine to the Register of payment systems, transaction systems, participants of these systems, and payment service providers (National Bank of Ukraine, 2014).

Therefore, summing up the above, the following can be stated:

- first, from an economic perspective, cryptocurrency is an interesting phenomenon, which has a number of positive features and advantages over other currencies, for example: it is not influenced by inflation in any way; using it each person can earn profits (obviously aware of certain risks);
- second, its use entails certain risks for cryptocurrency holders. Thus, one of the main risks is almost no legal protection of the rights of citizens in case of committing offenses against them in this sphere (Drozd et al., 2017);
- third, the use of cryptocurrency may entail a number of negative consequences for the state, in particular: 1) taking into account the peculiarity of using cryptocurrency (such as anonymity, etc.), it is possible to "launder" money gained criminally; 2) a person can withdraw money from Ukraine, avoiding payment of taxes and other obligatory payments; 3) payment of income tax, which individuals receive from cryptocurrency transactions, is undeveloped;
- fourth, the essence of cryptocurrency (for example, Bitcoin) is a kind of start-up, and that is why it is difficult to predict its further development.

Therefore, there are two ways to solve the abovementioned issues. The first is to ban completely the use of cryptocurrency in Ukraine with subsequent blocking of relevant sites. However, in practice, this method has turned out to be ineffective because the experience of blocking social networks "mail.

ru” “ВКонтакте” [“VKontakte”], “Одноклассники” [“Odnoklassniki”] etc. showed that interested parties could use special freely accessible programs that allow bypassing these restrictions. Therefore, the state should create an appropriate legal framework for resolving issues related to cryptocurrency in Ukraine. This requires analysis of the experience of those countries that have already paid attention to this issue at the legislative level.

#### 4. Overview of the approaches towards cryptocurrency regulation across the globe

Therefore, considering European experience in regulating the use of cryptocurrency, Germany should be mentioned first. The Federal Financial Supervisory Authority defines virtual currencies as financial instruments. According to German law, they are a form of “private money” that can be taxed as capital. The creation of virtual money, as well as their use as a means of payment, does not require any permission. If virtual money is sold, it is considered a financial instrument and needs to be licensed in accordance with the German Banking Act (Kreditwesengesetz, KWG). Any commercial use of the virtual currency requires licensing (Comparative review of foreign legislation, n.d.). It should be noted that cryptocurrency in Germany is subject to 25 percent tax on capital gains but it is held only if the income has been obtained within one year after receiving Bitcoin. Thus, if the sale of Bitcoin is held more than a year after purchase, it will not be taxed on capital gains and the transaction will be treated as “private sale”. In Germany, Bitcoin is considered an analogue of other investment instruments such as stocks or bonds (Tax on cryptocurrency, 2017). Therefore, summing up Germany’s experience in regulating cryptocurrency, it is worth noting that in this state, cryptocurrency is recognized as one of the varieties of currency, which undoubtedly confirms its popularity. In addition, most Germans who use cryptocurrency avoid 25% of income tax when dealing with it. So far, the authorities of Germany should decide on how to develop legal regulation to solve avoiding income tax.

Another interesting example is the experience of the UK, where, in 2015, was stated that the government would take a direct part in regulating the activity of bitcoin and introducing innovations in the country. Thus, in 2017, the Exchequer published a project of a financial innovative plan, in which the government supported digital currency exchange, and would promote the creation of an appropriate environment for virtual money (Leshchynshyn, 2017). The Bank of England does not consider virtual currency as a threat to the monetary or financial stability of the United Kingdom, but the government will necessarily take a direct part in controlling and monitoring the situation of Bitcoin and other cryptocurrencies in the UK market. This suggests

a possibility of integrating cryptocurrency technologies into current payment system and improving it, as well as making a foreign exchange policy flexible (Leshchynshyn, 2017; Deciphering cryptocurrencies, n.d.). Moreover, the Bank of England has chosen a group of researchers to study the possibility of issuing cryptocurrency by the central bank. In order to prevent volatility, observed in Bitcoin, cryptocurrency will be supported by the Bank of England and will be tied to the pound sterling, the national currency of the country. The bank expects that the research institution will report on findings in mid-2018. Such an idea seems quite promising because the creation of a national cryptocurrency will allow, first, effective state control over its circulation, and second, give additional guarantees to citizens and the state.

The experience of the United States of America, where Bitcoin is recognized as one of the types of payments in e-commerce, cannot be overlooked. In the United States, cases of salaries for civil servants in Bitcoin are frequent. In addition, Bitcoin is accepted for payment in many restaurants, hotels, and stores in a number of countries around the world. Most scholars state that the United States of America is one of the most convenient countries in the world for cryptocurrency business. In this country, large hedge funds, exchanges, and other companies related to cryptography are incorporated and for many goods and services, one can pay not only fiat currency (money, which nominal value is established and guaranteed by the state) or electronic money but also digital. In the United States, ATMs, which allow fiduciary money and cryptocurrency to be exchanged, are also available (Cryptocurrency in the world, 2017).

Regarding the legal regulation of cryptocurrency, the state of California was the first to allow the use of cryptocurrency by adopting Assembly Bill 129. This law provides for a corporation, association or individual to participate in circulation, as money, anything that differs from lawful payment systems. Nevertheless, Assembly Bill 129 does not regulate the introduction of cryptocurrency. In New York, in August 2015, the Department of Financial Services was provided for the legal regulation in the New York Codes, Rules and Regulations. Adoption of Bitlicense, a license to enter cryptocurrency business, possesses both upsides and downsides (Comparative review of foreign legislation, n.d.; Torpey, n.d.). As for the US litigation practice, decisions of judges of different states lead to the conclusion that the result of cases differs significantly sometimes. Decisions of the District Court Judge of the Eastern District of Texas and the District Court of Florida serve as an example. In the first case, Bitcoin was determined as currency and certain legislation to transactions with this cryptocurrency was applied. In the second case, the court ruled and proclaimed the opposite, which led to the removal of charges regarding the legalization (laundering) of proceeds from crime (Comparative review of foreign legislation, n.d.; Torpey, n.d.). Therefore, United

States legislation on cryptocurrency is one of the most developed in the world. Nevertheless, two aspects may be of special consideration to Ukraine: first, nowadays the United States works actively on the unification of cryptocurrency, in particular, a system of an equal solution of court cases is being formed; and second, in this country, cryptocurrency is considered the property for tax purposes.

Reference should be made to the experience of Japan, which is a global leader in innovation. It is Japan, as mentioned above, where the pseudonym of the founder of Bitcoin, Satoshi Nakamoto, reaches its linguistic roots. In April 2017, Japan legalized cryptocurrency as a form of payment, which is why the interest in Bitcoin continues to grow steadily in the country. In addition, according to company statements in cryptocurrency, such as Coincheck, this year, thousands of traders would start accepting a virtual currency for payment. It should be noted that, in Japan, The Japan Authority of Digital Asset operates as a self-regulating body. In the same year, the law on regulation of exchanges operation was passed: they must be registered at the Financial Services Agency, which can monitor such a business and apply administrative measures in relation to it. In accordance with this law, cryptocurrency is a value similar to assets (Cryptocurrency in the world, 2017). From the beginning of January 2018, in Japan, there is a "cryptocurrency boom" because everybody buys it up, while the Japanese almost refuse from the real currency. This is primarily due to the legalization of cryptocurrency in the state.

Thus, Japan, in comparison with other countries of the world, has made tremendous strides in cryptocurrency usage and legislation that regulates it. This can be explained by the following: first, Japan has been the source of global innovation in various spheres for the last decades; second, the high internal discipline of the Japanese, which is of importance in cryptocurrency usage; third, in this country, two types of cryptocurrency have been legalized. As regards benefits of Japan's experience in Ukraine, the introduction of a supervisory authority, which would oversee and monitor cryptocurrency exchange activities to prevent violations of the rights of citizens in transactions on this exchange, would be helpful.

On the contrary, in another eastern country, the People's Republic of China, Chinese authorities began to restrict cryptocurrency circulation. At the end of September 2017, the People's Bank of China has banned the sale of cryptocurrency within the country. Two leading exchanges in China were warned about trading cessation; for the fear of persecution, Bitcoin owners began to transfer chats from the WeChat, controlled by authorities, to the illegal Telegram. In addition, the People's Bank of China has announced illegal operations related to ICO. Officials explained that such investment carried financial risks and sometimes

turned out to be fraud. The authorities ordered to stop all campaigns. Organizations and individuals, who have already completed investment, have to return funds to investors (China kills Bitcoin, 2018). Such actions by the authorities of the People's Republic of China caused the collapse of Bitcoin exchange rate by almost two thousand dollars in two weeks. On September 1, Bitcoin costs five thousand dollars, once again updating the historical maximum. Three days later, the exchange rate of cryptocurrency began to decline sharply. The actions of the Chinese authorities had such a significant impact on cryptocurrency because two-thirds of all Bitcoin is mined in this country (mainly because of cheap electricity) (China collapsed the exchange rate, 2017). Among the main reasons of ban on cryptocurrency by Chinese authorities, several factors need to be mentioned: first, the cryptocurrency mining requires extra electricity costs; second, during the years of the growth of this currency, the state became aware that this currency was not backed up and carried financial risks, in particular, money laundering. Thus, China was one of the first countries in the world that decided radically on the issue of cryptocurrency completely banning it. Therefore, compliance with this provision in the People's Republic of China is beyond question due to citizens' mentality of high internal discipline and respect for authorities' orders, prohibitions, etc.

## 5. Conclusions

Considering all the material presented in this scientific research, it is worth noting that the issue of legal regulation of cryptocurrency is relevant not only in Ukraine but also in many other countries of the world. Nowadays, Ukraine is neutral on the issue of using and regulating cryptocurrency and consequently it is losing precious time, because: first, potentially loses money, which could enter the state budget from individuals, who receive income from transactions on cryptocurrency markets; and second, the state runs a risk of citizens' rights violation, because of no real instruments for their protection.

As for other countries' experience in the legal regulation of cryptocurrency, the following positive points can be used in Ukraine:

- to introduce a system of strict control over brokerage firms dealing with cryptocurrency (experience in Japan);
- to take a tough position regarding the status of cryptocurrency in Ukraine;
- to introduce licensing of cryptocurrency exchanges (Germany, Japan);
- to define cryptocurrency as a property for tax purposes (US and German's experience);
- to adopt laws and regulations on relations in this area and protect the rights of citizens from violations against them;
- to establish liability for the violation of the relevant legislation.

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# MODELS FOR INNOVATION DEVELOPMENT OF RURAL TERRITORIES BASED ON INFRASTRUCTURE DEVELOPMENT

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**Abstract.** *The research subject* is an aggregate of theoretic and methodical grounds for choice and organization of rural development innovation models based on infrastructure development, taking into consideration the world experience. Methodological and theoretical ground for the research is a systematic approach for studying social-economic and ecologic phenomena and processes under the market conditions. In order to solve some tasks, there are used several methods: abstract-logical method to determine the conception and methods of analysis and synthesis. *The aim of the research* is to study the models for innovation development of rural territories based on infrastructure development. *Conclusions.* Segregate scientific approaches to form the model of rural economy are ruralism and neoruralism. Ruralism is a way of thinking and idea representing ruralisation in the human community, the development of which is focused on securing food supply and needs of those who live and work in rural areas. Neoruralism is a multifunctional social-economic system, which is focused on broadening of powers for united territorial communities. The rural economy here is an open system, focused on securing rural inhabitants welfare. The idea that agricultural changes in terms of modern tendencies and effective models of rural development, especially in the sphere of agricultural modernization, as a ground for its sustaining power, improvement of competitive ability for agricultural production and to meet the WTO Ukrainian member requirements is proved. Strategic benchmarks for Ukrainian rural areas in accordance with the requirements of Europe 2020 strategy are smart development – balanced development of the economy and social sphere; constant development – abide by scientifically proved norms; inclusive development – taking into consideration social standards for development. Special institutions determining law institutional mechanism of innovation development are very important for the revival of rural areas and infrastructure development.

**Key words:** development model, rural areas, estimation, infrastructure, social sphere.

**JEL Classification:** F140, Q180

## 1. Introduction

Rural areas are the important element of life in any country, developing under the conditions of market economy, they have a great economic, natural, demographic, and socio-cultural potential. Utilization of such potential in many ways determines the development of certain regions. That is why any country must consider the development of rural areas as an important step, not only for the improvement of agricultural productivity but also for increasing of GDP in the whole. We must also determine the development of rural areas choosing a particular model able to solve the existing tasks.

The existing model for agrarian sector development, where large agrarian holdings have the dominant role, has negative ecologic and social effect. Ineffective utilization of key asset – land is in the first place. Large agrarian holdings renting more than a half of all

agricultural lands grow only highly productive cultures, without following crop rotation measures, they use great numbers of chemicals without application of organic fertilizers. Such technologies lead to soil fertility fall. Soils are vulnerable to water and wind erosion. Utilization of “monoculture” leads to accumulation of heavy metals, pesticides, and pathogenic agents in soil. Wrong crop rotation leads to large numbers of weeds and pests.

Practically all production of large agrarian holdings is exported as a raw material. So, producers do not get added value from procession and marketing. It damages agricultural complex, leads to increase in unemployment rates in rural areas and restrain the development of social and productive infrastructure.

Besides, holdings, having modern wide agricultural machinery, a number of storage facilities and resources for chemical fertilization, leave small farms and agricultural enterprises as non-competitive. It leads to a

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reduction in a number of such enterprises and decrease in production of food crops, grown on small farms. Holdings do not invest much in the development of rural infrastructure especially social and productive.

Taking into consideration the depression of rural areas, we consider the tendency to decrease in purchasing power for food products. It restrains the eco production, which is highly important in the formation of a healthy nation. Among the challenges of the agrarian sector is the lack of commercial, law, and market information needed by stakeholders, it restricts their investment activity. Unpredicted changes in taxation system also have a negative effect on the agrarian sector. All these points need to be urgently changed together with the implementation of new legislation considering the agrarian sector. Everything mentioned above needs new models for innovation development of rural areas based on infrastructure development

## 2. Research and literature analysis

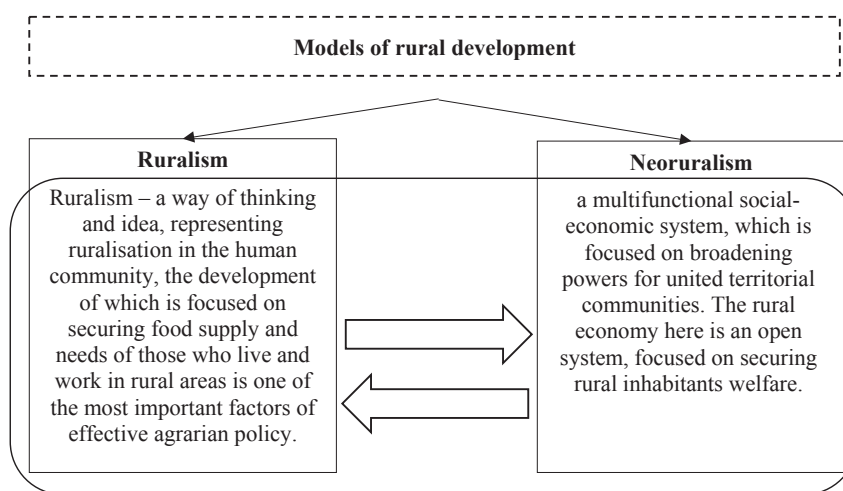
Theoretical grounds for innovations in agrarian infrastructure development and theoretical and methodological paradigm of rural areas development and rural economy in particular have been studied by famous Ukrainian and foreign scientist. T. M. Lozynska has studied the institutional inefficiency of transformations in the agrarian sector (Lozynska, 2012). Tendencies, subjects, and prospects of reforming rural areas are the research subject of A. Yermolaiev, I. Klimenko, V. Yemets, S. Taran (Yermolaiev, 2015). Current state and prospects of international integration of agrarian sector have been studied by Y.O. Lupenko (Lupenko, 2015) and P. T. Sabluk (Sabluk, 2006). M. O. Baranovskyi has studied the rural areas in the context of the level of their development, transformational changes, and conceptual approaches (Baranovskyi, 2011). M. B. Polenkova

studied the economic complex of rural areas and its integral aspect, in particular (Polenkova, 2013). A. V. Lisovyi studied methodological approaches to the assessment of rural areas in Ukraine and their need for innovation development and creation of infrastructure (Lisovyi, 2013). However, a great number of other points in innovation development for rural areas still demand a research work.

## 3. Research materials

Problems of rural areas are evident and if the situation gets worth, it will cause the danger to territorial balance. The characteristic feature of the process is dissolution of many locations from the map of Ukraine. As it is known, the reason for it is a crisis in the basic brunch of economy – agriculture. M. Baranovskyi studying the conceptual approaches for reformation of agricultural sector, mentioned that Ukraine for many years had one way of rural development, despite its agrarian potential, it had agrarian tendency without development of any other productions (Baranovskyi, 2012). The mentioned above facts show the need for theoretical and methodological research in the sphere of systematic development for rural areas with innovation models adapted to modern challenges.

Scientific researches of Ukrainian and foreign scientists, based on classic approaches to agricultural economics concerning the specifics of native agrarian sector development became the ground for models of agricultural development. Scientific researches of agrarian economists are important for further research work and creation of strategic vectors for further development of rural areas. The mentioned researches give the opportunity to separate two development models for rural areas based on innovations: ruralism and neoruralism (Fig. 1).



**Fig. 1. Scientific approaches to form the model of the rural economy according to the principles of ruralism and neoruralism**

Source: the author's research

Theoretical and methodological approaches of ruralism and neoruralism have several levels: global and national. Studies of the global level analyse the points of natural, spiritual, and economic development of rural areas under the conditions of modern challenges connected with the changes of the world markets, growing food supply problems and urbanization. National level studies specific characteristics of a particular country, its resources, peculiarities of production, and models of development. Neoruralism, extended under the conditions of decentralization and broadening of powers for united territorial communities, having enough financial resources and the ability to use active assets, is concentrated in rural areas, new communities can solve a great number of economic, ecologic, and social problems.

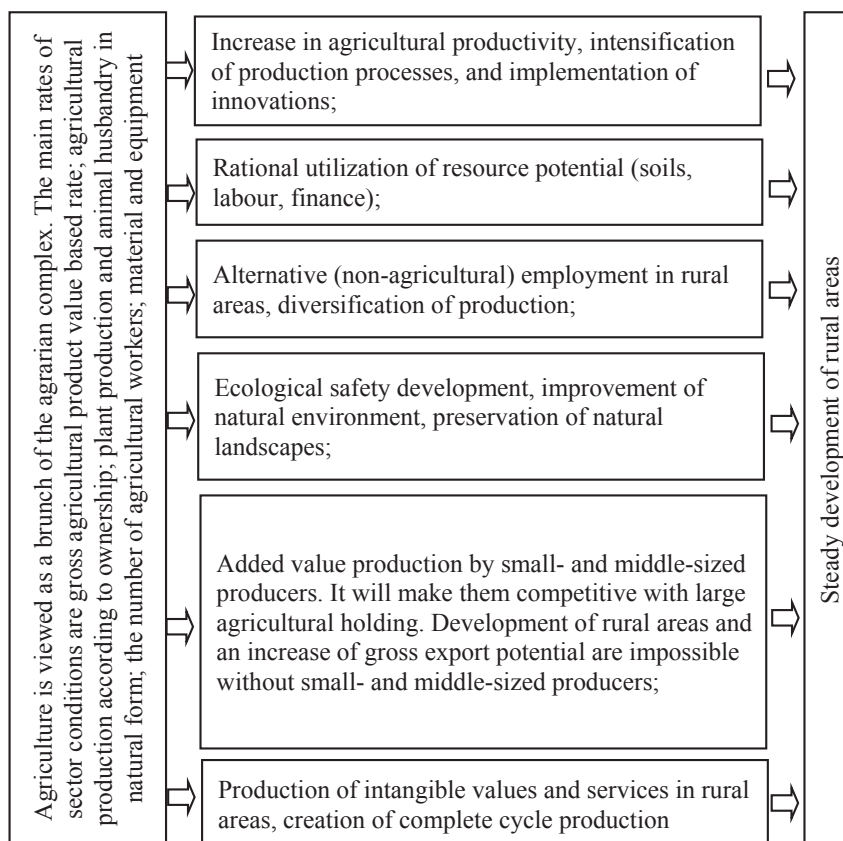
Despite the number of the researches, the formation of the new socially oriented economy is an urgent problem and needs further research work. P. M. Matvieiev, studying ecologic and economic grounds for the formation of effective agricultural production, states that the key branch of the real economy sector is agriculture, effective and rational development of which is a guarantee for food and ecological safety of any country (Matvieiev, 2014). A. V. Lisovyi, studying the methodical

approaches to assessment of rural areas and the need of innovation and infrastructure development, proved that agriculture gradually becomes the indicator of economic development, showing a good economic efficiency of agricultural production, steady increase of innovation ability and investment prospects (Lisovyi, 2007).

Current state and challenges of agrarian land transformations in Ukraine have been studied by A. Yurchenko. Taking into consideration the fact that agriculture is an important factor of welfare, the author says that there is a need for a certain model providing steady development of the sector. Ukraine due to existing soil resources and favourable climatic conditions is highly competitive on the world market (Yurchenko, 2015). An important part of steady development for rural areas is effective functioning of agriculture, being presented in multifunctional production (Fig. 2).

O. M. Borodina, describing the rural development policy based on united communities in Ukraine proves that multifunctional conception is a methodological ground for strategies for the agrarian sector in many countries of the world and in European Union in particular (Borodina, 2015).

Under the conditions of globalization and growing competition among the world producers of agricultural



**Fig. 2. Parts of a steady agricultural development as a system-forming part of the agrarian sector**

Source: the author's research

production, it is important to develop models of future development for the agrarian sector and rural areas, with a system of assessment for it (Fig. 3).

Grouping of indicators allows forming four groups, depending on their functional purpose: economic – characterize economic effectiveness, institutional – characterize the level of legislation, social – characterize social effectiveness, ecological – characterize the level of the ecological environment. In order to secure the development of rural areas, according to neorural model, it is necessary to develop and confirm the long-term oriented plan of rural development. One of the most important parts of this process is scientific and research work. It contains initiation for development, making the idea popular, the creation of a work group to provide scientific researches. Scientific research work, in its turn, is held in two directions. The first, the assessment of territorial competitive ability, the second is an assessment of competitive advantages and critical challenges of territorial development. The final point of the research work is in discussion and confirmation of the research results.

The planning system has three-way activity, devoted to the development of systematic, special multisectoral programs and projects based on competitive advantages. Here we can mention human resources, spatial planning, and electronic government. The development of programs involves a power supply, environment protection, modernization of living conditions. In Ukraine realization of such incentives is a problem because of the lack of financial support. Agrarian sector of EU depends on donations and gets lots of financial resources for the development. Decentralization is one of the reforming measures providing accumulation of the financial resources needed. The process of government decentralization and reformation of local authorities is a priority of modern Ukrainian policy. It must have a positive effect on the development of rural areas (Fig. 4).

Under the conditions of decentralization and reformation of the management system and growing of agrarian sector, it is impossible to do so without the development of infrastructure. It is important now to form a united

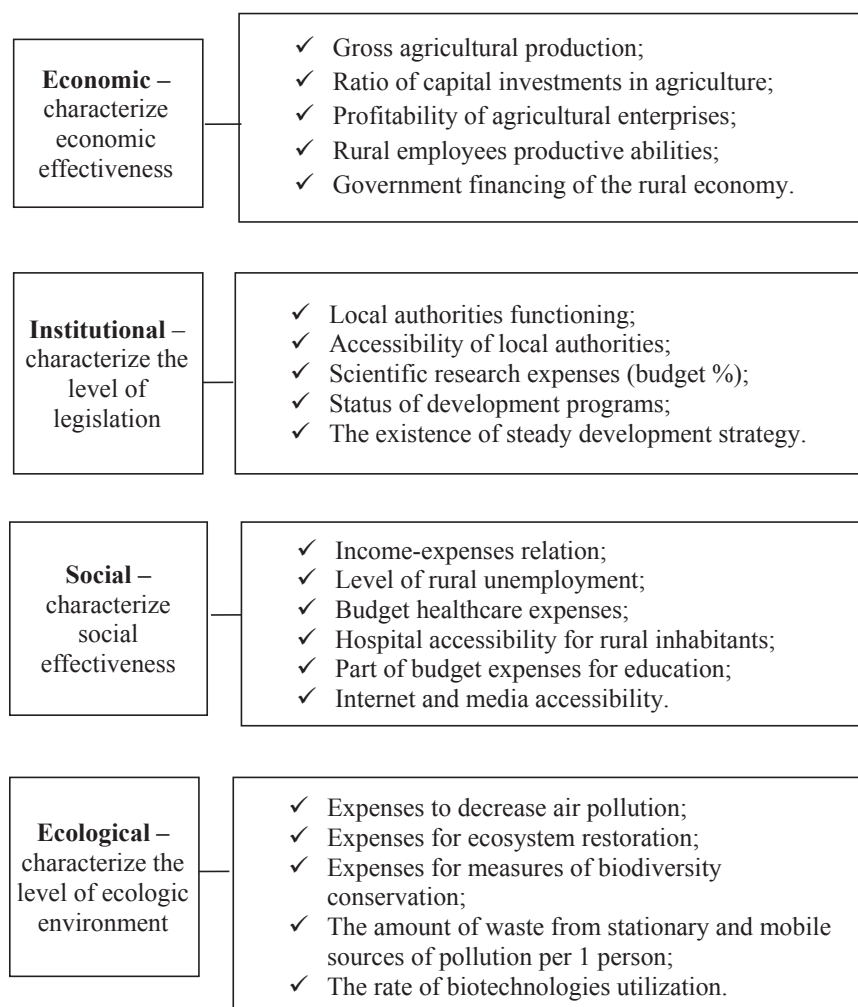
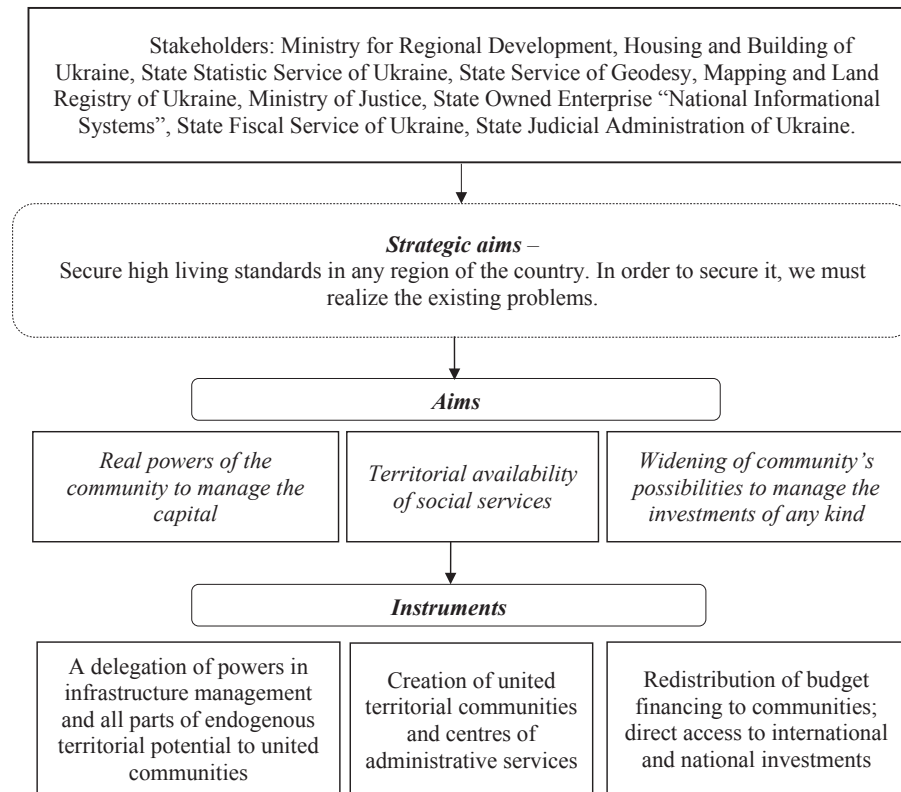


Fig. 3. Set of indicators for the assessment of models for rural development

Source: the author's research





**Fig. 4. Aims for the development of rural areas under the conditions of decentralization and widening of united territorial communities powers**

Source: the author's research

organizational, economic, finance, investment and logistic system of development. All of them are closely connected and form the united system of infrastructure development. Having a base in the neorural idea, decentralization gave the local authorities an opportunity to improve the conditions for local business. The principle is easy to understand – the better conditions local enterprises have, the better financing a local budget has.

#### 4. Conclusions

The model of decentralization chosen, having a base in the neorural idea, is an important step of rural areas development. First steps in uniting the communities have positive results; today we need a special strategy and system of problem-solving for further development.

First of all, we must consider the functions of rural territories. It contains: productive-economic, sanative-recreational, environment protection and social functions. The productive-economic function is of a global character, as it is a decision for Food Safety Program of our country, and provides the rural community with the inputs and clear legislation in the market for agricultural production.

Together with economic problems, we need to solve ecologic problems; these ecologic problems contain sanative-recreational and environmental protection.

Ecotourism must be an integral part of rural development. Environment protection and rational utilization of natural resources must be a dominant function in rural areas.

Social content is one more important point of rural functioning. Here is the development of infrastructure, whole year employment of rural inhabitants, the creation of conditions for labour and rest needed for educational, cultural, and health development.

In order to solve these problems, we need to proceed in the revival of rural territories and create conditions for steady development. But first of all, we must consider the social purposes for rural areas. All above mentioned requires control of recourses utilization, especially for the agricultural lands, increase soil productivity and protection of the environment.

The main aims of rural development, under the conditions of decentralization model, are real managing power of united communities, making the social services available and others. According to the research data, monitoring of the process of decentralization, we have some positive results. As of 17 October 2017, 665 united territorial communities have been created. 252 communities have the desire to run in the elections, it is a positive impulse, showing a good performance in the development of rural areas, having a positive effect on the social and productive sphere.

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# OVERCOMING CORRUPTION AS THE BASIS OF EFFECTIVE PUBLIC GOVERNANCE AND SUSTAINABLE ECONOMIC DEVELOPMENT OF THE COUNTRY

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**Abstract.** The *purpose* of the paper is to substantiate the means of overcoming corruption in order to ensure effective state governance and sustainable economic development of the country. *Methodology.* The research is based on a systematic approach to studying aspects of overcoming corruption as a basis for effective public administration and sustainable economic development of the country. The following methods are used: the method of induction (while determining the impact of corruption on society); the method of analysis (while determining the means for effective fight against corruption); synthesis (while generalizing the main causes of corruption in Ukraine), the method of hypotheses (while determining ways to support effective public administration in Ukraine). *Results.* The destructive effects of corruption are considered at two levels: at the state level (national level) and at the level of citizen (personal level). The state is formed by people, and their tolerance to corruption depends on their value systems and a vital position formed by society and family. The one can fight against corruption effectively, first of all, by forming the competence of “responsibility” in the citizens of the country, that is, their conscious attitude to the requirements of society, the ability to be responsible for their own lives and actions. Anti-corruption tools are investigated at the state level and at the level of personality formation. Effective governance under the influence of corruption pressure not only prevents the country from developing in a normal way, inhibiting foreign investment and reducing national wealth, but also activating the migration outflow of a responsible part of the population, the best part of the national gene pool, thereby destroying the nation. The fight against corruption at the state level should begin with the fight against corruption at the level of education of the individual, first of all, by forming the competence of the “responsibility” in the citizens of the country, that is, their conscious attitude to the requirements of society, the ability to be responsible for their own lives and actions. *Practical implications.* Using global experience in the fight against corruption, the following strategic measures are proposed: government data and information on tax revenues, as well as on funds from international organizations should be freely used by citizens (Ukrainian ministries’ websites contains no transparent and detailed data); create an active forum for government officials, civil society, private sector leaders, and other members of “Anticorruption Initiatives”, which will provide an opportunity to fight against corruption and protect interests of the population in many areas, including the most risky, such as medical procurement; publish all data on public expenditure on the Open Government Portal – the data warehouse of world-wide budgets created by the World Bank Group; to create information and technological infrastructure that will allow the widespread use of electronic services (from the payment of taxes through the Internet to filling out the prescriptions of doctors); provide the opportunity to send instant text messages from citizens’ mobile phones to a specified address in order to provide feedback, submitting suggestions, or reporting a problem related to public services. *Value/originality.* The means of overcoming corruption are substantiated in order to ensure effective public administration and sustainable economic development of the country.

**Key words:** responsibility, corruption, sustainable economic development, society, governance.

**JEL Classification:** H70, E60, I28

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## 1. Introduction

Effective public administration is relevant to all countries of the world, but it is of paramount importance to developing countries looking for their place in the world community. In the absence of decent public administration, governments cannot effectively provide public services; health and education services are often poor; bribery flourishes, as well as illegal appropriation of goods and services intended for public consumption, the giving of benefits to family members in hiring, lobbying at the approval of laws and regulations for the purpose of obtaining personal gain. All this leads to the fact that the country that receives funds for development from international organizations does not show any progress because it is necessary to overcome corruption in the government before reforming in any field.

In particular, in Ukraine, where the fight against corruption was declared the main priority, the Corruption Perceptions Index (SRI) for 2016 was 29 out of 100, which is only 2 points more than in 2015. Such a slight increase in the Corruption Perceptions Index cannot be considered a victory for democracy in the country since, in recent years, the Index did not reach even 30 points – the lower limit of the relative effectiveness of the fight against corruption (Corruption Perceptions Index, 2016). Therefore, it is important to determine the causal relationships of corruption and sustainable development of the state, to form a negative attitude towards corruption in society, as well as to form the competence of “responsibility” in the citizens and future civil servants at the mental level as a pledge of countering corruption.

## 2. Analysis of recent research and publications

Many aspects of the fight against corruption have been considered by many scholars. Thus, A.V. Solonar, I.I. Zymohliad (Solonar, 2016) have investigated international experience in identifying and overcoming both the phenomenon of corruption and its causes for further use in order to develop proposals for improving Ukraine’s legislation in the field of prevention and counteraction of corruption in public authorities.

V.O. Veklych defines in his writings the subjective and objective factors influencing the anti-corruption activity, fairly pointing out that the actual state of social relations, which precondition is not only material factors but also ideological ones, acts as an object of anti-corruption struggle. The author also notes that “further improvement in the context of the organization of anti-corruption struggle should be carried out with a clear understanding of the complex nature of the corruption environment, which requires further scientific developments and developments in this area. Only under such conditions, the fight against corruption can be truly effective and practically oriented” (Veklych, 2017).

Yu. Repilo, S. Tarasov (Repilo, 2016) consider corruption in the security and defence sector, where there are favourable conditions for its emergence, growth, and spread, the threat to the effectiveness of the preparation and use of military formations in armed conflicts, analyse corruption threats in a conflict environment, develop a classification of corruption threats by the appropriate types and categories, and offer a system of indicators of corruption threats.

T. Semkiv (Semkiv, 2017) studies the implementation of the institute of integrity inspections in Ukrainian legislation. One can agree with the author that the approach to the implementation of the Anti-Corruption Strategy for 2014–2017 as a part of the implementation of the institute of integrity inspections should be revised at the legislative level in order to ensure its functioning, and, taking into account the declaration of integrity inspections as an effective instrument for the fight against corruption, the implementation of this institution should have a systematic nature, extending to the employees of all law enforcement agencies, civil servants, other persons authorized to perform functions of the state or local self-government.

You should also agree with V.E. Bodnar (Bodnar, 2017), who points out that it is expedient to implement in the domestic legislation a positive foreign experience in carrying out anti-corruption measures to improve the theoretical, legal, and organizational principles for combating crime in the area of official activity, but this experience is considered by the author only regarding employees of the units of the National Police of Ukraine. Unsettled issues that are a part of a common problem. Thus, the problem of the awareness of the impossibility of coexistence of corruption and effective state administration and, accordingly, sustainable economic development of the state remains uncovered in the writings of scientists and requires in-depth study to develop measures to overcome corruption at the state level and citizen level.

## 3. Findings

According to a World Bank study, corruption is a major challenge for achieving the two main goals of sustainable development: to eradicate poverty by 2030 and improve overall prosperity for the poorest 40% of people in developing countries. Every year, the estimated amount of businesses and individuals spending on bribes is 1.5 trillion dollars (about 2% of world GDP). World Bank empirical studies have shown, for example, that in Paraguay poor people spend 12.6% of their income on bribes, high-income households spend 6.4% on the same purpose, in Sierra Leone these figures are 13% and 3%, 8% respectively. Each stolen dollar, euro, peso, yuan or hryvnia deprives poor people of equal opportunities in life (Worldbank, 2017).

Sustainable economic development of the state is characterized by economic growth, which provides a vital activity for citizens, is determined by the ability of ecosystems to recover and does not lead to their destruction. Ensuring sustainable economic development of the state is possible on condition of changing of the social relations and creation of a society that will not ruin the environment of its existence. One of the main conditions for creating such a social relationship is to overcome corruption. In poor countries and countries with economies in transition, such as Ukraine, it is impossible to make a leap towards sustainable development without proper anti-corruption governance. It is especially important if the country receives international assistance in different spheres of life since corruption reduces the effectiveness of such assistance and ultimately leads to international organizations distrust of the recipient state.

In determining the causal link between corruption and the sustainable economic development of the state, it should be noted that the damage of development caused by corruption is, in fact, multiple of bribes, with a significant reduction in the country's economic growth. The World Bank's research shows that when countries are engaged in combating corruption, government revenues increase 4-fold in the long run, in the conditions of reduction in corruption, the business can grow by 3% faster, and child mortality rates may drop by 75%.

Sustainable economic development of the state is impossible in the conditions of shadow economy growth, which allows corruption to occur, with a

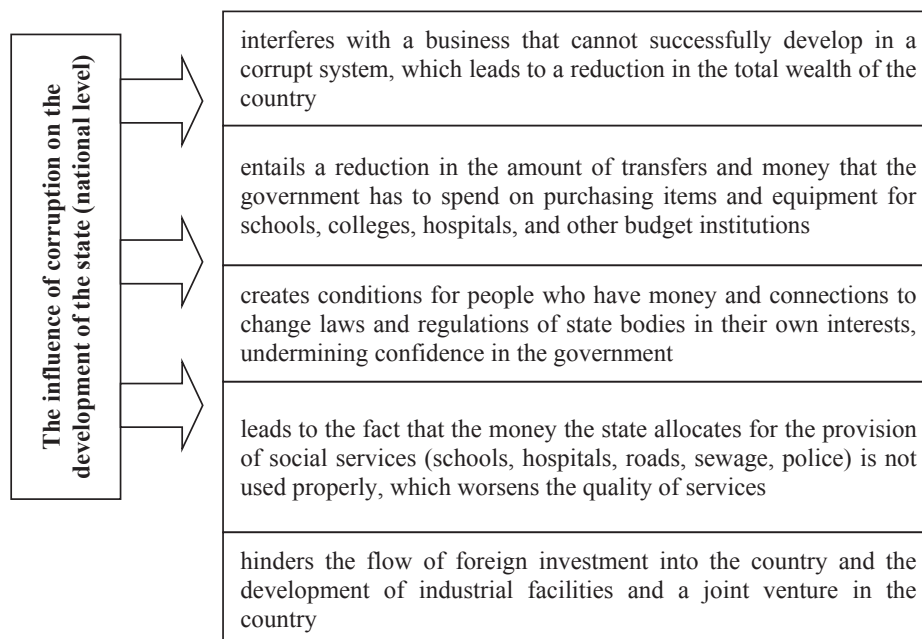
reduction in government revenue as a result of tax evasion; accordingly, a reduction in the amount of funds that can be used for innovative programs, such as the restoration of ecosystems, is obvious.

Corruption can also significantly affect the fundamental problems of the functioning of institutions. This form of corruption's impact on the sustainable economic development of the state is often the most expensive in terms of overall economic outcomes. In the context of corruption in the state, winners of government contracts are unfairly determined, friends or relatives of civil servants are awarded, while contracts that win and receive financing may threaten with the depletion of natural resources, deterioration of the environment. All this reduces the favourable investment climate in the country, the riskiness of investments is increasing, investors distrust the country; under conditions of systemic corruption in the country, a part of the money of investors should be directed towards bribes. At the same time, the cessation of investments in the country directly affects the slowing down of its innovative development.

Corruption also reduces the quality of public service provision, for example, when police officers demand a bribe to fulfil their immediate responsibilities. Fighting each of these corruption forms is the basis for making progress and sustainable changes.

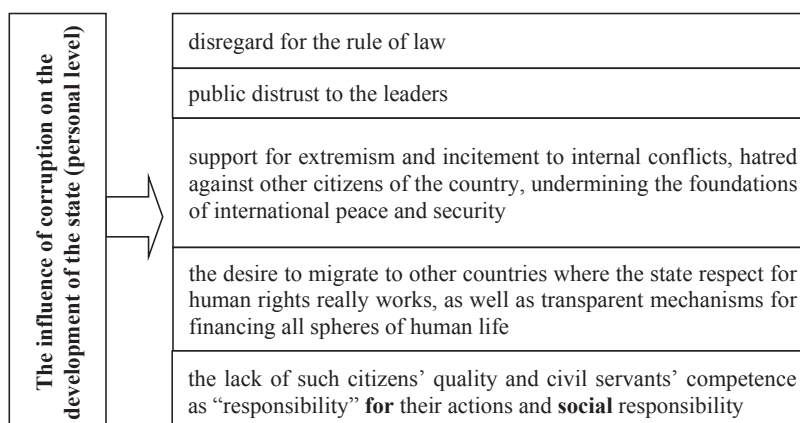
The destructive effects of corruption are to be considered at two levels: at the state level (national level) and at the level of citizen (personal level) (Fig. 1, 2).

Therefore, it should be mentioned that corruption not only prevents the country from developing in a normal



**Fig. 1. Impact of corruption on society at the state level (national level)**

*Compiled by the authors*



**Fig. 2. Impact of corruption on society at the citizen level (personal level)**

*Compiled by the authors*

way, inhibiting foreign investment, and reducing national wealth, but also activating the migration outflow of a responsible part of the population, the best part of the national gene pool, thereby destroying the nation.

According to the State Program on the Implementation of the Principles of State Anti-Corruption Policy in Ukraine (Anti-Corruption Strategy) for 2015–2017 (Decree No. 265 dated April 29, 2015), anticorruption examination of election legislation has been conducted and revised on the basis of conclusions on corruption-relatedness and European standards, the legislation on the implementation of the recommendations of the Group of States Against Corruption (GRECO) has been adopted in terms of establishing limits and ensuring transparency and accountability in the financing of political parties and election campaigns; legislation on the legal framework for lobbying has been adopted, legislation on strengthening public control over decision-making by elected officials, in particular, through the introduction of a mechanism for the preliminary public discussion of socially important decisions using positive domestic experience and on the basis of the best world practice has been adopted, the level of transparency of the activities of the Verkhovna Rada of Ukraine and local councils has been increased, in particular, by publishing information on the activities of the committees of the Verkhovna Rada of Ukraine and the local councils (in particular, protocols of meetings), the publication on the Internet of information on people's deputies of Ukraine and deputies of local councils (on their financing, business trips, assistants, their declarations of income, property, expenses and financial obligations, etc.), providing unimpeded access to information on estimates of representative bodies and reports on their use (On Approval of State Program on the Implementation of the Principles of State Anti-Corruption Policy in Ukraine (Anti-Corruption Strategy) for 2015–2017).

But taking into account that in 2016 Ukraine ranked 131st among 176 countries in the Corruption Perceptions Index (CPI), it should be noted that the

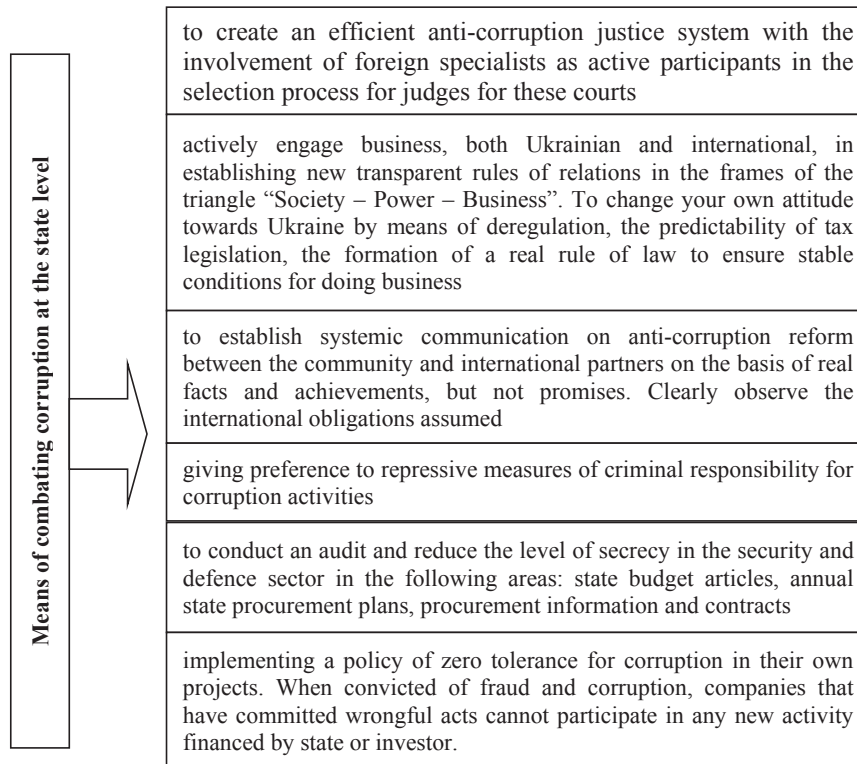
measures taken to combat corruption in Ukraine since the Revolution of Dignity have not given results and, accordingly, the effectiveness of international assistance in reforming of all areas of public life has been being very low. Often the most visible manifestation of corruption is the enrichment of public officials.

The main reasons for the ineffective fight against corruption in Ukraine are:

- lack of transparency (for example, government officials do not inform others about their actions, how and why they act, and do not explain their actions), corrupt civil servants can remit incomes from their crimes abroad and have accounts in foreign jurisdictions to avoid disclosure and make it easier to use their unlawful profits (Worldbank, 2017);
- low probability of exposure and impunity of illegal actions of officials;
- absence and disinterest of the higher authorities in reforming the judicial system;
- poverty, lack of goods, the need to receive something valuable yourself and disrespect to laws are instilled at the mental level;
- inefficiency of the system, which causes people to find a way to achieve their goals without taking into account the existing order and laws;
- lack of established competence of "responsibility" in the citizens and civil servants as a result of a long period of the destruction of individualism and the forced transition to collectivism in Soviet times.

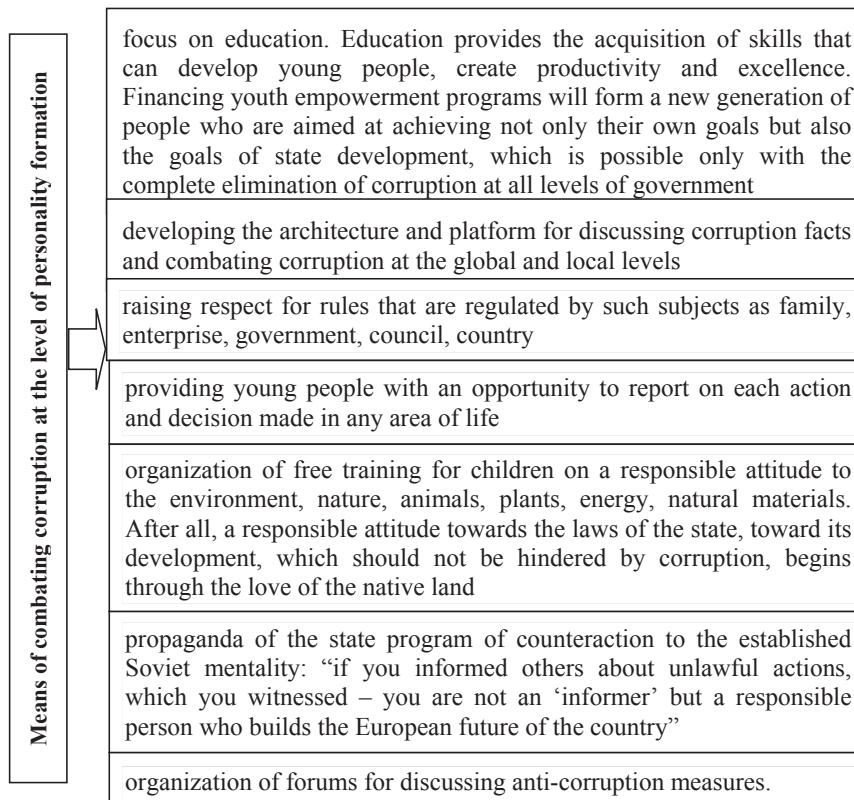
The fight against corruption, on the one hand, is closely linked to the improvement of the country's system of governance or the improvement of the formation of the government and the management of its activities and, on the other hand, it depends on the education of the individual by all social institutions within the state.

Means of combating corruption on two levels are presented in Fig. 3, 4.



**Fig. 3. Anti-corruption tools at the state level**

*Compiled by the authors based on Worldbank, 2017*



**Fig. 4. Means of combating corruption at the personality formation level**

*Compiled by the authors*

Fighting corruption at the state level is a derivative of combating corruption at the level of education of the individual. After all, the state is formed by people, and their tolerance to corruption depends on their value systems and a vital position formed by society and family. The one can fight against corruption effectively, first of all, by forming the competence of “responsibility” in the citizens of the country, that is, their conscious attitude to the requirements of society, the ability to be responsible for their own lives and actions.

At the same time, taking advantage of global experience in combating corruption, the following strategic measures should be proposed:

- government data and information on tax revenues, as well as on funds from international organizations should be freely used by citizens (Ukrainian ministries’ websites contains no transparent and detailed data);
- create an active forum for government officials, civil society, private sector leaders, and other members of “Anticorruption Initiatives”, which will provide an opportunity to fight against corruption and protect the interests of the population in many areas, including the riskiest, such as medical procurement;
- publish all data on public expenditure on the Open Government Portal – the data warehouse of world-wide budgets created by the World Bank Group;
- to create information and technological infrastructure that will allow the widespread use of electronic services (from the payment of taxes through the Internet to filling out the prescriptions of doctors);
- provide an opportunity to send instant text messages from citizens’ mobile phones to a specified address in order to provide feedback, submitting suggestions, or reporting a problem related to public services.

These anti-corruption measures will increase the efficiency of using international resources to support effective public administration in Ukraine will provide citizens with the opportunity to use the health and education services more effectively, while a dynamic private sector will be able to create jobs under conditions of reducing corruption, thus providing sustainable economic development of the state.

#### 4. Conclusions

As a result of the study, the means of overcoming corruption have been substantiated in order to ensure effective public administration and sustainable economic development of the country. Effective governance under the influence of corruption pressure not only prevents the country from developing in a normal way, inhibiting foreign investment and reducing national wealth, but also activating the migration outflow of a responsible part of the population, the

best part of the national gene pool, thereby destroying the nation. The fight against corruption at the state level should begin with the fight against corruption at the level of education of the individual, first of all, by forming the competence of “responsibility” in the citizens of the country, that is, their conscious attitude to the requirements of society, the ability to be responsible for their own lives and actions. At the same time, it is proposed to focus on education to form a new generation of people who seek to achieve not only their own goals but also the state development goals; to raise respect for the rules that are regulated by such subjects as family, enterprise, government, council, country; to ensure the ability of young people to report on every action and decision taken in any area of life; propaganda of the state program of counteracting to the established Soviet mentality of irresponsibility formed by collectivism. It is also proposed to organize free training for children on responsibility for the environment, nature, animals, plants, energy, natural materials and the organization of forums for discussing anti-corruption measures.

Using global experience in the fight against corruption, the following strategic measures are proposed: government data and information on tax revenues, as well as on funds from international organizations should be freely used by citizens (Ukrainian ministries’ websites contains no transparent and detailed data); create an active forum for government officials, civil society, private sector leaders and other members of “Anticorruption Initiatives”, which will provide an opportunity to fight against corruption and protect the interests of the population in many areas, including the most risky, such as medical procurement; publish all data on public expenditure on the Open Government Portal – the data warehouse of world-wide budgets created by the World Bank Group; to create information and technological infrastructure that will allow the widespread use of electronic services (from the payment of taxes through the Internet to filling out the prescriptions of doctors); provide an opportunity to send instant text messages from citizens’ mobile phones to a specified address in order to provide feedback, submitting suggestions, or reporting a problem related to public services.

In further research, it is planned to analyse the interconnection of the dynamics of economic indicators of the development of Ukrainian regions and the implementation of measures of anticorruption strategy at the local level, as well as to propose a strategy for combating corruption considering the approach of forming a citizen’s personality based on the competence of “responsibility”.



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## MODELLING THE DYNAMICS OF THE ADEQUACY OF BANK'S REGULATORY CAPITAL

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**Abstract.** The purpose of the article is to develop scientific and methodological recommendations for modelling the dynamics of the level of capital adequacy for ensuring the financial balance of the bank, sufficient controllability and increasing the efficiency of its activities. The article explores peculiarities of banking regulation and supervision in the process of capital formation. It is shown that the issue of formation of capital by banking institutions is actualized in the context of management reform and target tasks of the development of the banking industry of Ukraine. Given the state of the banking services market and its development trends, the unsettled problem of the capitalization of banks, it becomes important to improve the mechanism of capital formation. In order to improve the efficiency of bank regulation and management of capital formation, recommendations are proposed for modelling the dynamics of the adequacy of regulatory capital on the basis of determining the forecast values of its components. *Research methodology:* the feasibility of using predictive models with the use of artificial neural networks is substantiated. In contrast to the classic trend, discussed in the article, the models with the architecture of the multilayer perceptron proved to be the most adequate and accurate. In addition to a point forecast of the dynamics of regulatory capital, the overall risk and the amount of the net foreign exchange position, their pessimistic and optimistic forecasts were constructed. The author's proposals are formalized by appropriate calculation algorithms. Modelling the dynamics of the adequacy of regulatory capital and its components in practice will allow more efficiently manage systemic and individual banking risks.

**Key words:** bank's regulatory capital, capital ratios, adequacy of regulatory capital, forecasting, neural networks, modelling.

**JEL Classification:** G21, G28

### 1. Introduction

Solving many of the problems facing the Ukrainian economy, namely, overcoming the socio-economic crisis, ensuring economic growth, increasing the participation of banks in the investment process, and increasing lending depends to a certain extent on the effective functioning of the banking system and the level of its stability. It is clear that at the present stage, only those banks that can quickly adapt to the trends of crisis recovery, to take precautionary measures, in advance anticipating the possible consequences of both their own risky activities and the negative impact of systemic risks will survive.

The specific structure of capital with a high share of debt burden inherent in banks objectively determines the need for capital formation in accordance with

financial risks. Of course, not all risk assets can be fully covered. This is only a matter of determining the minimum adequate amount, that is, the proportion of the total risk borne by the bank owners. At the same time, each separate banking institution should have available capital sufficient to cover possible losses, support for solvency and financial independence.

From these positions, modelling the dynamics of the adequacy of regulatory capital of the bank as one of the main regulatory requirements put forward by banks on the part of the state in the person of the regulator – the National Bank of Ukraine (hereinafter – the NBU) and taking into account the importance of the banking sector's role in the development of the financial system and national economy in general, is a topical issue of research.

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## 2. Review of the literature

The problem of the formation of bank capital due to its theoretical importance and practical significance is in the area of constant attention of scientists. The issue of the factors affecting the formation of the capital structure of banking institutions and the transformation of banking resources, ensuring a higher level of capitalization of banks and the banking system as a whole, features of the functioning of banks with foreign capital are highlighted in the work of foreign and domestic scientists: *R. Gropp, 2009, O. Ikpefan, 2012, T. Koch, 2003, M. Octavia, 2008, J. Sinkey, 2002, M. Alekseienko, 2002, A. Vozhzhov, 2007, Zh. Dovhan, 2008, R. Kornyluk, 2012, S. Reverchuk, 2011*, and others.

Given the exclusive role of administrative and indicative forms of state regulation of banking activity, of particular interest is the research in the part of the influence imposed by the regulator of prudential regulations and organization of banking supervision over the capital formation, among which are the work of the following researchers: *D. Gale, 2010, H. Greuning, 2009, D. Hancock, 2006, V. Kovalenko, 2013, S. Naumenkova, 2015, O. Khabiuk, 2008*.

The urgency and importance of issues regarding the application of mathematical methods for solving the problems of management of the formation of bank capital determined the purpose of the study.

The purpose of this paper is to develop scientific and methodological recommendations for modelling the dynamics of the level of capital adequacy for ensuring the financial balance of a banking institution, sufficient controllability and increasing the efficiency of its activities.

## 3. Statement of the main material

Despite the fact that in Ukraine, in accordance with the current legislation (*Pro zatverdzhennia Instruksii pro poriadok rehuliuвання diialnosti bankiv v Ukraini*), a system of prudential regulations of capital (minimum regulatory capital ratio – H1, regulatory capital adequacy ratio – H2, core capital adequacy ratio – H3) and additional requirements in the form of the formation of buffers of capital (capital reserve (conservation) buffer, countercyclical buffer, system importance buffer) have been established for banks, the choice as an object of modelling the indicator of regulatory capital adequacy in this the study is not accidental due to a number of reasons:

1. Currently, banks are actually calculated from the whole set of indicators, only two: the minimum regulatory capital ratio and the regulatory capital adequacy ratio. Introduction to the practice of indicative banking regulation of the core capital adequacy ratio is scheduled from 01.01.2019, and capital buffers – from 01.01.2020.

In addition, the calculation of the regulatory capital adequacy indicator based on the recommendations

of the Basel Committee on Banking Supervision for regulatory purposes is a common practice in many countries.

2. H2 ratio has a certain generalizing character: when it is calculated, the actual values of the regulatory capital are used, that is, the actual value of H1 and the total amount of risk (the sum of assets and off-balance sheet liabilities of the bank, weighted by the corresponding coefficients of credit risk). In turn, regulatory capital is the basis for calculating ratios: the maximum size of credit risk per one counterparty – H7, large credit risks – H8, the maximum size of credit risk for transactions with bank-related individuals – H9, fixed capital as a component of the regulatory capital – to calculate H3. Capital buffers are determined as a percentage of the total risk.

3. Although compliance with the regulatory capital adequacy ratio is not a complete guarantee of the timeliness and completeness of settlement of obligations, for depositors and creditors, the value of this indicator is rather informative, since the larger its size, the lower the share of risk they assume. The actual values of the H2 ratio indicate the bank's ability to withstand crisis situations to some extent.

Proceeding from the theory of fiduciary duties, the growth of capital adequacy to potential risks can be considered as a signal that positively affects the level of trust in the bank.

4. The H2 ratio has a significant impact on capital decision-making. First, as well as any economic ratios and requirements set by the NBU, this ratio is mandatory. Second, the bank is forbidden to pay dividends or to distribute capital in any form, if this leads to a breach of the regulatory capital adequacy ratio. Thirdly, the possibility of expanding the activities of a banking institution is limited to the actual value of this indicator (the higher the value of the ratio of H2, the greater margin for expansion of banking activity).

5. The banks' compliance with the regulatory capital adequacy ratio, among other things, allows, provided that the financial and credit institution is unable to restore its solvency, ensuring an acceptable level of bank failures, increasing the stability of the functioning of the banking system.

In the generalized form, the procedure for calculating the regulatory capital adequacy ratio is as follows (1):

$$H2 = \frac{PK}{A_p + C_{BII}} \cdot 100\%, \quad (1)$$

where  $PK$  – bank's regulatory capital;

$A_p$  – assets and certain off-balance-sheet instruments, reduced by the amount of established reserves for active operations, by the amount of collateral for an unconditional obligation or cash in the form of a pledge of property rights, by the amount to an estimate, by the amount of non-issued bonds of an internal government loan and weighted by the appropriate credit risk factor depending on the risk group to which the asset belongs;

$C_{en}$  – the aggregate amount of the bank’s net foreign exchange position for all foreign currencies and bank metals.

Modelling the dynamics or predicting the adequacy of the regulatory capital of a banking institution is a complex and labour-intensive process that involves forecasting key performance indicators of the bank, namely, regulatory capital ( $PK$ ), risk-weighted assets ( $A_p$ ), amount of net foreign exchange position ( $C_{en}$ ), and includes: time series analysis to identify its main components, such as trend, seasonality (cyclicality), residual (random) component. In order to improve the quality and reliability of the forecast, it is expedient to use not one model, but several, and compare them among themselves, estimating the forecast errors for each model. In this study, the trend models (linear and third-order hyperbolic) and the neural network (model of multilayer perceptron), in which neurons make the transformation of the input signals into output by the ratio (2) are used to predict the change in the adequacy of the regulatory capital of the bank (A. Matviichuk, 2011). The expediency of choosing these models was due to a rather high value of the indicator of the determination coefficient ( $R^2 > 0,8$ ). Based on indicators of informational suitability and assessment of the accuracy of the proposed models, the best of the models was identified.

$$y = \mathcal{G} \left( \sum_{i=1}^n w_i \cdot x_i + b \right), \tag{2}$$

where  $y$  – output signal of a neuron;  
 $n$  – number of inputs of this neuron;  
 $x_i$  – the  $i$ -th input signal of the neuron;  
 $w_i$  – the weight of the  $i$ -th input of the neuron;  
 $b$  – adder bias parameter;  
 $\mathcal{G}(\cdot)$  – neuron activation function.

Fig. 1 shows the dynamics of changes in the regulatory capital of one of the Ukrainian banks for 1.5 years.

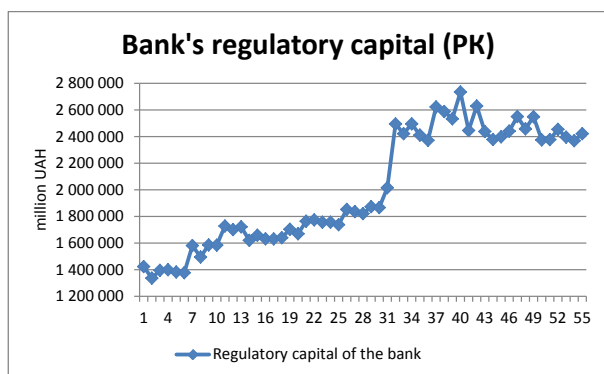


Fig. 1. Dynamics of Regulatory capital of the bank

To construct the model series of the proposed trend models, the functional of MS Excel for the model of multilayer perceptron was used – Statistica.

Fig. 2 shows the change in the regulatory capital of the banking institution and the model characteristics of the linear and polynomial trend models, as well as the dynamics of regulatory capital, which is described by the model of a multilayer perceptron.

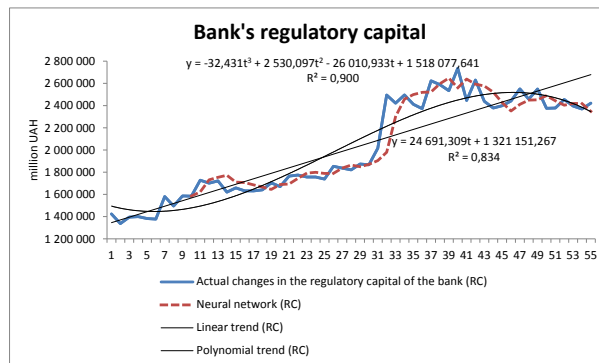


Fig. 2. Changes in the regulatory capital of the bank, which are described by trend models and the model of a multilayer perceptron

An important task of forecasting is to determine the characteristics of the quality of the proposed models, one of the criteria of which is the informational suitability of the econometric model, that is, how validly the model chosen for forecasting explains the retrospective of the investigated changes in regulatory capital. As the estimated characteristic of the a priori quality of the forecast model, it is expedient to use the estimated values of the determination coefficient (O. Plastun, 2014) (3).

$$R^2 = \frac{\sum_{i=1}^n (\hat{y}_i - \bar{y})^2}{\sum_{i=1}^n (y_i - \bar{y})^2}, \tag{3}$$

where  $y_i$  – the actual value of the time series;  
 $\hat{y}_i$  – model values constructed according to the estimated parameters;  
 $\bar{y}$  – selective mean value.

Table 1 summarizes the values of the determination coefficient for the above models, which describe the dynamics of the indicator of regulatory capital of the bank.

Table 1  
**The value of the determination coefficient of the dynamics of regulatory capital of the bank**

Determination coefficient ( $R^2$ ), p. units		
Linear trend	Polynomial trend	Neural network
0,834	0,9	0,911

Thus, each of the proposed models describes the output time series at an adequate level ( $R^2 > 0,8$ ). The most appropriate model among the considered is the model of multilayer perceptron, the determination coefficient of which is 91.1%.

In addition to assessing the informational suitability of models, it is expedient to evaluate their accuracy. In the statistical analysis of time series, there is a sufficiently wide list of characteristics of the accuracy of models. In order to avoid contradictions in the conclusions that may arise due to the use of a number of indicators, for the evaluation of the accuracy of the proposed models, one indicator should be used throughout the analysis process, namely, we will use the average approximation error – A (3). The lower the value obtained for this indicator, the higher the accuracy of the model. It should be noted that at  $A < 5\%$  the accuracy of the model is considered high (O. Cherniak, P. Zakharchenko, 2011).

$$A = \frac{1}{n} \sum_{t=1}^n \frac{|e_t|}{y_t} = \frac{1}{n} \sum_{t=1}^n \frac{|y_t - \hat{y}_t|}{y_t}, \quad (3)$$

where  $n$  – number of units in the aggregate;  
 $e_t$  – residual sum of squares.

Table 2 presents the estimated values of average approximation error for each of the three models.

Table 2

**The value of the average approximation error of models of the dynamics of regulatory capital of the bank**

Average approximation error (A), %		
Linear trend	Polynomial trend	Neural network
6,58	5,67	3,6

Thus, the model of a multilayer perceptron, the average error of approximation of which was 3.6%, was the best by the criterion of accuracy.

Table 3 shows the forecasted values of the regulatory capital of the bank (point forecast) with a depth of nine periods (quarter).

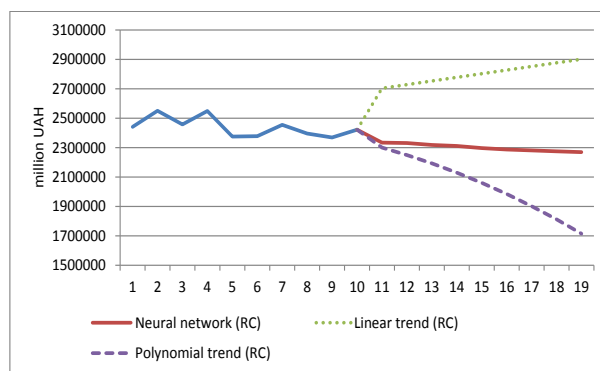
Table 3

**Forecasted values of the bank’s regulatory capital, thousand UAH**

Period	Linear trend	Polynomial trend	Neural network
56	2703864,6	2300447,1	2334302,5
57	2728555,9	2249745,4	2331278,5
58	2753247,2	2193012,6	2318402,9
59	2777938,5	2130053,9	2311312,0
60	2802629,8	2060674,9	2296867,1
61	2827321,1	1984680,9	2287072,1
62	2852012,4	1901877,3	2281247,7
63	2876703,7	1812069,6	2274888,7
64	2901395,0	1715063,2	2269772,6

Fig. 3 graphically depicts changes in the regulatory capital of the bank, that is, the output time series, taking into account the projected values.

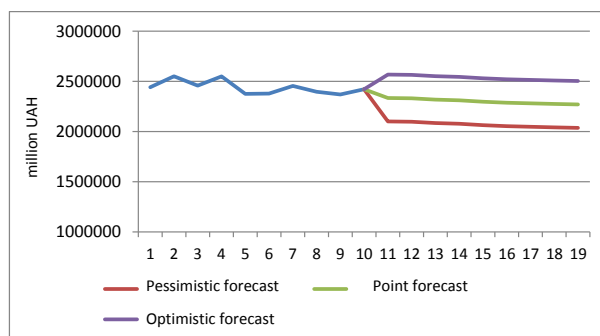
Equally important is the calculation of the confidence interval (interval forecast), which defines the limit



**Fig. 3. Changes in the bank’s regulatory capital taking into account the projected values with a depth of nine periods**

values of the level of a series with a given confidence probability  $\alpha$ .

Fig. 4 shows the point and interval forecasts of the value of regulatory capital, constructed using a multilayer perceptron.



**Fig. 4. Point and interval forecasts of the value of regulatory capital, constructed using a multilayer perceptron**

Thus, we obtained an adequate model that characterizes the dynamics of the bank’s regulatory capital, with the help of which the point and interval forecasts (interval width  $\pm 10.1\%$ ) of changes in its values with the depth of the forecast in 9 periods or a quarter are calculated, which makes it possible to estimate the level of coverage of negative effects of the various risks that banks assume in the course of their activities.

To obtain the projected value of the regulatory capital adequacy ratio H2 (1), similarly, it is necessary to calculate the forecasted values for the forthcoming quarter for risk-weighted assets ( $A_p$ ) and the aggregate amount of the net foreign exchange position ( $C_{ent}$ ) for all foreign currencies and banking metals.

Fig. 5 shows the dynamics of the  $A_p$  indicator, the model characteristics of the linear and polynomial trend models, and the risk-weighted assets’ changes described by the multilayer perceptron model.

The combined data of the values of the determination coefficient and the average approximation error of individual models of the overall risk dynamics ( $A_p$ ) of the bank are presented in Table 4.

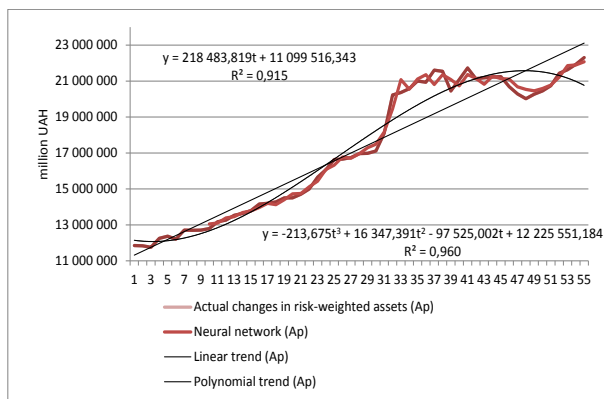


Fig. 5. Bank risk-weighted assets, which are described by trend models and multilayer perceptron model

Table 4  
The value of the determination coefficient and the average approximation error of dynamic models of risk-weighted assets of the bank

Linear trend	Polynomial trend	Neural network
Determination coefficient ( $R^2$ ), p. units		
0,915	0,96	0,99
Average approximation error (A), %		
4,5	3,11	1,18

The most adequate model that characterizes the dynamics of  $A_p$  is the model of a multilayer perceptron with a determination coefficient of 99% and average approximation error of 1.18%.

Table 5 presents the forecast values (point forecast) of risk-weighted assets ( $A_p$ ) with a depth of 9 periods, obtained on the basis of the above models.

Table 5  
Predicted values of bank risk-weighted assets, thousand UAH

Period	Linear trend	Polynomial trend	Neural network
56	1709080	2334302,467	2959525
57	1706056	2331278,53	2956501
58	1693180	2318402,904	2943626
59	1686089	2311312,037	2936535
60	1671644	2296867,057	2922090
61	1661849	2287072,06	2912295
62	1656025	2281247,746	2906470
63	1649666	2274888,74	2900111
64	1644550	2269772,623	2894995

Fig. 6 graphically depicts the dynamics of overall risk of the bank taking into account the projected values  $A_p$ .

Construction with a sufficient level of adequacy and accuracy of the dynamics model of risk-weighted assets (overall risk) of the bank based on the neural network allowed calculating the point and interval forecasts (interval width  $\pm 15.4\%$ ) – Fig. 7.

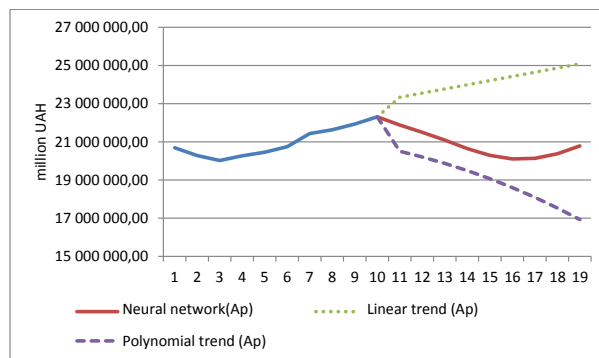


Fig. 6. Changes in bank risk-weighted assets taking into account the projected values obtained with a depth of nine periods

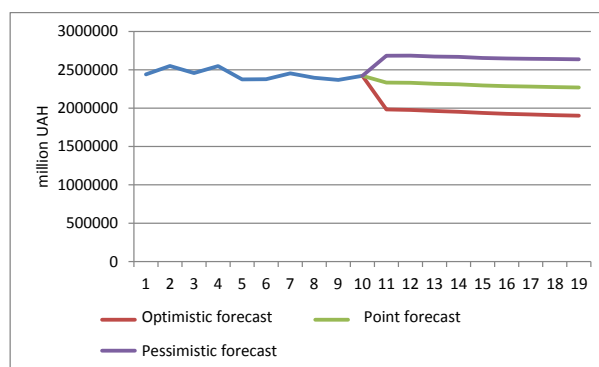


Fig. 7. Point and interval forecasts of the bank risk-weighted assets constructed using multilayer perceptron

The next step in determining the forecast value of the H2 ratio is to forecast the aggregate amount of the bank's net foreign exchange position on all foreign currencies and banking metals ( $C_{en}$ ), the dynamics and model characteristics of which are presented in Fig. 8.

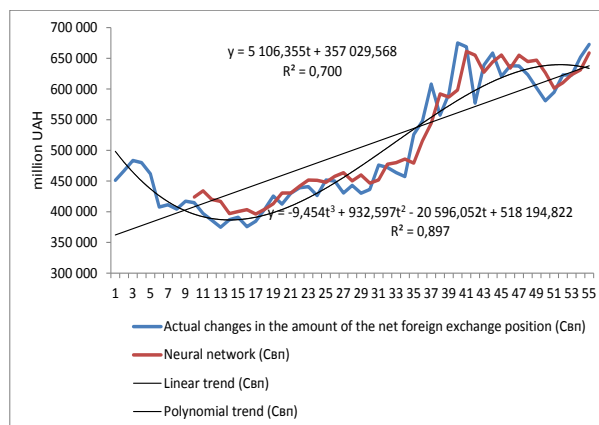


Fig. 8. Changes in the amount of the bank's net foreign exchange position, which are described by trend models and multilayer perceptron model

Indicators of information and prognostic suitability of the proposed models for  $C_{en}$  are presented in Table 6.

As can be seen from Table 6, the model of a multilayer perceptron is also the best model by information and prognostic suitability parameters.

Table 6

**The value of the determination coefficient and the average approximation error of dynamic models of the bank's net foreign exchange position**

Linear trend	Polynomial trend	Neural network
Determination coefficient ( $R^2$ ), p. units		
0,7	0,897	0,923
Average approximation error (A), %		
9,17	4,59	4,32

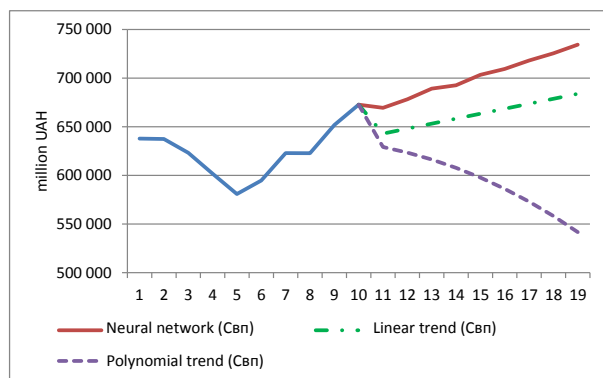
Table 7 represents the forecast value (point forecast) of the net foreign exchange position ( $C_{en}$ ) amount with a depth of 9 periods, calculated using the above three models.

Table 7

**Forecast values of the amount of the net foreign exchange position, thousand UAH**

Period	Linear trend	Polynomial trend	Neural network
56	669424,2	642985,448	629166,438
57	678190,9	648091,803	623412,889
58	689228,2	653198,158	616291,266
59	692650,3	658304,513	607744,845
60	703351,1	663410,868	597716,902
61	709434,8	668517,223	586150,713
62	718119,5	673623,578	572989,554
63	725501,9	678729,933	558176,701
64	734401,2	683836,288	541655,43

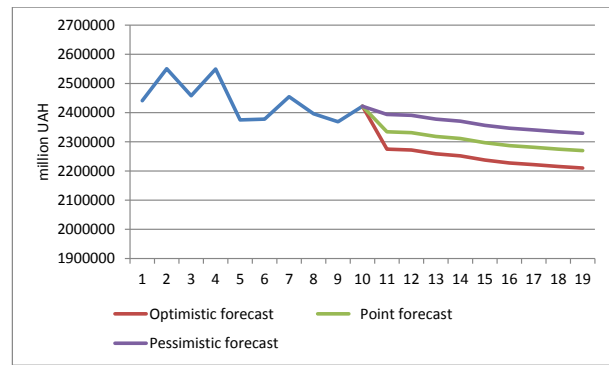
Fig. 9 shows the dynamics of the  $C_{en}$  based on the predicted values obtained.



**Fig. 9. Dynamics of the amount of the bank's net foreign exchange position taking into account the received forecast values with a depth of nine periods**

Using artificial neural network, which characterizes the dynamics of the total amount of the bank's net foreign exchange position, point and interval forecasts were calculated (interval width  $\pm 2.6\%$ ) – Fig. 10.

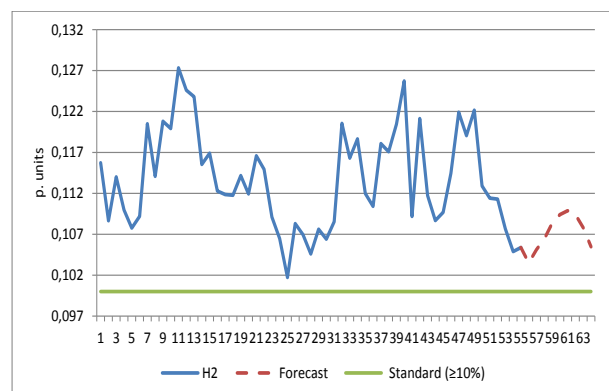
By carrying out modelling of three main components of the regulatory capital adequacy indicator, it is possible to obtain its forecast data in accordance with formula (1).



**Fig. 10. Point and interval forecasts of the total amount of the bank's net foreign exchange position, built with the help of multilayer perceptron**

Fig. 11 shows the dynamics of the change of H2 taking into account the forecasted values of regulatory capital, risk-weighted assets, and the amount of the bank's net foreign exchange position.

As can be seen from Fig. 11, the forecast of the dynamics of regulatory capital adequacy indicates a rather high overall risk of the banking institution and a small potential for increasing the volume of operations, given the increasing requirements of the NBU (gradual increase in the minimum size of regulatory capital to 500 million UAH from 11 July 2024, introduction the core capital adequacy ratio ( $H3 \geq 7\%$ ) from 1 January 2019, capital reserve (conservation) buffer from 0.625% from 1 January 2020 to 2.5% from 1 January 2023, countercyclical buffer from 1 January 2020 in the range of 0 to 2.5% depending on the lending activity of the bank and taking into account credit risks).



**Fig. 11. Dynamics of the forecasted value of regulatory capital adequacy**

Unfortunately, the problem of insufficient capitalization is widespread for a large number of functioning banks in Ukraine. In order to solve it, in our opinion, it is necessary to attract additional equity capital, to develop plans to increase the capitalization of banks with the use of additional sources, to implement cost optimization measures, to introduce advanced risk management approaches, to stimulate banks to reinvest

profits through changes in taxation (introduction of differentiated rates of income tax that is consumed and capitalized), to further adapt the national banking standards to international requirements, ensuring transparency of capital formation, protection of investors and so on.

#### 4. Conclusions

In the course of the research, a number of varied econometric models were developed for the dynamics of the adequacy indicator of the regulatory capital of the bank and its components: regulatory capital, total risk level (risk-weighted assets), and the amount of the bank's net foreign exchange position.

Based on the analysis, an adequate model has been substantiated and obtained that allows forecasting the value of H2. It was a neural model built with the help of a multilayer perceptron.

The importance of determining the dynamics of regulatory capital adequacy is conditioned as by the bank's internal needs associated with improving the risk management efficiency, making decisions on the formation of capital and its use, so by the needs of the regulator in the context of ensuring the reliability of the functioning of the banking system. In addition, the use of the proposed recommendations has prospects for choosing the regime of prudential regulation of banks, a reasonable determination of the size of capital buffers, including systemically important banks.

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# ONLINE DISTRIBUTION OF INSURANCE OF CIVIL LIABILITY OF OWNERS OF VEHICLES, THE EXPERIENCE OF POLAND, OPPORTUNITIES OF UKRAINE

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**Abstract.** Distribution of insurance services online is practically possible only with respect to unified and simple products. The most massive of them is civil liability insurance of vehicle owners, the terms of which are unified by the state, which allows treating this insurance product as optimal for distribution through the Internet. Such a distribution can significantly reduce the cost of acquiring and servicing this insurance service, which is an additional element of competition for insurance companies. In this paper, the dynamics of Internet access in Ukraine and Poland was investigated. The relationship between the internationalization of Poland and the share of insurance premiums received from online sales in the total number of insurance premiums of non-life companies is determined. *The purpose* of the research is: substantiation of the distribution potential of civil liability insurance of vehicle owners through the Internet in Ukraine. *Method (methodology).* In order to realize this purpose, the existing state of online sales of risk insurance services in the Republic of Poland is analysed. For analysis, in particular, methods of analysis of dynamics and correlation were applied. Empirical studies use statistics from MTIBU, KNF, GUS, Internet Live Stats, and KPMG reports. *Results.* It is substantiated that the growth of sales of insurance through the Internet correlates in geometric progression with the index of internetization. It is determined that in addition to the technical component of distribution through the Internet, a regulatory and legal component plays an important role. The practice of distributing online services of insurance of civil liability of vehicle owners substantiated the need for substantial elaboration of the Ukrainian legislation in the sphere of protection of client interests in such transactions. *Practical implications.* Taking into account the research results, it is proposed to significantly elaborate the mobile applications of insurance companies, both in Ukraine and Poland in order to ensure the supply appropriate for the countries of Western Europe. The necessity of substantive reform of the current legislation in order to bring it closer to the EU standards, namely, in accordance with the Insurance Distribution Directive, as was the case in Poland, is determined. *Value/originality.* For the first time, there was a study of opportunities for online distribution of insurance products in Ukraine, which became legally possible from February 2018. Based on the dynamics of the dependence between internetization and online sales of insurance products in Poland, significant prospects for this distribution channel are determined.

**Key words:** insurance, innovations, high technologies, insurance services, distribution, internet.

**JEL Classification:** G22, L81

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### 1. Introduction

The development of modern technology in the world is the driving force behind changes in the methods and techniques for selling products and services. These changes also include the possibility of distributing insurance services in Eastern Europe and in Ukraine, in particular. The main accelerator of these changes is the distribution of access to the Internet. New, alternative methods of selling standard insurance products are being formed through e-commerce. These methods relate to non-traditional forms of distribution of insurance services (Klapkiv, 2016). They allow removing some restrictions on traditional channels. As the experience of Ukraine proves, legal rules are at the core of the law, which in fact provide the possibility of selling online insurance services, in particular, the most massive and mandatory form – insurance of civil liability of vehicle owners.

In developed European countries, the distribution of insurance services through the Internet coincides with the possibility of access to the Internet in the mass consumer and read from the second millennium of our era. With regard to insurance of civil liability of vehicle owners, the Internet is becoming one of the most important channels for the distribution of insurance services, mainly due to the low cost of distribution and ever easier access of the population to the Internet, including through smartphones.

The purpose of the article is to substantiate the significant potential of distributing insurance of civil liability of vehicle owners through the Internet in Ukraine, using an analysis of the current situation in the countries of Central and Eastern Europe and, in particular, the Republic of Poland.

Methodology. The dependencies between internetization in Poland and the size of insurance

premiums received from sales through the Internet are determined.

Comparisons of Ukraine’s internetization and dependency in neighbouring Poland outline possible sales of online insurance services. The main hypothesis of the study is the thesis that the growth of sales of insurance services through the Internet correlates in a geometric progression with the index of internetization provided the appropriate legislative regulation. In empirical studies, statistics of MTIBU, KNF, GUS, and KPMG reports are used. For analysis, in particular, methods of analysis of dynamics and correlation were applied.

### 2. Opportunities for distributing insurance services online

Distribution is the process of moving products and services from manufacturer to end user. Given the specificity of the insurance product and features and capabilities of high technology, the process of distributing online insurance services can be interpreted as the representation and distribution of insurance services, as well as to a certain extent, their support in the process of insurance coverage and the implementation of insurance payments. Distribution of insurance is a manifestation of ties and market relations between buyers and suppliers of insurance products (Klapkiv, 2007). In the case of insurance services with an inverse production cycle, the correct choice of acquisition method is extremely important for ensuring the effectiveness of an insurance company’s activities (Payne, 1997).

Distribution of insurance services takes on different forms, among which the main ones are distinguished – direct and indirect channels (Fig. 1). Direct channels are characterized by the fact that in relations between

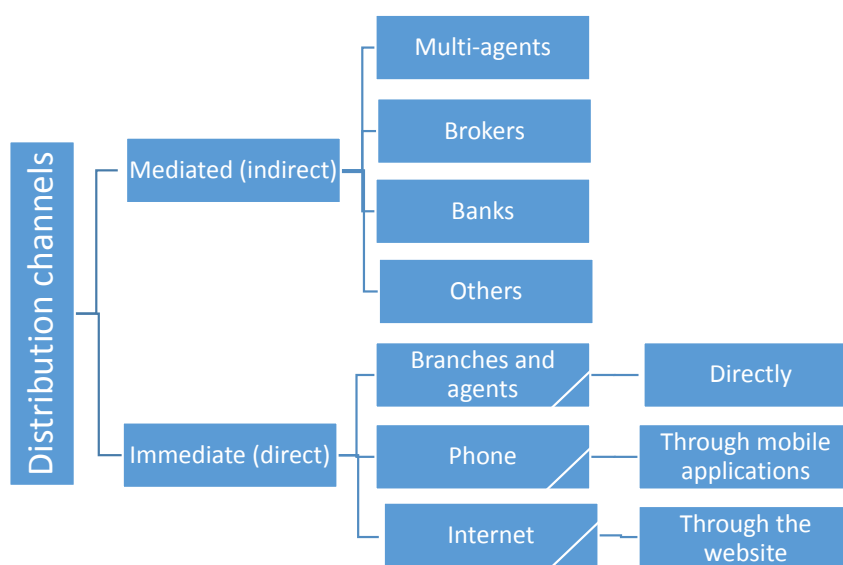


Fig. 1. Division of distribution channels of insurance products

Source: own study on the basis of (Witkowska, 2008)

consumers (buyers) and insurers (suppliers), there are no third parties (intermediaries) (Monkiewicz, Pazio, 2003).

Traditional forms of direct (immediate) distribution include sales performed by employees of insurance companies, including agents working on the affiliate network of the insurer. Unconventional forms of direct distribution use new technologies for the sale of insurance services, that is, sales through the Internet, phone or smartphone. These channels are usually referred to as direct sales. As scientists point out, the use of modern technologies in the distribution of insurance services, and in particular, in the insurance of civil liability of vehicle owners, generates far lower sales costs (Bojanowska, Wójcik, 2015). In addition, new technologies facilitate the reach of customers who prefer digital channels and promote the popularization of insurance products, especially among young people.

Selling insurance with the use of the Internet has many advantages from the viewpoint of the client. Rating websites, online calculators, or mobile apps allow quickly collecting information, comparing suggestions, and getting a comfortable home-based purchase. This makes it easier to access insurance products. However, it should be noted that the Internet or smartphone as a sales channel works primarily on simple insurance services such as: civil liability insurance of vehicle owners or travel insurance (Handschrke, Kaczała, 2004; Witkowska, 2008). One should agree that most insurance products are quite complex. In this regard, the implementation process requires "consultation" with specialists (Jaworski, Lisowski, 2004). Nevertheless, the development of computer technology and smartphones made it possible to compare complex products and their components, which contributes to the increase in the range of insurance products sold online.

The complexity of insurance products often requires, besides technical equipment, knowledge in the field of insurance, that is, the use of services of insurance intermediaries. In the traditional, classical sense, insurance intermediary is an insurance agent or insurance broker. However, organizational changes and the practice of the insurance market have led to the creation of new, non-traditional types of insurance intermediaries, which include banks, auto dealers or travel agencies (Zieniewicz, Lisowski, 2015).

### 3. Internetization of society as a basis for the distribution of insurance services online

The Internet provides enormous opportunities for developing marketing and improving the methods of product insurance management of insurance companies. Insurance companies are finding new ways to profit from these opportunities (Dutta, Kwan, Segev, 1997). Activities of insurance companies that took place on the World Wide Web and their results have

also evolved (Krol, Hoffman, 1993). Previously, some insurance companies created sites but did not use the possibility to distribute their products through them (Klapkiv, Niemczyk, Vakun, 2017), contenting with the information component of websites (Finne, Grönroos, 2017). Currently, more and more insurance companies are focusing on automating processes and providing online services.

The beginning of the distribution of insurance products in Poland can be considered as 2005 when their volume amounted to 0.01%, and already in 2016 shows 17.35%. Since 2013, the potential number of consumers with widespread Internet access in Ukraine has come close to the size of Poland. The main growth of online distribution in Poland has been since 2014; in 2015 – by 2.37% in relation to 2014, and to 10.24% in 2016, which is due to the adoption of the relevant legislation.

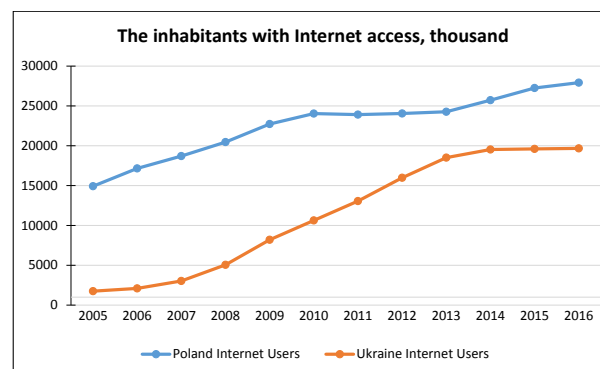


Fig. 2. The dynamics of the internetization of inhabitants of Ukraine and Poland in 2005–2016

Source: own research on the basis of (Internet Users by Country, 2016)

The home-based Internet access of the residents of Ukraine and Poland is improving year by year (see Figure 1). In the years of 2005–2016, on average, 59.75% of households had access to the Internet. Between 2005 and 2016, the share of households with Internet access in Poland increased to 73 percent of the population, with an increase of 39 percent. In Ukraine, there was a 41% increase in this time period.

The lack of official statistics and, in general, the possibility of concluding an online agreement up to 2018 in Ukraine makes it necessary to limit the analysis of the dynamics of the change in the percentage of sales of insurance products of insurance companies online in the total direct insurance of these companies only to Poland's experience.

The study evaluated the empirical nature of the dependence between the percentage of people having access to the Internet and the insurance premium from Internet sales of property insurance products in Poland, mainly civil liability insurance for vehicle owners. For this purpose, the relationship between variables of linear regression was studied and the parameters and degree of

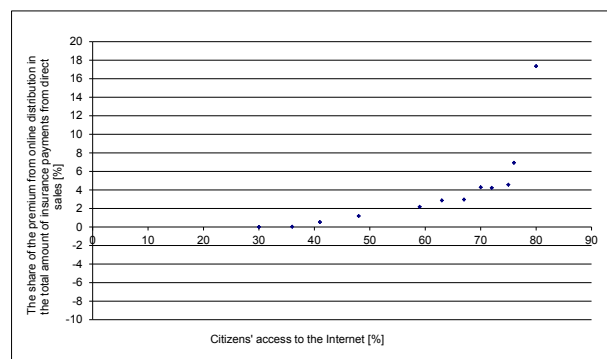
Table 1

**Risk insurance premium from direct sales and online sales made in Poland in the years of 2005–2016**

Years	Total premium on risk insurance, direct sales (in thousand zł)	Chain dynamics (%)	Risk insurance premium received from online sales (in thousand zł)	Chain dynamics (%)	The share of the premium from online distribution in the total amount of insurance payments from direct sales (%)
2005	3775525	100,00	409	100,00	0,01
2006	3781364	112,54	1130	2012,41	0,03
2007	4255589	103,69	22740	230,89	0,53
2008	4412439	84,89	52506	155,48	1,19
2009	3745718	92,22	81638	121,45	2,18
2010	3454481	115,29	99151	118,88	2,87
2011	3982654	99,34	117876	143,90	2,96
2012	3956239	105,72	169619	104,33	4,29
2013	4182497	94,75	176970	102,23	4,23
2014	3962993	71,00	180915	107,78	4,57
2015	2813690	117,56	194996	294,37	6,93
2016	3307731	100,15	574011	276,28	17,35

Source: own research of KNF

alignment on empirical data were estimated. The results showed that there is a significant linear correlation between the internetization index and the share of sales of online insurance products with a positive trend (Pearson correlation is 0.72, average estimation error – 3.43%, determination coefficient – 51.86%). However, the correspondence of linear regression with empirical data is not satisfactory. The correlation diagram in Figure 3 indicates that the ratio between the percentage of internetization and the share of insurance premiums from the online insurance products is exponential.



**Fig. 3. The share of online sales of insurance products and the percentage of citizens with Internet access in Poland in 2005–2016 (in %)**

Source: own research based on data of KNF and GUS

Parameters of the curve of exponential regression were estimated by the formulas (Mruk, 2003):

$$\log a = \frac{\sum \log y - \log b \sum x}{n} \tag{1}$$

$$\log b = \frac{n \sum x \log y - \sum \log y \sum x}{n \sum x^2 - (\sum x)^2} \tag{2}$$

where x – an indicator of internetization, y – share of premiums from online sales in the total number of

insurance premiums, n – the number of observations.

The regression curve of the theoretical form is obtained. The resulting curve for the average error margin is 1.79%, and the estimation of 86.84%, better matches the exponent of empirical data. The exponential model explains 86.84% of the volatility of premiums from online sales, while the linear model – only 51.86%. The predicted share of the premium of 85% of the internetization is 28.81 +/- 1.79%, with 87% of the internetization it will be 36.72 +/- 1.79%, provided that it will not change depending on the type of correlation. The main advantage of selling insurance online is reducing the cost of distribution. According to scientists, online sales of civil liability insurance for vehicle owners reduce costs by 30% (Cholewiński, 2018).

**4. Rationale for the need to create a legally favourable environment**

The basis for online sales of insurance services is the European Parliament and Council Directive (EC) 2016/97, adopted on 20 January 2016 on the Insurance Distribution (Insurance Distribution Directive, 2016). This act came into force on 23 February 2016, which meant that the member states had to change the laws and regulations of their countries by February 2018. That is why in Poland on 15 December 2017 a law on the distribution of insurance services was adopted (Ustawa o dystrybucji ubezpieczeń, 2017), where Article 4.2 treats as a distribution channel websites of insurance companies or other media, through which the client has the opportunity, directly or indirectly, to conclude an insurance contract.

The Law on Consumer Rights dated 30 May 2014 provides significant benefits to online financial services' consumers and facilitates the possibility of termination

of the contract, which is important from the point of view of gaining experience for Ukraine, ensuring the possibility of rejecting an agreed contract within 30 days after its conclusion.

In our opinion, the legal and regulatory framework that combines the legal force of contracts and consumer protection will promote the sale of online insurance products in Ukraine, as is the case in Poland.

In our opinion, given the noted experience of Poland, there is a need to streamline and substantially reform the current legislation in Ukraine. Positive is the attempt of regulation at the level of the National Commission's order, which carries out state regulation in the field of financial services markets №3631 dated August 31, 2017, "On Approval of Amendments to the Regulation on Peculiarities of Concluding Contracts of Compulsory Insurance of Civil Liability of Owners of Land Vehicles," according to which since 7 February 2018 contracts of internal obligatory insurance of civil liability of vehicle owners can be concluded in electronic form, which confirms the significance of the lag in the development of the regulatory framework. Confirmation of the fact of its significant incapacity is the first fine for the lack of an insurance policy of civil liability of the vehicle owner issued in late February 2018 by representatives of the Police of Ukraine to the owner of the policy, purchased online. The reason for the fine is Part 1 of Art. 126 of the Code of Ukraine on Administrative Offenses that for the motor vehicle driving by a person who does not have a policy (contract) with him, the OSAGO provides for the imposition of a fine of 25 non-taxable minimum incomes of citizens (Kodeks Ukrainy pro administratyvni pravoporushennia, 2018).

### **5. The potential of mobile applications in the process of distribution and provision of insurance services.**

However, the number of unquestionable advantages and opportunities, coupled with significant internetization of the population of Ukraine in the event of significant reform of the legislation and updating of legal norms, will ensure a steady growth in the sales of insurance through the Internet. With the help of a smartphone, the client in Poland has the opportunity (Kulik, 2015; Grzywaczewska, 2015):

- report an insurance case
- call for help in the event of an insured event;
- determine the accident location using GPS;
- make a telephone call to the call centre of the insurer;
- examination by broadcasting video using a mobile application on the client's smartphone to company employees in an office that has the ability to remotely assess the damage;
- maintenance of damage;
- make and send photos of the damage;

- record a review of the damage to the video through a mobile application;
- track the processing of a case with a mobile application;
- appeal the insurer's decision.

In fact, the functionality of mobile applications is increasingly underlying the choice of customers. For the benefit of mobile applications, it is worth recognizing the fact that they allow using an insurance product, both at home and abroad, which is important for the development of travel insurance (Volosovych, Klapkiv, 2016). In Ukraine, over the lack of relevant legislation, the insurers' actions regarding mobile applications are somewhat limited and go beyond the scope of insurance activity, the PZU developed the Call & Travel PZU application, more informative as functional content, to support travel abroad. In fact, the main advantage of this application is the possibility of prompt and free communication with the contact centre of the assisting company. The rest of the functions are informational:

- information about the addresses and telephone numbers of medical centres in the area of their location;
- an opportunity to photograph the necessary documents (insurance policy, passport, etc.) and send them directly to the assisting company;
- a description of "first-aid kit" with the medicines necessary for any trip;
- a first aid guide describing the main diseases for adults and children;
- a medical phrasebook in several foreign languages;
- information on insurance rules and policies;
- current news, information about the events held in PZU.

Mobile applications combine the benefits of using the Internet with a computer or smartphone in one place. True, they are not the optimal channel of contact, but it is noticeable that for clients, they represent all the more important value precisely with respect to property insurance products with a high frequency of minor damages.

According to KPMG research (KPMG, 2016), most customers would like to have an access to potential features of the insurance company's program. The question then arises as to how insurers will respond to consumer expectations and their desire to get a new product service channel and contact with the company. A system of direct elimination of losses is in great demand. This system allows compensation for losses in an insurance company, in which the victim has an insurance policy of OSAGO, and not as before – from the insurer, who has insured the responsibility of the perpetrator of the damage (Bednarczyk, Jańska, 2015, s. 49). This system is presented in the offer of insurance companies of Ukraine and Poland.

Increasingly, it is the functionality of mobile applications that is the basis of customer choice. On this basis, it can be assumed that in the coming years,

Table 2

**Mobile application opportunities in Ukraine, Poland, and Western Europe**

	Western Europe	Poland	Ukraine
Information search	Search for branch/insurance agent		
	Information about threats	-	Information about threats
Purchase of insurance services	Simplifying the purchase of travel insurance		
	Buying civil liability insurance		
	Payment at the application level		
	Review before purchasing insurance, video streaming	-	-
	Direct and short-term insurance	-	-
Service of the insurance policy	Certificate of accident-free driving record	-	
	Access to a client account from a mobile app	-	-
	Information about the predicted danger	-	-
	Information about scheduled meetings	-	-
	Viewing client's insurance policies	-	-
	Reminders about insurance cases	-	-
	Payment revision	-	-
Renewal	Renewal of an insurance contract	-	-
Loss occurrence	Application for an insurance case	-	
	Instructions for action after the loss occurrence	-	-
	Appointment to a hospital or auto workshop	-	-
Loss maintenance	Appeal against the insurer's decision	-	
	Loss overview through video streaming		
	Review of insurance payments' history	-	-
	Tracking the state of damage liquidation	-	-

Source: own development based on KPMG research

the applications that are installed on smartphones will become very popular. In most cases, they are faster than mobile websites that require the input of data every time.

Taking into account the analysis of the options available in Ukraine and the Republic of Poland in mobile applications of insurers compared to the opportunities offered by mobile applications to Western European clients (Table 2), one can note that not all the technical capabilities of the program are used yet in Poland and a significant reform of the current legislation is required for its use in Ukraine. At the same time, effective innovations in the insurance sector are copied by companies in the competition for half a year (Klapkiv, 2003), what, in this respect, is in favour of the development of online distribution of civil liability services for vehicle owners in Ukraine and Poland. The foregoing allows predicting the rapid spread of popularity of mobile applications of insurance companies.

## 6. Conclusions

Statutory regulation in Ukraine updated in February 2018 allowed online distribution of civil liability insurance for vehicle owners. It made possible to analyse the possibilities of development of distribution of

insurance products on the example of the insurance of civil liability of vehicle owners, using the experience of the Republic of Poland, as a country with an approximate number of potential consumers with Internet access. It is revealed that in Poland the spread of Internet insurance has been developing in geometric progression in recent years. In Ukraine, the improvement of access of citizens to the Internet is also noted that allowed confirming the hypothesis put forward at the beginning of work.

It is determined that the main reason for the growth of Internet insurance sales is the new possibilities of mobile applications. It is the internet availability and technical development that allows us to talk about the significant potential of this distribution channel. Indeed, not only the sale of insurance services takes place, but also the maintenance, prevention or even elimination of losses. A factor that substantially impedes the development of distribution in Ukraine and provides significant opportunities in Poland is the existing legislation. Standards operating in the EU are much more useful to the client and think about most of the technical features of online distribution.

Insurance companies of both countries, when developing mobile applications in order to create a new distribution channel of insurance, should focus first of all on the expectations of users, that is, today's and potential customers.

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# ACCOUNTING AND ANALYTICAL AND MANAGEMENT TASKS FOR THE CLASSIFICATION OF INDUSTRIAL ENTERPRISES

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**Abstract.** Modern economic development trends such as globalization of markets, increasing competition, changing consumer demand, shortening life cycle of goods and technologies, increasing demands on their quality, and rising costs of used resources require executives and managers to find effective methods for managing the enterprise activity. Ensuring the competitiveness of enterprises under such conditions is impossible without the introduction of the latest management concepts, which necessitates changes and development of functional management, one of which is cost management based on the definition of new criteria for their classification. Classification of costs for management purposes should meet the main requirement – be based on signs that allow differentiating costs to manage them in various aspects. It creates preconditions for determining the level of costs by the volume of management, organization of planning, accounting, control, and analysis. *The purpose* of the article is to consider accounting and analytical, and managerial tasks of the classification of costs of industrial enterprises and their improvement. *Methodology.* The methodological basis of the paper is a set of methods and principles of scientific knowledge, general and special methods and techniques used in the study. The theoretical basis of the research is scientific works of foreign and domestic scientists on cost management, organization of information systems, cost accounting management, cost management methods. The legal basis for the study was the current legislative and regulatory documents governing the formation of costs of enterprises in Ukraine. The information base is official statistics, reporting and accounting information of enterprises, resources and publications of the Internet, results of our own research. To achieve this purpose, when writing the article, methods of a systematic approach (for research and characterization of the theoretical basis of cost classification) and structural and logical analysis (for defining the criteria for classification of costs of an industrial enterprise) are used. *Practical implications.* The obtained results and the developed recommendations constitute a methodological basis for improving the cost management of industrial enterprises based on the definition of new criteria for their classification. Results of the most practical significance include: common features and differences in the approaches to the classification of industrial enterprises' costs are determined, the objectives of cost classification are determined, the classification of costs by costing articles is considered, the necessity of distinguishing additional attributes of cost classification is substantiated. *Value/originality.* Improved classification of costs of an industrial enterprise, which is expanded by additional criterion features (the possibility of management, reflection in accounting and reporting, principle of accepted commitments, place of formation, by the factor of stability), caused by the need to determine the relationship between the size of the enterprise costs and the possibilities of implementing managerial influence on them by managers of different levels, which enables to optimize cost composition and structure, which are reflected in different methods of cost management and are the basis for their choice of agreement.

**Key words:** costs, classification, accounting, analysis, management, enterprise.

**JEL Classification:** M41, M11, M21, L53, O12

## 1. Introduction

One of the methods of research of the objects under study is classification, that is, division into classes on the basis of certain general features of objects regular relations between them. The classification of costs allows identifying objectively the existing cost groups,

processes of cost formation, and interrelationships between their individual parts. The complexity of the structure and the variety of processes in the formation of costs involves their subdivision by a number of features. Depending on goals and methodological approaches, there are several classifications of costs. The

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more distinguished the signs of classification, the higher the degree of recognition of objects. Cost classification for management purposes should respond to the main requirement – be based on features that allow differentiating costs for cost management in different aspects. It creates preconditions for determining the level of costs of their management objects, an organization of planning, accounting, control, and analysis.

Issues of classification and grouping of costs according to various features have been studied in detail by domestic scientists and foreign researchers. Classification of production costs reveals objectively existing cost groups, processes of their formation, and interrelationships between their separate parts. Without classifying costs, it is impossible to solve the problem of managing them in an enterprise. The complexity of the structure and the variety of processes in the formation of costs involves their subdivision by a number of features. To organize an effective system of enterprise management, it is necessary to apply an economically justified cost classification on certain grounds. Classification of costs implies their integration into logical groups. This helps not only better predict and take into account costs but also establish the degree of their impact on the level of production efficiency. Thus, the purpose of classifying costs is to allocate that part of costs that can be influenced by specialists of the enterprise (organization), managing them, and to satisfy information needs of internal and external users.

## 2. Objectives of cost classification

Costs as an object of knowledge are well-studied in the foreign theory of accounting and analysis. However, in the theory of domestic literature, scientists and economics-practitioners have not yet come to a common standpoint on what signs could be used to classify production costs and what significance has a particular sign of classification for the solution of analytical and administrative tasks.

The classification of costs has purposefulness and is constantly changing under the influence of practical management needs and theoretical research. Classification reveals objectively existing cost groups, cost formation processes, and relationships between their separate parts.

At present, in the practical activity of the enterprise, management is provided with information on the cost of production in the form of segments of production costs and cost accounting articles, which is clearly not sufficient for the organization of the cost management system. To manage, managers need not just costs, but information about the object of costs – the product, the work, the service, or the type of activity of the enterprise, which need to be defined in relation to their cost production (implementation, provision).

Cost classification is predominantly purposeful. It is a consequence not only of the practical need for cost management but also one of the tools of theoretical research in this field. Classification of costs is not static, constant. Under the influence of changes in the needs for cost management, the development of the theory of costs and individual practical aspects of their management, the classification of costs developed all the time, evolved through the introduction of new criteria.

In our time, a large number of criteria are used in the classification of enterprise costs. Some of them have long been used in cost planning and accounting, since the time of the administratively centralized economy, others have appeared not so long ago in connection with the development of needs for cost management and, to a certain extent, are borrowed from foreign theories and practices.

In economic literature, there are 3 to 12 signs of the classification of costs. In general, the full classification of costs in Ukrainian systems includes: calculation (stock valuation), decision-making, control.

According to many authors, the problem of classifying costs is a variety of features of classifications and the absence of hierarchy.

Table 1 groups features of the classification of costs according to their traditional use in the domestic and foreign practice of accounting and management.

In Western countries with a developed market economy, all production costs are usually divided into three elements (as basically there are no detailed classifications): 1) direct costs for materials; 2) direct labour costs; 3) indirect costs (Chyzh, 2010).

Comparing the systems of the classification of costs, which are used in the domestic and foreign accounting, we can talk about the general moments and differences. Both in Ukraine and abroad, there are classifications of costs into general-overhead, direct-indirect, variable-fixed for the cost management. However, in foreign countries, each organization in its system of production accounting independently develops and uses its cost nomenclature to manage costs. In the domestic practice, there is the only cost classification for all branches of the economy, which until now was considered a significant advantage of domestic accounting in front of the West. At the same time, both in domestic accounting and abroad, the classification of costs by certain signs is conditional, often one concept is replaced by another (for example, indirect and overhead, general and fixed costs). This can be explained by the pragmatism of Western accounting since everything is aimed at creating the conditions for simplification and practical application, which sometimes violates a harmonious system or classification. In the domestic theory and practice, this is related to the dominant idea of the absolute accuracy of the accounting records and different interpretations of the same costs in works of many authors on this issue, without taking into account the practical value.

Table 1

**Cost classification**

Signs of classification	Group of costs
Domestic accounting	
By economic elements	Economic elements of costs: material costs (minus the cost of returns); depreciation of fixed assets; salary (basic and additional); deductions for social insurance; other expenses
By net cost items	Cost accounting items
By relation to the technological process	General, overhead
By composition	Individual, composite
By inclusion in the cost of production of goods	Direct, indirect
By relation to the finished product	Costs for unfinished production, costs for the finished product
By roles in the production process	Production, non-production
By possibility of coverage by plan	Planned, unplanned
Foreign accounting	
By expediency	Productive (effective), non-productive (ineffective)
By relation to the production volume	Variable, fixed, mixed
By the period of occurrence	Current, one-time
By degree of regulation	Regulated, discretionary (partially regulated), poorly regulated (given)
By centres of responsibility	Controlled, uncontrolled
By degree of change in the decision-making process	Relevant, irrecoverable, prescribed

Only system accounting of these conditions can become the main stimulus for developing a holistic theory of cost classification for practical necessity.

Costs of an enterprise are primarily divided into two main categories that correspond to the functional activities, with which they are related: production costs and non-production (operating) costs.

Production costs are those determined by the activity of the enterprise and the transformation of physical and raw material resources into the finished product with the help of the labour of production workers in the use of production equipment. They are subdivided into three categories: direct costs on materials, direct labour costs, and total overhead costs.

Direct costs for the materials of the enterprise include all expenses for those materials that are a part of the final product, making its basis. Materials used to create conditions of production or which cannot be linked to a particular product, are not attributable to direct costs but are included in the production overhead.

Direct labour costs represent the wages of workers directly engaged in product manufacturing, work execution, or the provision of services that can be directly attributed to a specific cost object.

Production overhead costs are the costs associated with the production process, which cannot be attributed to a specific cost object in an economically feasible way. An example of these costs can be indirect wages, maintenance and repair costs of equipment and production facilities, depreciation and insurance of fixed assets, municipal and rent payments.

Costs of direct materials, together with the cost of direct labour, form the service value. Direct labour costs and production overhead costs in amounts represent conversion costs, that is, costs of processing raw materials for conversion into the finished product. The size of production costs directly depends on the types of work and services provided to consumers and technological processes of their provision. Management of such costs is possible only from the position of choice of an assortment of work done and services provided by enterprises.

Non-productive costs include costs for management, research and development, sales and other business functions. According to the statutory documents in force in Ukraine, non-productive costs include administrative costs, expenses for sales, and other operating expenses.

The considered features of cost classification are used to calculate their size in order to compile financial statements of an enterprise designed to assess its economic status and make decisions on investing and lending to a business entity and developing a strategy for further development.

Proceeding from the possibility of tracking the movement of costs to a particular object of calculation, they can be considered as direct and indirect. Direct costs are costs that can be directly attributed to a specific cost object. Costs that cannot be identified with the specified cost object are indirect costs.

Depending on how necessary the costs are for the production, they are subdivided into costs included in the production cost and period costs. The production cost includes the costs attributable to the cost of

inventory. Such costs are treated as assets until the goods to which they relate will not be sold. At this moment, these costs become the cost of realized products. Period costs are costs that are not included in the production cost because they are not necessary for production and are treated as costs of the period in which they were incurred. Period costs are administrative expenses, expenses on sales, other operating expenses.

In order to provide uniform principles for the formation of the product cost, the costs are grouped according to their intended use by economic elements and calculations. In the process of management, estimates are needed both for providing cost saving by their elements, and for the preparation of material balances, and the development of financial plans.

For industrial enterprises, there is a mandatory nomenclature of production costs for economic elements: material costs; labour costs; deductions for social events; amortization; other expenses.

### 3. Cost classification by costing items

The grouping of costs according to costing items reflects their composition depending on the allocation of costs and places of their occurrence. Enterprises form the production cost according to the following costing items:

- raw and other materials;
- fuel for technological needs;
- power for technological needs;
- purchased resources, completing products, semi-finished products;
- costs of other material resources;
- works and services of production character of third-party enterprises and organizations;
- basic wages of production workers;
- additional wages of production workers;
- other incentive and compensatory payments;
- deductions for social events;
- total production costs;
- administrative costs;
- sales costs;
- other operating expenses.

Classification by items is mixed. It uses two different identifiers: the direction of activity and its kind, which contradicts the principles of constructing classifications in general.

Such a classification feature as the frequency of occurrence makes it possible to characterize production costs from the position of the calendar period of their occurrence (current and one-time costs). Such a classification is important for management from the point of view of cost recovery: either they are repaid immediately or by the accrual of depreciation. This classification is also important due to the fact that there are different methods of managing these costs. Current cost management refers to operational tactical management and one-offs to strategic ones.

Depending on the expediency, costs in the itemized section are divided into productive and non-productive. Productive costs stem from the nature of the enterprise's production activities and are projected by cost estimates and business plan. These costs are included in the cost of products and services. Unproductive costs are not economically inevitable but occur over the lack of technology and organization of production. It is a loss. Such costs in the activities of industrial enterprises have a significant proportion. Detection and elimination of such costs is an important reserve for reducing the company's costs. Therefore, they should also be considered on certain grounds, which will ensure control over this type of expenditure. Signs of the classification of these costs are: the type of resources lost (materials, raw materials, finished products, labour of workers, means of production); the nature of losses (incomplete use of resources, inappropriate use of resources); stage of origin (processes of production, transportation, circulation); sources of cost coverage (cost of works and services, net profit of the enterprise). The cost management information system should identify these costs. Unrecognized losses in the information system (occasional losses) increase the cost of services rendered and are untapped opportunities to reduce the cost of the enterprise. In resolving the issue of reducing the losses of industrial enterprises, not only the introduction of resource-saving technologies but also a complete system of information support for cost management, which provides centres of responsibility for losses at all levels of management is of great importance.

In the composition of the item, the costs of industrial enterprises can be homogeneous (single-element), consisting of one element of cost, or complex, consisting of several elements. Consideration in the management of just one-element costs increases the amount of information in management, which also negatively affects the cost-effectiveness management.

From the viewpoint of management, planning, and control, the most important feature for cost classification is how their dynamics changes, depending on changes in production volume or other performance indicators. Growth or decrease in the level of activity of the enterprise causes a corresponding change in the determined costs. At the same time, other costs remain unchanged. By dynamics, costs are divided into the following three main categories: variable, fixed, mixed costs.

By describing costs by this criterion, it is important to establish not only the dependence on the change in the scope of activities but also the speed of these changes. In order to make decisions on the increase of production volumes, it is necessary to determine the average cost, which includes costs per unit of production of services. Although the average aggregate costs give an idea of the cost of production typical for the enterprise unit, they do not allow judging the change in total costs of the

enterprise when the volume of output is changed. The growth of total costs of an enterprise with an increase in their output per unit of production is called marginal costs. This classification allows judging aggregate costs in a different form. Average aggregate costs indicate the costs of providing a typical service unit since aggregate costs are shared equally for each unit of services provided or work performed. Marginal costs indicate an increase in aggregate costs when providing additional services.

Classification of costs by costing items has significant differences in the industries, reflecting their specifics. However, there is a typical nomenclature of items. Due to the itemized classification, costs can be monitored

in terms of planning and accounting at the place of their occurrence and for certain types of products. In addition, for each cost item, you can determine the degree of relation of costs and the set costing item.

**4. Additional features of cost classification**

Not all classification features proposed in the relevant literature are used and applied in national cost management practices since some features are quite similar in order to allocate costs to independent groups.

In this regard, we distinguish 8 classification criteria for cost sharing (which meet the current requirements

Table 2  
Additional attributes of cost classification

Classification attribute	Types of costs	Characteristics	The object of management
1. Ability to control	variable	cost items that can be sent at the discretion of the department head	Managed costs (control over the implementation of planning, organization and regulation functions) are primarily subject to the management process
	invariable	cost items that cannot be managed and which do not depend on the department manager	
2. Reflection in the accounting and report	took place and are reflected in the register and the report	actually incurred costs reflected in accounting and management reporting	In the course of the cost management process, first and foremost, the second and third group of costs should be identified, since their availability can significantly distort the value of the product cost of the product, and question the reliability of the entire accounting
	had a place but are not reflected in the accounting and reporting	actually incurred costs that are not reflected in the accounting and management reports	
	did not have a place, but are reflected in the accounting and reporting	unavailable expenses, reflected in the accounting and reporting	
3. Principle of accepted commitments	obligatory	are the consequence of earlier commitments. In the near future, nondiscretionary expenses are fixed, they can only be changed after the expiration of the deadline for the accepted commitments	Management and forecasting, in the first place, must be subject to obligatory costs, because when circumstances change in the future, the costs caused by these circumstances are retained. Both cost groups are without returning, that is, ineffective, and therefore should be subject to mandatory control and management
	non-obligatory	are subject to earlier obligations, but may change immediately after changes in the obligations of the parties	
4. Place of formation	own	costs are made in this subdivision	This division allows, in terms of management, to further differentially allocate costs, paying a particular attention to its own costs, and is designed to address the following tasks: ensuring the possibility of managing the cost-effectiveness of individual units; increasing the accuracy and degree of detail of the calculation of production cost, especially for complex, heterogeneous production, producing a large assortment of products
	not own	costs incurred by another subdivision	
6. By factor of stability	fixed for a long time	costs that are not subject to change over a long period of time	The object of management, first of all, must be often variable costs, the level of which is determined annually in the planning process (control over the implementation of planning, regulation, and analysis functions)
	often variable	costs that vary with a high degree of periodicity	

for the transition to the international accounting system), in our opinion, the most objective and useful for the organization of accounting, control, analysis, and cost management:

- by economic content;
- by relation to the technological process;
- by net cost items;
- by types of products, works, and services;
- by the method of distribution to the object of production (accounting);
- by relation to the volume of production;
- by the duration of action (periodicity of occurrence);
- by relation to the plan.

The classification of costs is a fairly dynamic and open system, and the emergence of new criteria not prevent the use of previously proposed, nor give users the opportunity to select and manage new types of costs, depending on the needs and capabilities of the management system.

All types of costs, distinguished by the criteria considered, are used in the management of costs of the enterprise. The given multiplicity of types of expenses should be applied at large enterprises since the division of the whole value of costs of certain types by means of the considered criteria to some extent simplifies the managerial influence on them and thus contributes to their reduction.

Thus, the classification of costs affects the choice and further application of cost management methods as tools of management influence. But there are other prerequisites for such an option that require appropriate research.

The listed classification features are the basis for the formation of the system of classification and choice of management accounting methods that can be used in various enterprises taking into account business peculiarities, including those of machine-building enterprises. At the same time, it is considered possible for an enterprise to independently select those classification characteristics of the grouping of costs

that are used by it for further study and analysis of the behaviour of costs in a competitive enterprise, taking into account the specifics of production.

The above features of the classification of costs are directed to the choice of the object of control in the production process but do not take into account the factor of the possibility of the impact of each subject on specific costs, that is, do not allow fully realizing the functions of cost management. Therefore, in our opinion, it is necessary to introduce additional signs of classification (Table 2).

The variety of classification cost indicators allows accumulating information about them and using data for various purposes in management production to improve the efficiency of the enterprise.

## 5. Conclusion

Cost management is not an end in itself, it is absolutely necessary for the company to achieve a certain economic result, increase the efficiency of work. Functions of cost management are primary in relation to production, that is, in order to achieve a certain production, economic, technical or another result, firstly it is necessary to incur the costs. The study proved that the prerequisite for effective cost management is their classification, on the basis of which it becomes possible to carry out targeted managerial influences on the corresponding types of costs, the process of their formation, and take into account the interaction between individual types of costs.

The study of approaches to cost classification allows asserting that the existing features of cost classification are directed to the choice of the object of management in the production process, but do not take into account the factor of the possibility of each subject's impact on specific costs, that is, they do not allow fully implementing functions of cost management. Therefore, it is proposed to introduce new features of the classification, which allows establishing a link between the level of costs and a certain management function.

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# INNOVATION INFRASTRUCTURE OF UKRAINE: ASSESSMENT OF THE EFFECTIVENESS OF THE ACTION AND WAYS OF IMPROVEMENT

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**Abstract.** The article substantiates the key role of processes of formation of an effective national innovation system, which directly provides the innovative development of the national economy of the country. The article defines peculiarities of the formation of models of national innovation systems of different countries of the world. The article develops the basic principles, on which the concept of the development of the national innovation system of Ukraine is based. One of the main factors, which directly influence the dynamics and pace of the development of the national innovation system, is the degree of the development of the country's innovation infrastructure. It should be stated that the main elements of the national innovation system of Ukraine function in isolation from each other, without any balance in this system, which causes its ineffectiveness. Further research should be aimed at establishing a systemic relationship and developing mechanisms for managing the formation and functioning of the national innovation system based on the effective innovation infrastructure of the country. At the stage of the gradual overcoming the economic crisis, the creation of favourable conditions for the fuller realization of the creative and inventive potential of the Ukrainian society is gaining a special significance in the innovative market of the country. The susceptibility of the national economy to innovation depends largely on the presence of demand for innovative products from consumers in the market, the acceleration of the dissemination of advanced technologies, including the expansion of the range of innovative active firms in the medium business, the creation of new innovative firms, and the dynamic growth of their scale. The strategy of innovation development is aimed at the formation and functioning of a specific infrastructure to increase the acceptability of the business environment to innovation. Significant activation of the market of innovations cannot be carried out without addressing, as necessary, certain markets for innovative services operating in the innovation infrastructure of the country, the economy, etc. The formation of self-sufficient and well-functioning innovative Ukrainian infrastructure, which is self-organized, is necessary not only for the harmonization of the functioning of the innovation system and national economy but also for the survival of the country. Despite the complexity and ambiguity of the influence of external and internal factors on the establishment and development of innovation infrastructure, the overall positive assessment suggests that, with certain efforts on the part of the state and business, Ukraine's innovative infrastructure can effectively develop and carry out its functions.

**Key words:** innovations; national innovation system; innovation infrastructure; models of national innovation systems; market of innovations.

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## 1. Introduction

Globalization and the innovative way of world economy's development in the 21st century are the decisive factors that determine and guide the further development of national economies and their national innovation systems. A key condition for accelerating social and economic development of the country, economy branches, and enterprises is the need to vigorously find and quickly implement in production the most effective innovative proposals. The creation of such conditions ensures the implementation of the innovation process, the ultimate goal of which is the introduction of priority fundamental and applied research, new, advanced technologies, forms of organization of labour and management, based on the achievements of scientific and technological progress.

The effectiveness of innovation market functioning is the main regulator of innovation development of the country and of the formation of its innovative infrastructure. The current state and prospects of the development of the innovation market determine the possibilities of a fuller use of the country's scientific, technical, and educational potential, and the revival of its innovative infrastructure. Innovation potential of the country is characterized by the willingness of the society and economy to introduce new technological and social changes under the influence of internal and external factors. The economy of the country is concerned both with the negative effects of the global financial and economic crisis and recent social and political problems. The stabilization and adaptation of the national innovation system and its innovation market in changing realities is of the highest scientific and practical significance. The effectiveness of the market mechanisms for managing innovation and the increase of the innovation activity of enterprises directly depend on the activity of supply and demand in the market of innovative products; therefore, ensuring the effective functioning of innovation infrastructure should begin with the development of the innovation market itself.

The modern business environment is becoming more and more dynamic every year, and the competition is becoming more global. The growing development of innovation activity and its transformation into a key factor of social and economic growth raises new challenges to the theory and practice of innovation management in terms of improving the concept of managing the development of national innovation systems.

The processes of the formation and functioning of the management of national innovation systems in different countries of the world have been examined in a considerable number of scientific works. Different aspects of these processes have been reflected in the research works of foreign and domestic economists, such as A. Butenko, N. Ivanova, H. Itskovits, H. Kovaliov,

Y. Lazarieva, P. Mykytiuk, L. Parashkevova, T. Skrypko, L. Fedulova, J. Christiansen, J. Schumpeter, L. Yaremko, and others.

A considerable number of scientific works have been devoted to the research of problems of formation and development of innovation infrastructure and its main component – the innovation market. These issues were actively researched in the works of such foreign scholars as I. Goriacheva, D. Dorzhiev, N. Ivanov, N. Kalenska, V. Tribushna, R. Chobanova, T. Sherstobytova, J. Schumpeter, and others. Different aspects of this issue were studied in the works of a number of Ukrainian economists, such as S. Illiashenko, M. Kanaieva, V. Soloviov, L. Fedulova, T. Shotik, I. Yanenkova, and many others.

Constant social and economic changes in the country and in the world put to scientists and business representatives a number of issues related to the need for adjustments, accounting of the dynamics of these changes and their impact on the innovation infrastructure, the specificity of the development of the domestic innovation market. The question of the composition and formation of the modern market of innovations is complex and multidimensional; therefore, despite a significant number of scientific works, it requires further research.

## 2. Models of formation of national innovation systems

National innovation systems of different countries, despite the same goal, have a number of essential features. The analysis of the existing types of national innovation systems makes it possible to distinguish between four characteristic models: the Euro-Atlantic, East Asian, alternative, and the model of the "triple helix". Each model can be regarded as a specific and characteristic for a given country mechanism for the production and industrial implementation in the form of products, goods or services.

The Euro-Atlantic model is a model of a national innovation system, the mechanism of action of which extends to all stages of the innovation cycle from the birth of an innovative idea at the levels of highly developed fundamental and applied science and to the final – the stage of production of innovative products. This model is observed and used in the most developed countries of Europe (Germany, France, Great Britain, etc.), which are the leaders in the ratings of competitiveness in the global economy.

The East Asian model is more focused on the borrowing of innovative technologies in the developed countries than on the support and development of its own fundamental science. Insufficient attention to fundamental science is compensated by the high degree of management development and the use of applied scientific and technical products, especially in the field

of electronics and high technologies. Such a model of the national innovation system is characteristic for the countries of the East Asian region. This, above all, is Japan, as well as South Korea, Hong Kong, and Taiwan.

The alternative model of the national innovation system is used predominantly in agricultural countries that do not possess significant innovative potential in the field of fundamental and applied science and do not have rich reserves of raw materials. These countries focus on the development of agriculture, certain branches of light industry and tourism business in their innovation policies. This model includes the national innovation systems of Turkey, Thailand, Chile, Portugal, etc. The alternative model is also typical for countries that do not have sufficient financial capacity to strengthen fundamental and partly applied science, especially in the field of high technology. Such countries are looking for less costly ways of innovation development.

The model of the "triple helix" can be observed in the USA as a further stage in the development of national innovation system based on the Euro-Atlantic model and has a fundamental difference from other models not only in the structure but also in the mechanisms of interaction of the constituent elements. Today, the processes of forming such a model are beginning to appear in the developed countries of Western Europe and Japan.

The theory of "triple helix", which appeared at the beginning of the 21st century, was created by the professor of Newcastle University Henry Itskovits and the professor of Amsterdam University Loet Leydesdorff. As the scientists assume, "triple helix" best reflects the interaction and interdependence between three key institutions of the national innovation system of the country at all stages of the creation and implementation of an innovative product – the state, business, and scientific activities. These are the three branches of the genetic component of any national innovation system that evolves through a spiral moving from a lower level of the development to a higher one. The links between universities, business, and government are becoming the basis of the new model of governance, and a university, which is increasing the commercialization of its research, turns into an engine of this "triple helix". Therefore, an entrepreneurial university is the key to future development, the creation of new jobs, achievement of economic growth and stability (Itskovits, 2010).

As H. Itskovits states, "...the main difference between Russia and China is in the direction: from Russia, the advanced ideas come out to find their further development or introduction in the West, mainly in the United States. In the Chinese model, the direction is reversed – they learn everything new and promising everywhere, bring new ideas and developments to China, refine and commercialize them at home..." (Itskovits, 2010). A similar process can be observed

now in Ukraine, in connection with the lack of funding of fundamental and applied science, universities cease to play the role of the "engine" of the national innovation system.

From the point of view of innovation, the theoretical and methodological basis of the national innovation system and its infrastructure is the innovative economy, intellectual property, and the intellectual economy (Butnik-Siversky, 2011). The economy is innovative if there is a developed infrastructure in the society that provides the creation of national information resources to the extent necessary to support the ever-accelerating movement of scientific and technological progress and innovation development, and the society is able to produce all the necessary multi-faceted information, primarily scientific, in order to ensure dynamically stable social and economic development (Fedulova, 2009).

The national innovation system of Ukraine, due to the difficult social and political situation in the country and the lack of sufficient funding for science, can be attributed to an alternative model of the development of national innovation systems. After stabilizing the economic situation, the main task in Ukraine's modern innovation policy is to make the main emphasis in the construction of innovation infrastructure on the formation of new, entrepreneurial models of universities, which, in close cooperation with business and government, will be able to gradually, "in a helix way", raise national innovation system to a higher level of development.

### **3. Innovation markets as components of the country's innovation infrastructure**

The country's exit from the crisis and economic growth are impossible without a widespread use of the achievements of science and technology and introduction into production of fundamentally new ideas, technologies, innovative products and services. Intellectual work is becoming more and more important and operates as the main factor; it is the imperative of realizing the concept of knowledge economy of post-industrial society. Knowledge-oriented economy, as the most productive power of the present day, needs to be stimulated and supported concerning both the direct producers of this driving force – scientists, researchers, and inventors of new ideas, proposals, innovation projects, and entrepreneurs who directly transform these ideas into innovations products, goods, and services.

As the results of a number of studies prove (Sherstobitova, 2009), on average for 100 successful innovations about 75 appear in response to consumer needs, and only 25 appear as a result of the introduction of new ideas that arise in the course of the scientific research and development and constructor works (SRDCW).



The results of research and creative activity act as an intellectual product. Incorporated into an invention, discovery, scientific reports, patents, innovative projects, innovative proposals, the intellectual product becomes a commodity in the market of innovations and acts as a part of the country's innovation infrastructure.

Innovative infrastructure is considered as a dynamic self-regulatory system of markets and entities entering in these markets into certain economic relations within the limits stipulated by laws and normative and legal acts of Ukraine and providing the creation of the necessary conditions for the expanded production of innovative products, technologies, and services (Kniazevych, 2016).

The main goal of the formation and functioning of the country's innovation infrastructure is the provision of comprehensive innovation activities, preservation and development of the country's scientific and technological potential in the interests of the society, including overcoming the decline of production, its structural adjustment, changing the nomenclature of products, creating new products and new production processes.

The innovation market creates demand and defines the supply of intellectual property products. Commodity-money relations in the market of innovations arise from the moment of fixing scientific and technical ideas, proposals, know-how, SRDCW as objects of intellectual property, patents, innovative projects, drawings, technologies, the use of which, in accordance with the current legislation, is allowed only by committing a market act of sale. As the seller in this market, the owner of the intellectual product is officially registered, and the buyer is an enterprise interested in the practical implementation of this product as an innovative product. Both the buyer and the seller act in order to obtain a certain economic effect for themselves. An aggregate of regular sales relations between manufacturers of innovative goods and their consumers determines the emergence of an innovation market.

The market of innovations, like any other market, is an economic system, in which the coordination and realization of economic interests between sellers and buyers through the mechanism of market prices take place. It refers to one of the specialized types of markets.

The conditions for the effective functioning of the market of innovations are a mechanism of competition, which is provided by a wide range of proposals of innovative ideas and projects, and the freedom to choose a partner in economic affairs; the balance of supply and demand; the creation of the developed innovation-market infrastructure.

In addition, the specificity of the innovation market lies in the fact that the value and price of innovations on it are formed under the influence of the economic resultant interaction of factors of particular production, not only the magnitude of aggregate demand and supply

(Goriacheva, 2005). That is, the demand and supply in the market of innovations are not the main price defining factors. Everything depends on the economic factors of a particular production. This definition refers to the specifics of the innovation market exclusively.

In the market of innovative services as an integral part of the innovation infrastructure, there is a clear dependence due to peculiarities of the process of production of these services, as well as the specifics of the object of purchase.

The peculiarity of the process of manufacturing innovative services is the fact that it can be divided into two stages. The first stage is intellectual and the second is material production. Then, the consideration of innovation infrastructure as a market for innovative services implies its delineation in the processes of providing intellectual and material services.

The innovation market is the set of organizational and economic relations that arise in the process of exchanging the results of innovation activities and coordinating the interests of participants concerning prices, terms, and scales of this exchange.

Therefore, the innovation market is the set of innovative types of products and processes, legal entities and individuals who sell or purchase scientific and technical science-intensive products. As a specific sphere of sale, the market of innovations determines as the object of trade technical and socio-economic innovations, rationalization proposals, inventions, patents, technological innovations, and know-how. As a system of economic relations, it is aimed at the development, implementation, and diffusion of innovations at various levels.

At the stage of the gradual overcoming the economic crisis, the creation of favourable conditions for the fuller realization of the creative and inventive potential of the Ukrainian society is gaining a special significance in the innovative market of the country. The susceptibility of the national economy to innovation depends largely on the presence of demand for innovative products from consumers in the market, the acceleration of the dissemination of advanced technologies, including the expansion of the range of innovative active firms in the medium business, the creation of new innovative firms, and the dynamic growth of their scale.

Communication factors play a key role in the dissemination of new scientific and technical products. The high level of information exchange and close communication contribute to the rapid diffusion of innovations. Active participation in scientific and technical seminars, symposiums, exhibitions provides the acquaintance of the consumer with new products before they are brought to the market, thus forming an innovative demand. In the absence of preliminary information about a new product, the consumer can perceive its appearance on the market in the alerted way and the process of formation of demand will be too

long, which in turn will affect the costs and financial results of the firm.

The current state of the markets for innovative services in Ukraine and the peculiarities of their further development are determined by the following factors:

- 1) the need to further expand the number of subjects and objects of innovation infrastructure and to increase the volume and quality of their services;
- 2) problems of economic development and the scarcity of state and local budgets make impossible the optimal financial support of subjects and objects of innovation infrastructure;
- 3) the possibility of establishing effective functioning on a commercial basis of service facilities in the structure of innovation infrastructure;
- 4) the formation of the innovation infrastructure is objectively conditioned by the growth of needs of subjects of innovation in the services provided and the level of the development of the national scientific and technical sphere, the availability of scientific and technical developments that can subsequently be commercialized;
- 5) further development of the country's innovation infrastructure is possible on the basis of processes of softening and deepening the service model of the actions of its subjects.

The model of innovation infrastructure functioning, consisting of a certain number of innovation markets, is presented in Fig. 1.

In the process of studying the real state of the markets for innovation infrastructure, we used the deterministic modelling and transformation of factor systems. One of the tasks of factor analysis is modelling the relationship between the performance indicators and factors that determine their magnitude. The results can be factorized into constituent elements (factors) in different ways and presented in the form of various types of deterministic models.

The state of markets for innovation infrastructure is influenced by both external and internal factors. To external influence, we refer the crisis state of the economy, the development of processes of technologies transfer and outsourcing, other factors of the international level. Internal factors are represented by political, economic, scientific and technical, production and financial peculiarities of the country's development (Graph 1). Let us consider in more detail their purpose and principles of the formation.

The market of intellectual property objects. In the market economy of a post-industrial society, national wealth is determined not only by the total volume of material resources of the country but also by the knowledge, values obtained in the process of intellectual work of scientists, inventors, researchers.

Intelligent labour is, without exaggeration, the highest form of human activity associated with the knowledge of the surrounding reality, which begins with the

hypothesis or assumption and finishes with obtaining the result in the form of ideas, inventions, discoveries, new knowledge, etc. At the same time, receiving an innovative, useful intellectual product is probabilistic and can be both positive and negative.

The most significant and promising inventions, innovative proposals, know-how, results of intellectual work, which are officially legally registered as objects of intellectual property, become a market commodity. Intellectual property is an intangible object and intangible resource. Their author, which is a scientist, inventor, researcher, or even a whole research organization is the creator of the intellectual property object and receives the exclusive right to use it, and acts as a seller on the market of intellectual property objects. On the other hand, natural and legal persons, who wish to get the right to use these objects in their production activities, act as buyers of intellectual property objects. Mutually beneficial commercialization of intellectual products takes place in the process of selling patents, licenses and other objects of intellectual property to interested persons, direct producers of innovative products, goods, and services.

In the conditions of globalization of the world economy, the acquisition and commercial use of intellectual property objects become an important factor for the successful use of innovative ideas and the dissemination of new technologies. It facilitates the development of market-based relationships between science and production, licensing trade, technology transfer, and the formation of the market for intellectual property objects. The greatest demand is the technology of manufacturing new types of high-tech products (highly specialized technological installations, pharmaceuticals, newest technology and techniques, etc.).

On the effectiveness of the operation of the national market of intellectual property objects, one can draw conclusions on the ratio of the intellectual property represented in the sale of goods in the form of patents, licenses, innovation offers, know-how, and the number of similar goods purchased and used by producers for the production of innovative products, goods, and services.

In order to increase the level of intellectual and innovative potential of the country, it is necessary to intensify activities of the intellectual property market, to increase the prestige and payment of intellectual labour.

The market for information services. Another market in innovative infrastructure, which works in close cooperation and in parallel with the market of intellectual property, is the market for information and expert-consulting services. In this market, the information on the emergence of new scientific and innovative ideas, proposals, developments operates as a commodity; this market offers expert analysis services and the search for the most promising ideas, as well as consulting services for innovative business planning.

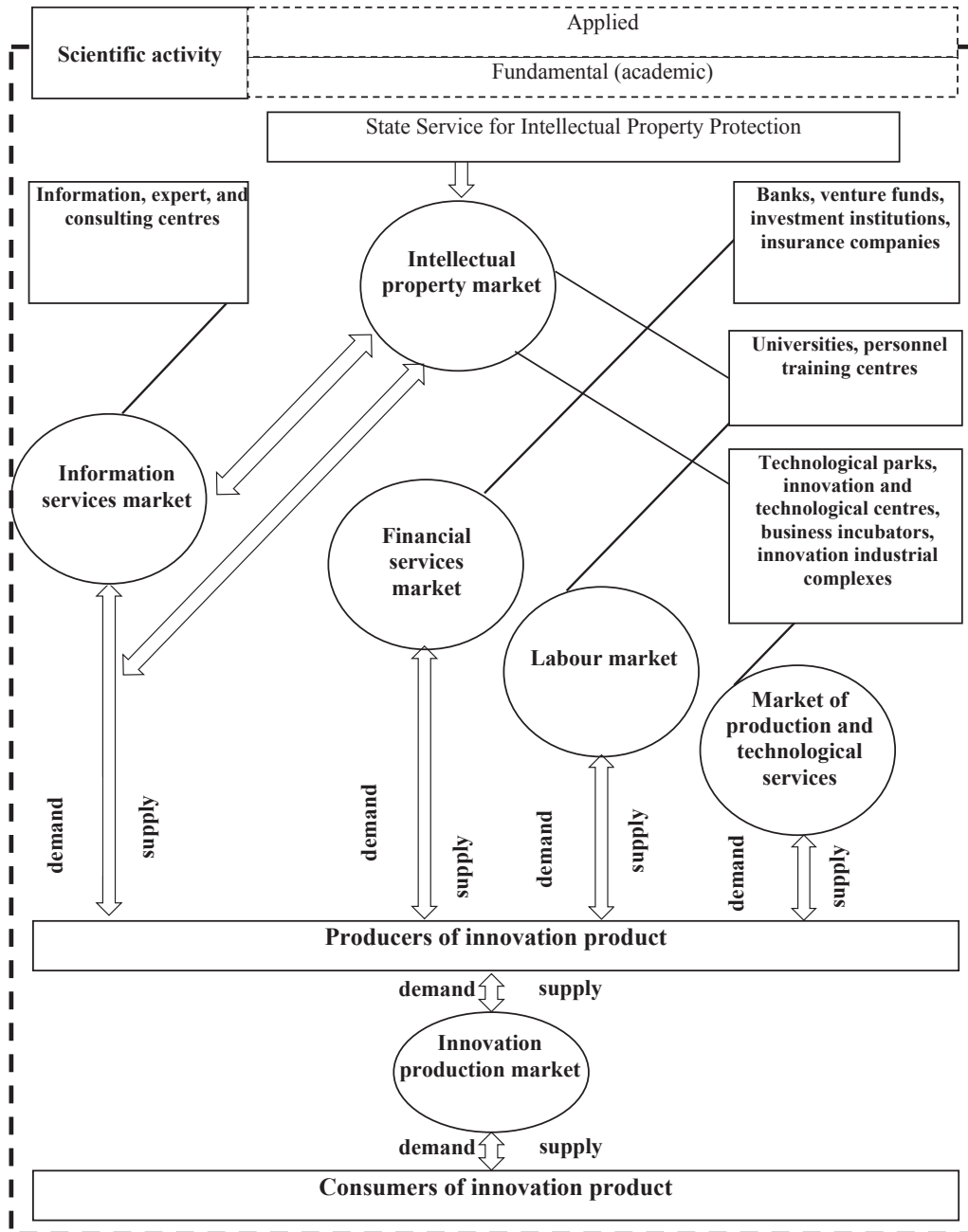


Fig. 1. The model of country's innovation infrastructure functioning

Source: the author's development

Communication in the information services market is often interactive. The structure and content of the information market products are varied and extremely changeable.

The essence of the information services market can be defined as the set of economic, legal, and social relations that arise in the process of meeting the information needs of producers who wish to set up the production of innovative products, new products, and services and are willing to pay for this information an affordable price.

The rapid growth and expansion of the demand for scientific, technical, and economic information, as

well as the increased requirements for the content and forms of presentation of information, are the incentives for the development of the market of information and consulting services in the country's innovation infrastructure.

Ukraine is taking the first steps towards entering the innovative services market on the international level as an outsourcer for Western countries. So, in 2015, the rating "The 2015 Global Outsourcing 100" included four Ukrainian companies engaged in IT outsourcing: Eleks, Miratech, Softengi and SoftServe. In addition, the rating noted foreign companies, which have opened

large offices in Ukraine: worldwide Luxoft, Belarusian Intectics, American TEAM International Services, and Softjour. All this has a positive effect on improving the image of Ukraine on the global IT market and enhancing its information services.

The market for financial services. One of the most important problems for the country's leadership in the face of a sharp shortage of financial resources is the question of how much and what funds should be allocated for academic research, applied research and innovation. In addition, a part of public funds needs to be allocated among the subjects of innovation infrastructure to support and intensify their activities. The main receivers, for which the innovation infrastructure of the country is created, are innovative active production enterprises, which transform scientific ideas into the benefit and material goods. The current financial situation of most domestic enterprises does not allow allocating as many funds as it is necessary for the purchase of new technologies, for upgrading production equipment and training highly skilled personnel. The volume of the state budget is always limited. The difficulty in deciding on the financing of innovation production is that, above all, that in most cases such investments cannot give a quick return. In addition, investing in research and development, and the organization of innovation production always serve as long-term, strategic decisions that have to be taken considering the overall innovation policy of the state.

The mandatory part of state financing of the subjects of innovation infrastructure includes, first of all, financing of the development of fundamental (academic) science.

The costs of applied scientific and technical research and design work, research and experimental development, technology and production and technical development of the production of new products can be financed both at the expense of the state budget and at the expense of other sources. Such sources of funding may become:

- bank and innovation credits;
- the issue of securities;
- the use of venture capital;
- self-financing;
- financing of an innovative project from the income received in the process of implementing short-term projects;
- leasing of temporarily free assets;
- provision of the property of the enterprise on the security of received funds;
- sale of licenses for the use of innovative technologies and know-how;
- outsourcing in innovation activity as a method of attracting foreign investment;
- state incentives, the creation of privileged conditions for external and internal investment in innovation and new technologies.

The expansion and maximum possible use of all potential sources of financing is a priority task for the development of the financial services market.

The labour market in the structure of innovation infrastructure acts as the regulator of social and economic and labour relations between the state, the employer, and employees on the issues of hiring, use, training and retraining, and the improvement of skills of the workforce in the process of innovation production. Innovations in modern technology and systematic updating of manufactured products raise the requirements to the quality of labour resources training and cause the need for continuous training and retraining of personnel. In many regions of the country, there is a shortage of highly skilled specialists, especially managers who have the experience in innovation entrepreneurship.

The labour market is entirely dependent on the state of the national economy and the level of unemployment. In 2005–2007, Ukraine's economy was growing, specialists were in deficit, and they dictated their employment conditions to the employers. The state of the labour market has changed dramatically because of recent social, political, and military events in Ukraine. The number of vacancies has decreased by almost 20%; the number of migrant workers (internally displaced) in the country is increasing constantly and the unemployment is rising.

The outsourcing of HR services from large international companies can be promising for the national innovation system, as it will contribute to the harmonization of the labour market and social interests of Ukrainian society.

The market for manufacturing and technological services includes services and opportunities provided by innovative enterprises, technological parks, innovation technology centres, innovation and industrial complexes, as well as the centres for the transfer of technologies, centres for the collective use of high-tech equipment. The need to create a market for industrial and technological services in the field of innovation production is determined by the needs of enterprises in obtaining technical and technological assistance, in providing them with production space and equipment necessary for the successful implementation of innovative projects. Accompanying support may also be related to the preliminary preparation of material resources, the implementation of resource and energy-saving technologies, the provision of innovative products of complete market readiness.

In Ukraine, over the past decades, there has been a decline in industrial production. The fall of industrial production and especially of high-tech manufacturing industries leads to the degradation and destruction of the national economy and gradual de-industrialization of the national economy. The main production facilities are worn out by 50-60%; new equipment is not installed

due to insufficient funding. Acquiring new technologies and improving the quality of products are very slow, which adversely affects the competitiveness of goods in the world market.

One of the ways to solve the problems of the manufacturing and technology sector can be the creation of outsourcing companies with large foreign manufacturers of innovative products. Outsourcing of production space, equipment, technology, and labour is widely used in many countries around the world. In modern conditions, it is a universally recognized and one of the most effective methods for the development of innovative entrepreneurial activity.

For Ukraine, outsourcing from leading global companies is an opportunity to attract foreign investors. Ukraine can become a wonderful platform for the construction of buildings and production facilities of foreign corporations, which produce cars, electronic high-tech equipment and devices. All this, ultimately, will open up wide opportunities for restructuring and innovation of the national industry.

The market for ready-made innovative products. The low demand for ready-made innovative products

inside and outside the country is the main reason for the weak development of the market for innovative products. This is due to the low solvency of enterprises where this product could be used, as well as the lack of information, the lack of advertising about the opportunities and quality of new products, the lack of promoting innovative products in the markets.

Of great importance for solving this problem is the optimization of the combination of a market mechanism with state regulation. State regulation of the market for innovative products can be carried out with both direct and indirect methods, which include economic, informational, legislative, and administrative components.

#### 4. Factor model for assessing the effectiveness of innovation infrastructure of Ukraine

The factor model of the estimation of the external and internal environment and the degree of its influence on the formation of the innovation infrastructure in Ukraine is the matrix of evaluation criteria, which indicates the actual state of the research object (Table 1).

Table 1

#### Factor model for assessing the external and internal environment and the degree of their influence on the formation of innovation infrastructure in Ukraine

№	Factors and the degree of their positive or negative influence:  0 – no influence; 1 – weak influence; 2 – medium influence; 3 – strong influence.	Innovation infrastructure markets						The total actual (maximum possible) estimate of the impact of each of the operating factors in grades
		Intellectual property	Information services	Financial services	Labour	Production and technological services	Innovation products	
<b>External factors</b>								
1.	Crisis condition of the world economy	0	-1	-2	+2	+1	-2	-2
2.	Tensions in international relations	0	0	-1	+1	0	-1	-1
3.	International transfer of technologies and outsourcing	+2	+3	+3	+2	+3	+2	+15
4.	Membership in the European Union and WTO	+1	+3	+3	+2	+2	+3	+14
<b>Internal factors</b>								
5.	Unstable social and political situation	-2	-2	-3	-2	-2	-3	-14
6.	Modern condition of the economy	-1	-2	-3	-1	-2	-2	-11
7.	State innovation policy	+3	+2	+2	+2	+3	+2	+14
8.	Provision of state financing	+1	0	+1	+1	0	0	+3
9.	Scientific and technological potential of the country	+3	+2	+1	+1	+2	+2	+11
10.	Education and training of personnel	+3	+2	0	+3	+2	+2	+12
11.	Availability of material resources	0	+1	+1	0	+2	+3	+7
12.	Availability of fuel and energy resources	-1	-2	-2	0	-2	-2	-9
13.	Modern condition of equipment and technologies	-2	-2	0	-1	-2	-3	-10
14.	Innovation potential of entrepreneurship	0	+1	+1	+1	+1	+1	+5
15.	The attitude of the society to the innovations	+1	+1	0	+1	+1	0	+4
<b>Aggregate evaluation of all influencing factors on each innovation infrastructure market in grades</b>		<b>+8</b>	<b>+6</b>	<b>+1</b>	<b>+12</b>	<b>+9</b>	<b>+2</b>	<b>+38 (+270)</b>

Source: the author's development

It takes into account the weight and assessment of the current state of Ukraine's innovation infrastructure. The results are based on expert judgment. As a result of the study of the environment for the formation of innovation infrastructure, we have received the assessment of the actual state of each of the operating factors – 38 points out of 270 possible, which is 14.08% of the maximum value.

Determining the factors that influence the efficiency of the Ukrainian innovation infrastructure has allowed us to form a system of criteria and indicators for conducting correlation-regression analysis. We have systematized these indicators based on the principle of complex characteristics of all components of the innovation market as a part of the innovation infrastructure of the country (Tables 2). The statistical data was systematized according to the selected groups; correlation-regression analysis was carried out, and correlation coefficients were calculated – paired and general. The calculation of correlation indicators was carried out using the analytical package Microsoft Excel (Kniazevych, 2016).

Among the obtained indicators, we conduct the selection based on the principle of the highest correlation with the result indicator – the volume of the implemented innovative products and a minimum correlation with each other. The most important results of the assessment of the factors of the country's innovation infrastructure are:  $N_5$  – the number of executed scientific and technical researches;  $I_2$  – the number of the received security documents on the results of fundamental research;  $I_3$  – the number of the received security documents on the results of applied research;  $K_1$  – the capacity of the consulting services market;  $F_1$  – total amount of innovation activity financing;  $G_1$  – the number of enterprises that were mastering the production of the innovative types of products.

With the selected indicators (Table 2), we perform regression analysis and determine coefficients of the equation (formula 1).

$$y = 1,957636 \cdot x_1 + 60,48499 \cdot x_2 - 26,1292 \cdot x_3 + 0 \cdot x_4 - 0,23786 \cdot x_5 + 0 \cdot x_6 = ,957636 \cdot x_1 + 60,48499 \cdot x_2 - 26,1292 \cdot x_3 - 0,23786 \cdot x_5, \quad (1)$$

Table 2

**The system of indicators for finding the dependence of the volume of realized innovative products on the efficiency of innovation market functioning within the innovation infrastructure of Ukraine**

Indicators	Symbols	Years				
		2010	2011	2012	2013	2014
<b>The volume of the realized innovation product, million UAH</b>	Y	33697,6	42386,7	36157,7	35891,6	25669,0
<b>The market for innovative scientific and technical proposals, concepts (SRDCW)</b>						
Number of organizations carrying out scientific and technical activity, units	$N_1$	1303	1255	1208	1143	999
Number of employees of the organizations that carry out scientific and technical activities, thousand people	$N_2$	141,1	134,7	129,9	123,2	109,6
Financing of the scientific sphere, million UAH	$N_3$	4640,57	5126,81	6126,87	5962,16	5278,52
Budget financing of research and development activities, million UAH	$N_4$	4223,05	4594,07	5450,56	5347,79	4728,91
Number of executed scientific and technical researches, thousand units	$N_5$	52,0	52,3	52,3	47,9	43,0
Budget financing of fundamental research, million UAH	$N_6$	2403,80	2564,03	3020,84	3023,83	2795,13
Budget financing of applied research, million UAH	$N_7$	1595,62	1746,40	2126,37	2065,82	1823,69
<b>Intellectual property market</b>						
Number of received security documents for inventions, units	$I_1$	1991	2703	2743	2786	2270
Number of received security documents based on the results of fundamental research, units	$I_2$	1280	1948	2220	1715	1721
Number of received security documents based on the results of applied research, units	$I_3$	2546	3725	4619	3148	3203
<b>Information services market</b>						
Capacity of the consulting services market, million USD	$K_1$	300	337	392	445	490
<b>Financial services market</b>						
Total amount of innovation activity financing, million UAH	$F_1$	8045,5	14334	11481	9562,6	7695,9
<b>The market for ready innovation product</b>						
Number of enterprises that were mastering the production of innovative products, units	$G_1$	615	731	704	683	600
Number of new technologies, which were bought by industrial enterprises, units	$G_2$	707	872	739	651	543
Innovation production, number of positions	$G_3$	2408	3238	3403	3138	3661
Total amount of innovation expenses in industry, million UAH	$G_4$	8045,5	14333,9	11480,6	9562,6	7695,9

Source: developed by the author based on statistic data (The state of science and technology, the results of scientific, technical, innovation activity, technology transfer in 2014, 2015)

$y$  – the volume of the realized innovative products, million UAH;

$x_1$  – the number of executed scientific and technical researches, thousand units;

$x_2$  – the number of the received security documents on the results of fundamental research, units;

$x_3$  – the number of the received security documents on the results of applied research, units;

$x_4$  – the capacity of the consulting services market, million USD;

$x_5$  – the total amount of innovation activity financing, million UAH;

$x_6$  – the number of enterprises that were mastering the production of the innovative types of products, units.

Values of the number of the received security documents based on the results of the fundamental research have the highest level of influence on the resulting indicator. That is, with an increase in the number of the received security documents based on the results of fundamental researches by one unit, the volume of the realized innovative products will increase on average by 60.485 million UAH. With an increase in the number of the received security documents on the results of applied research by one unit, the volume of the realized innovative products increases by 1.958 million UAH. The constructed model provides an opportunity to predict the state of innovation infrastructure in the future, for this, it is necessary to identify trends in its factors development.

The system of indicators for finding the dependence of the volume of the realized innovative products on the efficiency of innovation market functioning within the innovation infrastructure of Ukraine is formed.

## 5. Conclusion

One of the main factors, which directly influence the dynamics and pace of the development of the national innovation system, is the degree of the development of the country's innovation infrastructure. It should

be stated that the main elements of the national innovation system of Ukraine function in isolation from each other, without any balance in this system, which causes its ineffectiveness. Further research should be aimed at establishing a systemic relationship and developing mechanisms for managing the formation and functioning of the national innovation system based on the effective innovation infrastructure of the country.

At the stage of the gradual overcoming the economic crisis, the creation of favourable conditions for the fuller realization of the creative and inventive potential of the Ukrainian society is gaining special significance in the innovative market of the country. The susceptibility of the national economy to innovation depends largely on the presence of demand for innovative products from consumers in the market, the acceleration of the dissemination of advanced technologies, including the expansion of the range of innovative active firms in the medium business, the creation of new innovative firms, and the dynamic growth of their scale.

The strategy of innovation development is aimed at the formation and functioning of a specific infrastructure to increase the acceptability of the business environment to innovation. Significant activation of the market of innovations cannot be carried out without addressing, as necessary, certain markets for innovative services operating in the innovation infrastructure of the country, the economy, etc.

The formation of self-sufficient and well-functioning innovative Ukrainian infrastructure, which is self-organized, is necessary not only for the harmonization of the functioning of the innovation system and national economy but also for the survival of the country. Despite the complexity and ambiguity of the influence of external and internal factors on the establishment and development of innovation infrastructure, the overall positive assessment suggests that, with certain efforts on the part of the state and business, Ukraine's innovative infrastructure can effectively develop and carry out its functions.

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# PRODUCTION FORECASTING AND EVALUATION OF INVESTMENTS USING ALLEN TWO-FACTOR PRODUCTION FUNCTION

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**Abstract.** The purpose of the article is to substantiate and systematize theoretical knowledge about Allen production function and it is an attempt to apply it in the tasks of modelling, analysis, and production forecasting at enterprises. *Methodology.* In the presented work, estimation's questions of unknown parameters of Allen function based on the least squares method and regression analysis on the basis of standard programs of the Excel are discussed; its belonging to neoclassical functions, as well as the most important economic and mathematical characteristics. In particular, in the framework of Allen production function, the formulas for average return of resources (capital productivity and productivity), marginal returns of resources, elasticity of output on factors need for productive resources, when there is a production output and one of the factors is given, also the replacement of resources (capital assets), the marginal rate of substitution of factors, the elasticity of replacement of resources (labour with capital). *Results.* Based on the assumption that Allen function belongs to the group of substitutional functions according to the equivalence principle, the formula of optimal capital formation is determined, which maximizes output at given total capital expenditures on the main production funds and labour remuneration (minimizes the total capital expenditures for a given volume of production). In addition, the calculation formulas for determining the maximum output (minimum total cost of capital) in terms of optimal capital stock are given. All the above indicators are summarized in the summary table of the main economic and mathematical characteristics of Allen production function. *Practical implications.* In the case when the model is based on empirical data that varies in time, for example, at one enterprise in a number of years, we are proposed to use the dynamic Allen production function, which explicitly includes the time factor. In both cases, the volume of the information base (sample size) is determined, which will ensure the representativeness of future conclusions regarding unknown parameters that are subject to evaluation. The article also considers Allen production function as an instrument for evaluating the economic efficiency of future investment in production in the usual and dynamic variants. *Value/originality.* The obtained theoretical and methodological aspects of Allen two-factor production function are illustrated in a practical example of construction, economic interpretation, and practical use of the model.

**Key words:** economic system, Allen production function, equimarginal principle, investments, dynamics.

**JEL Classification:** C61, C65, D20, D24

## 1. Introduction

The structural nature of factors, which influence the slowdown in the rate of return on investment and the changing conditions of the functioning of the economy, necessitates the improvement of its research methods on the basis of the development of constructing

production functions' methods. For the simulation of production processes in the economy, the production functions of investment description are used, which as a factor of production affects dynamics of output.

The assessment of investment as an indicator of the state of production efficiency is one of the main

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indicators determining the effectiveness of measures for modernization and restoration of fixed assets. That's why the use of production functions will allow assessing the impact of individual production factors on the efficiency of production.

Unlike the most popular economic researches of the Cobb-Douglas production functions and functions with constant substitution elasticity of resources, the practical application of Allen production function is quite rare in the national scientific literature devoted to mathematical and statistical modelling and forecasting.

Allen two-factor production function is described by a mathematical model:

$$Y = A_0 KL - A_1 K^2 - A_2 L^2, \quad (1)$$

Allen two-factor production function describes the dependence of output  $Y$  in value terms on the cost of the main productive funds  $K$  and the payment of labour  $L$ , in the economic literature can only be found that it has two properties:

- 1) growth rates of the marginal productivity of factors are constant;
- 2) function (1) is homogeneous.

The first property of Allen production function is easily verified if we will find the second partial derivatives of each factor:

$$\frac{\partial^2 Y}{\partial^2 K} = -2A_1; \quad \frac{\partial^2 Y}{\partial^2 L} = -2A_2. \quad (2)$$

The second property is also no doubt. To check it, we increase each production factor by  $\lambda$  times. Then the new output of  $Y_1$  by formula (1) will increase  $\lambda^2$  times:

$$Y_1 = A_0 \lambda^2 KL - A_1 \lambda^2 K^2 - A_2 \lambda^2 L^2 = \lambda^2 Y, \quad (3)$$

It is mean that Allen production function is a homogeneous function with a homogeneity coefficient 2.

In addition, it is known that provided  $A_1, A_2 > 0$  the production function (1) is intended for a formal description of production processes, in which the excessive growth of any of the factors negatively affects the volume of output. Usually, such a feature is used to describe small-scale market and production systems with limited resources processing capabilities.

Today, this is all that can actually be learned about Allen production function, although, in our opinion, the role of this function is highly underestimated as, in the conditions of the permanent crisis of the domestic economy, this behaviour is typical for the production of most industrial enterprises.

## 2. Analysis of recent research and publications

The theory and practice of using two-factor production functions in the economy have been the subject of research by many foreign and domestic scientists for a hundred years.

Since the construction of production functions allows you to determine the impact of each resource on the result of production and provide a forecast for changes in production volume with changes in the volume of resources.

The most popular economic research of the production function is the Cobb-Douglas function (Cobb, 1928) for analysing the magnitude of capital and labour on the volume of production in the industry based on the definition of the optimum of the commodity producer in the classical and dynamic variants. The Cobb-Douglas function is used to describe the dependence of production on its production factors.

The works of the authors Griliches & Mairesse (1995) and others are devoted to the analysis of the economy as a level of industries, and the level of the enterprise on the basis of the production function of Cobb-Douglas.

The question of the definition of essence and conditions for maximizing neoclassical production functions with the definition of the level of the optimal capital stock was considered in publications by Perloff (2014), Debertain (2012).

Debertain (2012) examines algebraic conditions for maximizing neoclassical production functions on the basis of multiplicative production models. However, in his work, he explores local extremes and maximum on the basis of saddle points of production functions, but without an assessment of the impact on the output of the assets' level in the framework of investigated production functions.

Chetyrkin & Klas (1986) depicts the output function as a function of  $Y = f(K, L)$ , which reflects the dependence of productivity on factors including capital stock. Determination of capital stock's optimum at the enterprise is the receipt of a given volume of production on the basis of production functions' corresponding isoquant, and economic possibilities of the enterprise are given by isocost production functions.

In practice, other production functions are also used, in particular, Leontief functions, which are used to simulate deterministic production processes, which do not allow deviations from the established norms of resource use per unit of output.

Investigation of the model of the production process based on two-factor production functions according to Kleiner (1986) characterizes a stable quantitative dependence between the indicators of resources and output.

Among modern scholars should be noted Hrabovetskyi (2006), Pavelescu (2011), Lewin (2000), Mazzi and Lemoine (2010), Solow (1957), Shumska (2007a).

Among the authors who have recently been using production functions, generalized by the CE-function, it is necessary to note the work of Shumska (2007b). However, there is no systematic approach to the solution of the problem in the modern economic literature. The

CES-function is the most common one and is used in the absence of complete information on the level of interchangeability of production factors and can, therefore, be used to model systems of any level.

Allen function is intended to describe production processes, in which excessive growth of one factor affects the volume of production.

The mention of the existence in the theory of Allen production functions can be found in the works of Borovskiy (2008), Shumska (2007b). But all of them are without exception limited to the statement of the above two properties of production functions (1), as well as an indication of the area of its possible use. And all authors give practically the same brief information. As for the methods of estimating the unknown parameters of Allen two-factor production functions  $A_0, A_1, A_2$ , their economic interpretation, the membership of the production functions (1) to neoclassical functions, their more important economic and mathematical characteristics and other theoretical and practical issues, all of them were left out of the attention of specialists in the field of econometric modelling and forecasting.

### 3. Setting targets

The purpose of the study is to develop and systematize theoretical knowledge of Allen production function and attempt to apply it in the tasks of modelling, analysis, and production forecasting at enterprises.

### 4. Analysis of the apparatus of the production function and the problem of constructing a model of economic growth

Simulation of a dynamic production function. Let us start with methods of estimating unknown parameters of production function (1)  $A_0, A_1, A_2$ . Enter the following notation:  $K^2 = X; L^2 = Z; KL = \sqrt{XZ}$ . Then the expression (1) is represented as follows:

$$Y = A_0\sqrt{XZ} - A_1X - A_2Z. \quad (4)$$

Obviously, equation (4) is a simple linear function of variables  $X, Z$  and  $\sqrt{XZ}$ , and estimation of unknown parameters  $A_0, A_1, A_2$  is reduced to the use of the usual least squares method on the basis of standard regression analysis programs, for example, in the *Excel*, or in a program package *STATISTICA*. It is mean, there are no special problems: it is enough to calculate the variables according to empirical data  $X, Z, \sqrt{XZ}$  and carry out a well-known procedure for evaluating regression coefficients. In this case, the accuracy of the constructed model is characterized by the magnitude of the determination coefficient  $R^2$  ( $0 \leq R^2 \leq 1$ ).

Allen production function does not apply to neoclassical functions, since conditions  $f(K, 0) = 0, f(0, L) = 0$  are not fulfilled:

$$f(K, 0) = -A_1K^2; f(0, L) = -A_2L^2. \quad (5)$$

This means that when  $A_1, A_2 < 0$  production function (1) involves production output  $Y$  only at the expense of one production factor  $K$  or  $L$ , that is, the elasticity of their replacement goes to infinity ( $\sigma_{LK} \rightarrow \infty$ ), which is characteristic of a linear function  $Y - A_3 = A_0KL + A_1K^2 + A_2L^2$ .

Consider the more important economic and mathematical characteristics of Allen production function.

1) average returns of the unit of each factor (return on capital and productivity):

$$\frac{Y}{K} = \frac{A_0KL - A_1K^2 - A_2L^2}{K} = A_0L - A_1K - A_2L\left(\frac{L}{K}\right),$$

$$\frac{Y}{L} = \frac{A_0KL - A_1K^2 - A_2L^2}{L} = A_0K - A_1K\left(\frac{K}{L}\right) - A_2L. \quad (6)$$

2) the marginal productivity of capital ( $MP_K$ ) and marginal productivity of labour ( $MP_L$ ), which show how much output will increase  $Y$  with an increase in the corresponding factor per unit:

$$MP_K = \frac{\partial Y}{\partial K} = A_0L - 2A_1K; \quad (7)$$

$$MP_L = \frac{\partial Y}{\partial L} = A_0K - 2A_2L.$$

3) product elasticity  $Y$  by factors  $K, L$ , which shows how many percents changes the average output of products when the value of the corresponding factor is changed by one percent:

$$E_K = \frac{\partial Y}{Y} : \frac{\partial K}{K} = \frac{\partial Y}{\partial K} : \frac{Y}{K} = \frac{A_0L - 2A_1K}{A_0L - A_1K - A_2L\left(\frac{L}{K}\right)},$$

$$E_L = \frac{\partial Y}{Y} : \frac{\partial L}{L} = \frac{\partial Y}{\partial L} : \frac{Y}{L} = \frac{A_0K - 2A_2L}{A_0K - A_1K\left(\frac{K}{L}\right) - A_2L}. \quad (8)$$

That is, the elasticity of output  $Y$  by factors  $K, L$  represents the ratio of the marginal impact and the average return of each factor.

4) the need for production factors when output  $Y$  and one of the resources is given:

$$K = f(Y, L) = \frac{-A_0L \pm \sqrt{D}}{2A_1}, \quad \partial e \quad D = (A_0L)^2 - 4A_1(Y + A_2L^2);$$

$$L = f(Y, K) = \frac{-A_0K \pm \sqrt{D}}{2A_2}, \quad \partial e \quad D = (A_0K)^2 - 4A_2(Y + A_1K^2). \quad (9)$$

Here we mean that determinants of the corresponding square equations  $D \geq 0$ . If  $D = 0$  solutions (9) are simplified:

$$K = f(Y, L) = -\frac{A_0L}{2A_1}, \quad L = f(Y, K) = -\frac{A_0K}{2A_2} \quad (10)$$

and the need for resources does not depend on the volume of output.

5) replacement of factors (capital stock  $F = \frac{K}{L}$ ) as the ratio of resources found on the basis of formulas (9) or (10).

6) marginal rate of substitution of factors as a ratio of marginal returns of production factors (7):

$$MRS_{LK} = \frac{MP_L}{MP_K} = \frac{A_0K - 2A_2L}{A_0L - 2A_1K} = \frac{A_0 \frac{K}{L} - 2A_2}{A_0 - 2A_1 \frac{K}{L}} = \frac{A_0F - 2A_2}{A_0 - 2A_1F}. \quad (11)$$

Obviously, the condition must be fulfilled  $A_0 \neq 2A_1F$ , and capital stock  $F$  is taken on average in the aggregate of observation levels.

7) the elasticity of the substitution of factors (labour by capital) taking into account the formula (11):

$$\sigma_{LK} = \frac{\partial \left( \frac{K}{L} \right)}{\frac{K}{L}} \cdot \frac{\partial (MRS_{LK})}{MRS_{LK}} = \frac{\partial \left( \frac{K}{L} \right) MRS_{LK}}{\partial (MRS_{LK}) \frac{K}{L}} = \frac{(A_0F - 2A_2)(A_0 - 2A_1F)}{F[A_0(A_0 - 2A_1F) + 2A_1(A_0F - 2A_2)]}. \quad (12)$$

This means that, in the framework of Allen production function, the elasticity of the substitution of factors, in contrast to the Cobb-Douglas production function and other neoclassical functions, has a rather complex expression (12). It can be represented in terms of the marginal impact of production factors (7):

$$\sigma_{LK} = \frac{MP_L MP_K}{K(A_0 MP_K - 2A_1 MP_L)} \quad (13)$$

under conditions  $K \neq 0, A_0 \neq 2A_1 MRS_{LK}$ .

### 5. An analysis of the production process and the problem of constructing a model of economic growth

Allen two-factor production function belongs to a group of substitutional functions, that is, it is assumed that the productive resources  $K, L$  are to some extent interchangeable. This means that a certain amount of one production factor can be offset by the corresponding amount of another (formulas (9) – (11) with constant output  $Y$ ).

And at zero the value of one of the production factors provided  $A_1, A_2 < 0$ , the elasticity of the substitution of the production function (1) goes to infinity (formula (5), that is, behaves like a linear function).

This property is called the assumption of non-zero replacement of resources. In other words, for Allen production function, a fair relation

$$A_0(K + \Delta')L - A_1(K + \Delta')^2 - A_2L^2 = A_0K(L + \Delta'') - A_1K^2 - A_2(L + \Delta'')^2, \quad (14)$$

That is marginal products of capital  $MP_K$  and labour  $MP_L$  (7) within the framework of the production function (1) differ from zero, and the marginal rate of substitution of production factors  $MRS_{LK}$  (11) exists in the form of a certain real non-reactive number.

Therefore, based on the rule we have developed for determining the optimal capital stock  $F^*$ , which maximizes production output  $Y$ . Given the total amount

of capital expenditures by the equimarginal principle, one can find the value  $F^*$  in the framework of Allen production function (Florin, 2011; Lemoine, Mazzi, Monperrus-Veroni, & Reynès, 2010). To this end, the marginal rate of substitution of factors  $MRS_{LK}$  equate to unity:

$$MRS_{LK} = \frac{A_0F - 2A_2}{A_0 - 2A_1F} = 1. \quad (15)$$

Where  $F^*$  is equal to:

$$F^* = \frac{A_0 + 2A_2}{A_0 + 2A_1}. \quad (16)$$

It is clear that this requirement must be met  $A_0 \neq -2A_1$ . Consequently, when investing in factors  $K$  and  $L$  in the proportion (16), the production process, which is adequately described by the production function (1), will ensure the maximum output  $Y_{MAX}$ .

Expressing  $K(L)$  from formula (16) and substituting into a production function (1), we find the maximum production output at the point of optimal capital stock on the condition of the adequacy of Allen function for the economic phenomenon being investigated:

$$K = L \frac{A_0 + 2A_2}{A_0 + 2A_1}, \quad Y_{MAX} = A_0L^2 \frac{A_0 + 2A_2}{A_0 + 2A_1} - A_1L^2 \left( \frac{A_0 + 2A_2}{A_0 + 2A_1} \right)^2 - A_2L^2; \quad (17)$$

$$L = K \frac{A_0 + 2A_1}{A_0 + 2A_2}, \quad Y_{MAX} = A_0K^2 \frac{A_0 + 2A_1}{A_0 + 2A_2} - A_1K^2 \left( \frac{A_0 + 2A_1}{A_0 + 2A_2} \right)^2.$$

Taking into account (16), as well as expressions  $K, L$  from (17) we find the minimum total cost of capital  $C_{MIN} = K + L$  for Allen production function in the event of a given production  $Y$  and optimal asset management: 1) because of the specified labour costs  $L$ :

$$C_{MIN} = K + L = L \left( \frac{A_0 + 2A_2}{A_0 + 2A_1} + 1 \right) = 2L \left( \frac{A_0 + A_1 + A_2}{A_0 + 2A_1} \right); \quad (18)$$

2) because of the specified costs, sent to the main productive assets  $K$ :

$$C_{MIN} = L + K = K \left( \frac{A_0 + 2A_1}{A_0 + 2A_2} + 1 \right) = 2K \left( \frac{A_0 + A_1 + A_2}{A_0 + 2A_2} \right). \quad (19)$$

Summarizing results of formulas (6) - (19), in Table 1, we present the main economic-mathematical parameters of Allen production function (1).

Equations (1) and (4) are usually used in the case of modelling the variation of empirical data in space, for example, when they are based on annual financial and statistical information for a group of enterprises. When the model is based on empirical data that varies in time (for example, one enterprise in a number of years), then it is necessary to use the Allen dynamic production function. In this case, the equation (1) takes the form:

$$Y = A_0KL - A_1K^2 - A_2L^2 + \omega t, \quad (20)$$

where  $\omega$  – an average annual absolute increase of production  $Y$  at the expense of all factors other than  $K$  &  $L$ ;  $t$  – time factor ( $t = 1, 2, \dots, N$ ).

The magnitude of the quantitative parameter  $\omega$  reflects all those qualitative changes that occur in the economy and are not related to the factors of “basic

Table 1

**Basic economic and mathematical characteristics of Allen production function**

Indicator	K	L
1. Average return	$\frac{Y}{K} = A_0L - A_1K - A_2L\left(\frac{L}{K}\right)$	$\frac{Y}{L} = A_0K - A_1K\left(\frac{K}{L}\right) - A_2L$
2. Marginal return	$MP_K = A_0L - 2A_1K$	$MP_L = A_0K - 2A_2L$
3. Elasticity of product release, %	$E_K = \frac{A_0L - 2A_1K}{A_0L - A_1K - A_2L\left(\frac{L}{K}\right)}$	$E_L = \frac{A_0K - 2A_2L}{A_0K - A_1K\left(\frac{K}{L}\right) - A_2L}$
4. The need for production resources	$K = \frac{-A_0L \pm \sqrt{D}}{2A_1}, \quad \partial e$ $D = (A_0L)^2 - 4A_1(Y + A_2L^2)$	$L = \frac{-A_0K \pm \sqrt{D}}{2A_2}, \quad \partial e$ $D = (A_0K)^2 - 4A_2(Y + A_1K^2)$
5. Replacement of factors (capital stock)	$F = \frac{K}{L}$	
6. Marginal rate of factors' replacement	$MRS_{LK} = \frac{A_0F - 2A_2}{A_0 - 2A_1F}$	
7. Elasticity of factors' replacement	$\sigma_{LK} = \frac{MP_L MP_K}{K(A_0 MP_K - 2A_1 MP_L)}$	
8. Optimal capital stock	$F^* = \frac{A_0 + 2A_2}{A_0 + 2A_1}$	
9. Maximum issue products given total cost capital and optimal capital stock	$Y_{MAX} = A_0K^2 \frac{A_0 + 2A_1}{A_0 + 2A_2} - A_1K^2 - A_2K^2 \left(\frac{A_0 + 2A_1}{A_0 + 2A_2}\right)^2$	$Y_{MAX} = A_0L^2 \frac{A_0 + 2A_2}{A_0 + 2A_1} - A_1L^2 \left(\frac{A_0 + 2A_2}{A_0 + 2A_1}\right)^2 - A_2L^2$
10. Minimal total capital expenditure at given release products and optimal capital stock	$C_{MIN} = 2K\left(\frac{A_0 + A_1 + A_2}{A_0 + 2A_2}\right)$	$C_{MIN} = 2L\left(\frac{A_0 + A_1 + A_2}{A_0 + 2A_1}\right)$

Source: own development

productive assets” and “labour”. It characterizes the general economic conditions of reproduction at a specific production (in the enterprise, in the region, in the country) at a given time interval.

All unknown coefficients of regression  $A_0, A_1, A_2, \omega$  of models (20) are determined similarly to the previous case – based on standard regression analysis programs. In both situations, the volume of the information base (sample size) should be 3-4 times more than the number of unknown parameters to be evaluated. That is, for the model (4), it is 9-12 points, for the model (20) – 12-16 observations.

**6. Allen production function as an instrument for assessing the economic efficiency of investment in production**

Certain scientific and practical interest acquires Allen production function as an instrument for assessing the economic efficiency of future investment in production.

Consider the effect of the values of the coefficients of the production function (1) on the value of the total future capital investment  $C = K + L$ . The main reason for this reasoning is that future profits  $p(K, L)$  should be a positive value:

$$p(K, L) = Y - C = A_0KL - A_1K^2 - A_2L^2 - C > 0. \quad (21)$$

In the opposite case, investments in a market economy lose all meaning. Immediately note that the values  $K, L$  as a part of the overall future capital investment  $C$  it is expedient to take in the ratio of an optimal capital stock (16):

$$K = \frac{0,5A_0 + A_2}{A_0 + A_1 + A_2} \cdot C; \quad L = \frac{0,5A_0 + A_1}{A_0 + A_1 + A_2} \cdot C. \quad (22)$$

It is easy to verify that the costs of basic productive assets and labour (22) satisfy the ratio (16), and their sum equals investment  $C$ . Enter the following notation:

$$\frac{0,5A_0 + A_2}{A_0 + A_1 + A_2} = S; \quad \frac{0,5A_0 + A_1}{A_0 + A_1 + A_2} = T. \quad (23)$$

Then  $K, L$  from the expression (22) are represented as follows:  $K = SC, L = TC$ . We will substitute them into inequality (21):

$$p(K, L) = A_0STC^2 - A_1S^2C^2 - A_2T^2C^2 - C > 0. \quad (24)$$

From the relation (24) follows:

$$p(K, L) = C(A_0ST - A_1S^2 - A_2T^2) > 1. \quad (25)$$

So, future profits  $p(K, L)$  will be positive when the requirement is fulfilled:

$$C > (A_0ST - A_1S^2 - A_2T^2)^{-1}. \quad (26)$$

The inequality (26) determines the lower boundary of the future investment  $S$ .

Thus, investing in production, which is adequately described by the production function (1), will be cost-effective if the future investment  $C$  satisfies the following condition:

$$C > (A_0ST - A_1S^2 - A_2T^2)^{-1}. \quad (27)$$

Consider now the case of applying the Allen dynamic production function (20). In this situation, it is possible to estimate the minimum payback period of the future investment. It is easy to show that, in order to obtain a positive return on investment, the payback period must satisfy the inequality:

$$t > \frac{C}{\omega} (1 - A_0STC + A_1S^2C + A_2T^2C). \quad (28)$$

It is supposed that the production of additional products is carried out in conditions of optimal capital stock when capital investments are distributed in proportion (22).

We illustrate the procedure of construction, economic interpretation and practical use of Allen production function, according to the statistical reporting of the enterprise "X" for 2005–2015 (Table 2).

Table 2  
**Outgoing data for modelling the dependence of production output of enterprise "X" from capital costs on basic production funds and pay**

Years	Y, thousand UAN	K, thousand UAN	L, thousand UAN	t	K/L
2005	14820	13978	851	1	16,425
2006	23439	14690	1401	2	10,485
2007	40538	17644,5	2409	3	7,324
2008	46790	23492,5	2839	4	8,275
2009	42603	26834	3502	5	7,662
2010	43214	16039	4913	6	3,265
2011	53988	18121	7940	7	2,282
2012	68049	18326	9202	8	1,992
2013	67577	21624	9959	9	2,171
2014	60321	23747	10591	10	2,242
2015	56149	26084,5	12293	11	2,122

Since the source data is presented in the form of time series, we will apply a dynamic model (20). As a result of calculations, the following equation was obtained:

$$Y = 0,0010709KL - 0,0001005K^2 - 0,0015433L^2 + 10366,9983t, \quad (29)$$

where  $Y$  – realized products of the enterprise, thousand UAH.

The Allen dynamic production function (29), built on 11 observations, was statistically reliable as a whole ( $F$  – Fisher’s criterion 12.19 with a probability of error 0.005) and on individual coefficients according to Student’s criterion (probability of error does not exceed 0.08). Determination factor  $R^2 = 0,8905$  indicates that more than 89.6% of the time variation of the product sold is adequately described by the equation (29).

Although small but positive values of the coefficients  $A_1, A_2$  indicate that with the growth of production factors  $K, L$  the output of meat products in time gradually diminished. Model parameter  $\omega$  shows the absolute annual growth of sales in the amount of 10366.99 thousand UAH that the enterprise "X" received at the expense of all factors, except  $K$  &  $L$ . The main of them was the growth of prices for products of the enterprise, especially in recent years.

By formula (16) we find the optimal capital stock at the enterprise for the study period of time:

$$F^* = \frac{A_0 + 2A_2}{A_0 + 2A_1} = \frac{0,0010709 + 2 \times 0,0015433}{0,0010709 + 2 \times 0,0001005} = 3,269.$$

If you look at the initial data of the enterprise "X", then we can see that the actual capital stock in general exceeds the optimal. This means that the productive assets for enterprises "X" are in surplus. Find the average marginal rate of replacement of  $MRS_{LK}$  resources at the enterprise for the entire study period:

$$MRS_{LK} = \frac{A_0F - 2A_2}{A_0 - 2A_1F} = \frac{0,0010709 \times 3,347 - 2 \times 0,0015433}{0,0010709 - 2 \times 0,0001005 \times 3,347} = 1,250.$$

Value  $MRS_{LK} = 1,25 > 1$  confirms the conclusion about the suboptimal capital stock at the initial stage (2005–2009) of the investigated period and the excess of capital invested in production funds for enterprises "X" in comparison with labour costs. Therefore, the question arises: what revenues from the sale of the enterprise "X" would have received, for example, in 2009, with the optimal capital stock of 3.269 and actual labour costs of 3502 thousand UAH? In answering this question, we will use the first of formulas (17), taking into account that the Allen dynamic production function with a plural  $\omega t'$  ( $t'$  – the number of the year corresponding to the research year):

$$Y_{MAX} = L^2[A_0F^* - A_1(F^*)^2 - A_2] + \omega t' = 3502^2[0,0010709 \times 3,269 - 0,0001005 \times (3,269)^2 - 0,0015433] + 10366,998 \times 5 = 62665,74.$$

Note that in 2009, the sale to enterprises "X" amounted to 42603 thousand UAH. Consequently,

reserve for the growth of products sold at the expense of optimizing capital stock (primarily due to the sale of part of unused basic production assets) amounted to approximately  $62666 - 42603 = 20063$  thousand UAH. In 2012, the sale to enterprises "X" amounted to 68049 thousand UAH. Therefore, the reserve for the growth of products sold at the expense of optimization of capital stock (primarily due to the sale of part of unused basic production assets) amounted to approximately  $157717 - 68049 = 89668$  thousand UAH. Similar calculations of hidden reserves of sales of the enterprise "X" can be made for all years of the period of non-optimal capital stock.

## 7. Conclusion

Analysis of production based on the application of the usual and dynamic Allen production function, which adequately describes the economic object in conditions of production factors' growth and reduction of production, showed the necessity and relevance of their application. In turn, the use of the apparatus of production functions as a tool for analysing the economic efficiency of future investment in the enterprise production has a great potential for development.

However, when conducting an economic analysis and forecasting the development of production and investment, there is a problem of aggregating

economic indicators for economic and mathematical modelling (Koval, V., Prymush, Y., & Popova, V., 2017). The application of the Allen dynamic production function allows us to estimate the minimum payback period of the future investment. It is proved that the production of additional products is carried out under conditions of optimal capital stock when capital investments are distributed in a corresponding proportion and will ensure the maximum output of  $Y_{MAX}$  products.

The obtained results provide the necessary basis for constructing economic growth models based on the quantitative expression of the volume of the product using the corresponding production function. The proposed apparatus of production functions remains relevant in the study of investment valuation since it serves as the optimal means for establishing a change in indicators of economic dynamics. On the basis of models of production functions, including Allen production function, the modelling of the dependence of the output of the enterprise on capital expenditures on the main productive assets and labour remuneration was performed.

As prospects for further scientific advances in this area, we see a more detailed study of the Allen dynamic production function, since it is suitable for modelling production at individual enterprises in the context of crisis phenomena characteristic of the modern Ukrainian economy.

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# A GIFT FOR A PUBLIC SERVANT – A MANIFESTATION OF RESPECT, REWARD OR A MEANS OF UNLAWFUL INFLUENCE

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**Abstract.** The article, based on analysis of scientific works and legislation of different countries, singles out problematic issues of legal regulation of relations connected with the reception of gifts by public servants. It is substantiated that in modern conditions a gift, unfortunately, can be used not only as a manifestation of respect and gratitude but also an unreasonable enrichment of public servant and unlawful influence on him, his official activity. Fragmentation, contradiction in the content of the “gift” legislation, its saturation with its evaluative and generalizing provisions predetermines the existence of “grey” zones in the legal basis of the use of a gift resource for public servants. Analysing existing prohibitive, restrictive, permissive models of “gift relations in the public service”, the expediency of introducing an absolute prohibition on gifts for public servants is justified. It is proposed to provide exceptions for “ordinary” gifts, “official” gifts, and gifts on the occasion of special personal events, with the definition of limits of allowed behaviour. The mandatory declaration of all gifts received by a public servant, indicating its sources, seems expedient. The normative definition of a “gift” is proposed to be fixed in a special anti-corruption legislative act, focusing on its disinterested symbolic, non-systematic nature, the legitimacy of acts of the servant as the basis for the gift, and the absence of any arrangements for its provision between the public servant and the “donor of a gift.” As a result, it eliminates its mistaken association with unlawful benefits, public servant’s labour compensation, incentive, and indemnity payments. Taking into account the specifics of “official” (“business”) gifts, detailed regulation of rules of conduct with them is proposed, including the possibility of their redemption, with the priority of realization and protection of public interest. The necessity of unification of legal principles of regulation of “gift relations in the public service” and coordination of provisions of anti-corruption (in the part of special prohibitions and declaration as a means of preventing conflicts of interest in the public service), tax (in terms of declaration of incomes and determination of the legality of their sources), and tort (liability for breach of established regulations) legislation is grounded. It is considered appropriate to form uniform legal standards for the implementation of “gift policy in the public service.”

**Key words:** reward, prohibition, corruption, restriction, reception, gift, gift relations, public servant, public service, rules, unlawful acts, donor, conflict of interest.

**JEL Classification:** D73, H83, D74

## 1. Introduction

In the search for the best means of preventing and counteracting corruption offenses and corruption-related offenses, an in-depth analysis of the traditional means of prevention of the conflict of interest in the professional activities of public servants is important. Among the latter, a prominent place belongs to special restrictions or special prohibitions on the reception of gifts by the abovementioned persons (special subjects, taking into account the peculiarity of their legal interest and sphere of professional activity) as these gifts are

usually used in conjunction with the declaration of these persons of their income and expenditures (including gifts as a part of the first one). The fragmentation of the statutory regulation of relations related to the implementation of the state’s “gift policy” with regard to public servants, to the dispersion of the relevant principles in numerous legal acts that are diverse in terms of legal force, oversaturated by appraisal concepts, to the simultaneous absence of clear criteria for determining models of lawful and unlawful behaviour, including concerning the declarations for gifts, predetermines

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the prevalence of violations of special restrictions by public servants, in particular, with the avoidance of legal liability. Elimination of such a state of affairs should play the role of the priority task of the current regulatory and law-enforcement activity of any state, taking into account the positive existing experience, approved by time and practice, and the formation of uniform legal standards of “gift relations in the public service.” The issue of regulation of “gift relations in the public service” attracted the attention of a considerable number of legal scholars, representing various branch specialties. This is quite justified, given that in different countries, corresponding relations are subject to the regulation of various branches (administrative, criminal, etc.). Some aspects of legal regulation of “gift relations in the public sphere,” definition of permitted, prohibited behaviour models were covered in works of A. Hafurova, D. Paihin, V. Vasyliiev, S. Zymnieva, H. Chumakova, S. Bonsing, L. Langsted, I. Bykieiev, K. Berdnikova, V. Nastiuk, V. Bielievtsova, O. Klok, O. Dudorov, M. Khavroniuk, and others, which were used when writing this paper. At the same time, despite all the diversity and plurality of sources, by this time, there are no complex works with a comparative legal analysis of legal provisions, the practice of law enforcement, proposals for the development of common legal standards of “gift policy in the public service”, which determines the relevance and significance of in-depth scientific thematic study.

The purpose of the paper lies in distinguishing the problem issues of “gift policy in the public sphere” on the basis of analysis of various sources, thus identifying the real resource of the gift and formulating specific proposals on the legal regulation of relations of gifts’ reception by public servants, their declaration, eliminating the preconditions for conflicts of interest in the public service.

## 2. Key research findings

In order to find out what is really a gift for a public servant, one should focus first of all on what should be considered a gift. The analysis of the legislation of different countries, scientific works of representatives of various scientific schools allows suggesting that the legislator in different countries clearly delineates a gift in the aspect of private law regulation (contractual relations, including with the participation of public servants, when the latter acquire the status of ordinary subjects of contractual relations, without emphasis on the specifics of their legal status, the peculiarity of their professional activity) and special gift relations in the aspect of anti-corruption regulation (with the emphasis on attaching a gift to the special status of a public servant, to his professional activities, oriented towards satisfying public interests). Emphasizing “special gift relations” associated with public service, the legislator fixes the definition of a gift. Thus, in Ukraine,

a gift is considered to be a “cash or other property, advantages, benefits, services, intangible assets that are provided (received) free of charge or at a price below the minimum market” (Article 1 of the Law of Ukraine “On Prevention of Corruption”). At the same time, at the level of by-laws, the official legislative definition may be elaborated. Thus, in particular, the Rules of Ethical Conduct and Corruption Prevention in the Bodies of the State Fiscal Service, approved by the Order of the SFS on 01.12.2017, No. 979, stipulate that the gift should also be considered “free education, transportation, accommodation, and food, both those provided directly, and through the purchase of tickets, subscriptions, or reimbursement after payment was made”. In the USA, a gift is considered as a “monetary remuneration, refrain from any actions or other actions, items that may have a monetary expression” (Standards of Ethical Conduct for Employees of the Executive Branch, approved by the Regulation of the United States Office of Government Ethics). The same document clarifies that gifts may be expressed “... in the natural form, or in a different form (reimbursement of expenses, purchase of tickets, etc.)”. Canada’s law provides that a gift for a public servant can be considered any item, service, action, etc., if it can be expressed in monetary form (Bikeev, 2013).

Analysing the proposed definitions, it can be argued that, despite the variety of external forms of the expression of a gift, its main features nevertheless are: a) the relationship with a special subject – the person to whom the gift is offered, as well as: b) its free-of-charge basis (or sometimes concealed minimum cost), which makes it impossible for the presentee to perform a similar action in relation to the person who proposes (provides) the gift; c) the legitimacy of the presentee’s actions as a basis for the emergence of gift relations. Several clarifications should be made. Undoubtedly, the spontaneity of actions of the person who provides the gift (“gift donor”), the absence of any prior agreements between the subjects of gift relations is a specific feature that is inherent in relations with the so-called “special gift,” “gift relations in the public service,” and this has repeatedly drawn attention of legal scholars. The absence of a preliminary arrangement is related to the lack of the obligation of the gift’s recipient to take any action in relation to the presenter (gift donor). It is the selfless nature of “gift relations in the public sphere” that is their specific feature. It is entirely possible to support the position of I. Bykieiev that the gift in this aspect should be regarded as “a thing, a material object, which the donor, on his own terms and for free, presents in order to provide pleasure or the benefit to the recipient of a gift ... At the expense of the gift the donor initiates the legal relations, sends a reminder of himself” (Bikeev, 2013). Giving a gift, the donor does not expect from a public servant any reciprocal action, a reverse adequate response. That is why it is quite legitimate to regulate at the legislative level the prohibition for public servants

to receive gifts directly related to their professional activities in the realization and protection of public interests, as well as gifts from subordinates, which may predetermine a certain “need for a reverse adequate response,” which is a kind of encroachment on the “purity of official activity,” the impartiality and fairness of the latter. Such a prohibitive model of gift relations is enshrined in the laws of many states. For example, in the USA, Ukraine, Germany, Denmark, Finland, China, the Netherlands, and other countries, it is prohibited to receive gifts that are directly related to professional activities and from subordinates. For violation of the relevant provisions, criminal liability is provided. In Poland, such prohibitions apply to persons assigned to political positions, and officials in elected positions in local self-government bodies, and in Hungary – members of parliament (Manuel Villoria, Staffan Synnerström, János Bertok, 2010, p. 20). In Moldova, the ban on the receipt of gifts extends to civil servants for the entire period of their official duties (Gafurova, 2015), and the Prime Minister of Latvia is able to receive all gifts given to him during the exercise of his powers only after leaving the post and only in terms of their redemption (Gafurova, 2015). Such a prohibition seems to be quite justified, given that the gift to a public servant, as a rule, is not granted “for no special reason.” The practice of analysing “gift relations” suggests that “nobody gives public servants, especially regarding their business activities, gifts for no particular reason” (Zimneva, Chumakova, 2015). They are provided before or after the satisfaction of certain “interests,” although in practice these facts are difficult to prove. However, “gift relations” are preceded by or are the result of relations involving the exercise by a public servant of his or her powers regarding elements of the legal status of the donor or persons associated with him. It is these gifts that pose a threat to the “purity of service” and should be prohibited for any public servants.

However, in some countries, “gift giving relations” in the public service are legally enshrined, although there are few such examples. Thus, in particular, in Japan, exchanging gifts between public servants (“okaeshi”) (translated from Japanese – “return”) is foreseen. Upon receiving a gift, a public servant is obliged to give the donor (“actually return”) a gift of approximately the same value (Bikeev, 2013). Without denying the specifics of such a model of “gift relations in the public service” and its admissibility for Japan, nevertheless, it should be assumed that there are a large number of problems related to its practical implementation and, therefore, the expediency for borrowing by other countries.

It is also necessary to focus on the legitimacy of actions of a public servant as the basis for the emergence of “gift relations in the public service.” It is the lawful nature of acts (actions or inaction) of public servants that prompts the donor, and in this aspect, the gift should

be distinguished as a reaction (before or after) to lawful acts and unlawful benefits as a reaction to unlawful acts of a public servant. The gift is associated with “positive” and unlawful benefit – with the “negative” acts of a public servant. That is why the gift can be regarded as a manifestation of “respect, gratitude, recognition of acts of a public servant” (Zimneva, Chumakova, 2015). At the same time, it should not be considered as a promotion in civil service law, which is directly related to “public approvals, the recognition of personal merits, successful and faithful fulfilment by the person of his or her official duties, the results achieved with the provision of a person with material, moral, status, and other benefits, values, guarantees, privileges, etc.” (Armash, Berlach, Bolokan at al., 2017). It is not worth to equate the gift with the payment for labour as a whole, taking into account the specific features of the latter, as well as a compensation payment, which may also have a one-time nature, but significantly different grounds, procedure, subjects of provision. In the legislation of some foreign countries, a clear distinction is made between remuneration and a gift. Thus, the Law of the Russian Federation on 25.12.2008 “On Corruption Counteraction” provides for the prohibition to receive remuneration (loans, monetary and other remuneration, services, payment for entertainment, rest, transport expenses) and gifts not stipulated by the legislation in connection with the performance of official (job) duties (Chernogor, Zaloilo, Ivaniuk, 2017).

Interesting is the ratio of a gift with a present, souvenir, the mention of which can be found in the legislation of many foreign countries, as well as in the works of legal scholars. For example, the Code of Conduct for Senior Civil Servants in the Brazilian Federal Executive Branch (NFA Code) – Certificate of Intent No. 37 on 18.08.2000 and Presidential Decree on 21.08.2000 – prohibits any remuneration and gifts (Article 9), travels and signs of hospitality (Article 7) (Vasileva, 2015). The explanation of the Ministry of Justice of Ukraine on 28.07.2011 at one time stipulated that “the permitted gift may be ... manifestations of hospitality, namely: invitation for coffee or dinner on a modest scale ... for establishing business relations and strengthening working relations” (Kolomoiets T.O. Restrictions on the reception of gifts by persons authorized to perform functions of the state or local self-government under the legislation of Ukraine: scientific and practical commentary, 2018). In Great Britain, members of parliament or their spouse or partner are required to declare any gift, service, remuneration or hospitality worth more than 1 percent of parliamentary salary if in one way or another it is directly related to membership in a parliamentary chamber (Manuel Villoria, Staffan Synnerström, János Bertok, 2010). At the same time, it is allowed to receive “notebooks, calendars, and other stationery products of “insignificant” value with the logos of the producing companies,” which allows them to be considered as

advertising products. In the Republic of Belarus, it is allowed to receive "... souvenirs during official events" (Kolomoiets T.O. Gifts for public servants in Ukraine: prohibition, restriction or permission as an optimal model of legal regulation, 2018). The Code of Conduct for EU Commissioners in section 1.11 establishes a prohibition on signs of hospitality, with the exception of those provided during official diplomatic events and as signs of courtesy (though, again, the appraisal concept is used). The participation of a commissioner in any event on an invitation should not be considered as hospitality (Sten Bonsing, Lars Langsted, 2013). In Brazil, in the Code of Conduct for Senior Civil Servants in the Federal Executive Branch, bans on gifts, rewards, signs of hospitality and services are fixed in general in separate articles, with the listing of their possible external forms of manifestation, though without official definitions. In this regard, in the case of gifts ("brindes"), in the Resolution of the Commission on Public Ethics CEP No. 3/00/2000), the NFA Code stipulates that they are provided "as a sign of courtesy, a marketing tool, on the occasion of events of historical or cultural character" (Vasileva V.M., 2015, p. 176-177). A souvenir (from French souvenir, Latin subvenio "come") is traditionally considered as a kind of gift in memory (a certain remarkable event, a memorable date, achievements in sports, science, culture, national or local specifics, etc.), a present (from Old Slavonic рiцъ "guest") – as a thing which a person who "enters the house, transfers to the owner, to get "good food" (Pryma, 2016). Consequently, a souvenir, a present, and a gift form a single thematic conceptual series, while closely related to "the subjective judgment of a person based on the historically established customs, rituals, traditions, tastes, historically predetermined guidelines of the public consciousness concerning benevolent attitude towards the person, moral and ethical norms of communication" (Kolomoiets T.O. Restrictions on the reception of gifts by persons authorized to perform functions of the state or local self-government under the legislation of Ukraine: scientific and practical commentary, 2018). They are associated with symbolism, insignificant value, small size, and unsystematic provision (reception). At the same time, taking into account the specifics of the subject of obtaining gifts and his or her professional activity, it is impossible to underestimate the possibility of the gift's influence on the "purity" of the relevant activity. Especially since the legislation is over-saturated with such "grey zones" (Sten Bonsing, Lars Langsted, 2013), which create the basis for the diversified use of the gift resource for a public servant.

Unfortunately, the absolute prohibition on the reception of gifts by public servants is not provided for in the legislation of all states. The prevailing is the so-called "mixed" model of "gift relations in the public service," which, along with the general prohibition, also contains special restrictions (model of behaviour with

certain limits) for the receipt of gifts by the specified persons, which creates certain problems in practice. Due to the fact that the criteria for determining the limits of permissible conduct are not clear in the majority and the provisions that determine these limits are oversaturated by evaluative and generalized provisions, in practice there is a variation in the discretion of the subject of interpretation in the observance of special restrictions, control over the latter, including in relation to the simultaneous use of other means to prevent conflicts of interest in the professional activities of a public servant.

For example, the Ukrainian legislation provides that the abovementioned persons can receive gifts, if they are not prohibited and also comply with generally accepted notions of hospitality, correspond to the value (no more than one living wage for the able-bodied person on the day of receiving the gift), source (from the same person or group of individuals), and periodic criteria (once or several times during the year from one source) (On Corruption Prevention: Law of Ukraine on 14.10.2014). The cost boundaries of "gift relations in the public service" are also characteristic of the legislation of foreign countries. For example, in France, the cost limit of a gift is equal to 35 euros; in Great Britain, the cost of a gift to a member of the government or to a designated person cannot exceed 140 pounds sterling. A person can keep a gift of greater value if he or she pays to the state treasury a difference between its real value and allowed (Bikeev, 2013). In this case, parliamentarians and civil servants cannot accept any gifts (Manuel Villoria, Staffan Synnerström, János Bertok, 2010). In Singapore, ministers and their family members can take gifts of up to 50 Singapore dollars; more expensive gifts can be redeemed through an auction (Bikeev, 2013). In the Republic of Belarus, public servants can accept gifts during official protocol events, if their value does not exceed "five basic values" (Kolomoiets T.O. Gifts for public servants in Ukraine: prohibition, restriction or permission as an optimal model of legal regulation, 2018), in the Russian Federation, the cost of a gift should not exceed three thousand roubles, and in the USA – twenty dollars per donor in each particular case, however, the legislation contains clarification that the total cost of gifts from one source during the year (hence, emphasis on all the features of the allowed gift) cannot exceed fifty dollars (however, these limits do not apply at all to cash money) (Standards of Ethical Conduct for Employees of the Executive Branch: Regulation of the United States Office of Government Ethics). Somewhat different are the cost limits for gifts for senators and congressmen – two hundred and fifty and three hundred US dollars respectively, and in Brazil, the value limit for any gift cannot exceed one hundred reals (Vasileva, 2015).

Despite some certainty of the criteria of the value sign of the gift, unfortunately, it is impossible to acknowledge such a practice of rule-making as positive.

This is determined by the fact that the legislator does not adhere to the unity of legal principles of “gift relations in the public service.” By offering in one regulatory legal act criteria for determining the maximum cost of a gift granted to a public servant, the legislator in another act (and sometimes in the same) offers an approximate (and sometimes exhaustive) list of those objects, services, benefits, which in any case are allowed as a gift. For example, the Regulation of the United States Office of Government Ethics includes the following: soft drinks, light snacks served separately from the main meal, greeting cards, honour badges, memorable gifts for the presentation of the institution, awards for the winners of the competition, etc. (Standards of Ethical Conduct for Employees of the Executive Branch: Regulation of the United States Office of Government Ethics). I. Bykieiev, analysing the relevant question, forms a list of those items that are usually considered as allowed (at the level of sub-legal regulation) of gifts: “books, booklets, albums, some art products, flowers, candies, products of the donor himself or things, which are brought from another territory ... sometimes items of home appliances that cause associations” (Bikeev, 2013).

However, some countries have chosen a slightly different vector of legislative regulation of “gift relations in the public service,” generally avoiding the valued criterion of the allowed gift. For example, in China, at the legislative level, a list of prohibited items to receive as a gift is secured. These are virtually all items, with the exception of books. Violation of established prohibitions is considered as a crime, which provides for criminal liability in the form of a death penalty.

In addition, cases of contradictory and conflicting legal principles governing the regulation of “gift relations in the public service” are uncommon, when the legislator actually creates the preconditions for the possibility of receiving gifts by public servants without observing the requirements regarding their value, periodicity, sources of income. Thus, the basis for the possible use of the gift resource as a measure of unlawful influence on the “purity” of the public service, as well as unjust enrichment of the public servant, is created. For example, in the Russian Federation there is a collision of the provisions of three statutory legal acts, namely: the Civil Code, which, along with the general prohibition to receive gifts by persons authorized to perform functions of the state or local self-government, at the same time allows the person to receive “ordinary gifts,” the value of which does not exceed three thousand roubles, the Criminal Code, which provides for liability, but does not specify the minimum amount of wrongful remuneration, as well as a special anti-corruption law, which establishes an absolute prohibition on receiving gifts and other remuneration by public servants. It is interesting to note the experience of Denmark, the legal position of its supreme court in relation to the conflict of provisions regulating the principles of “gift relations

in the public service,” as well as enshrined in various statutory legal acts (namely, the Criminal Code and a special anti-corruption law) is that there is the “limit of tolerance of violations,” which can be equal to 40% of the cost of the allowed gift. Accordingly, a public servant who has received a gift, which value exceeds the cost of a permitted (for example, jubilee) gift by 40%, should not be criminally liable (Sten Bonsing, Lars Langsted, 2013).

Along with the clear criterion for determining the value limit of a gift for a public servant, the law of countries can simultaneously contain other provisions, namely: “minimal gifts,” “traditionally small gifts,” “gifts at very low cost,” “socially acceptable gifts,” “small gifts for special events,” etc (Sten Bonsing, Lars Langsted, 2013). Certain questions also arise in relation to monitoring compliance with the law in determining the periodicity of accepting gifts by the person during the year, thus eliminating “systematic gift relations in the public service,” which significantly threaten the impartiality and objectivity of the professional activities of a public servant. As already noted, in the legislation of many countries, gift relations are regulated with an emphasis on the frequency of their occurrence during the year and the total value of gifts for the whole year, obtained from one source. For example, in Ukraine, a public servant can receive gifts for a year, the aggregate value of which does not exceed the maximum limit, or one time, or several times from one source. Similar provisions are enshrined in the laws of the USA, Brazil, Great Britain, and other countries. In order to ensure control over the observance of these provisions of the legislation, it is fully justified to introduce a unified registration of gifts received, with the indication of its sources (“gift donor”) and the date of receipt. Accepting that the practical implementation of the said proposal is connected with additional formal procedures, time expenditures, etc., as an alternative, it is possible to offer mandatory declaration by all public servants of all gifts received during the year, indicating the sources (“donors”) of their provision (this practice already exists in Latvia, Sweden, and Finland (On the issue of attitude to gifts within the system of fighting corruption). The contradictory nature of provisions, the oversaturation of legislation with the evaluative and general provisions on determining the value limits of gifts for public servants, as already noted, predetermines the prevalence of the practice of receiving gifts, which “unjustified” nature (namely, this term is basic in relation to the definition of grounds for accepting gifts by the relevant subjects) is difficult to prove. That is why the prohibitive model of “gift relations in the public service” seems more appropriate since it clearly defines the impossibility of any acts related to gifts (fixes “taboo” in relation to any gifts for any public servants), eliminates grounds for the variability of the interpretation of statutory provisions, promotes the unification of enforcement, simplifies the

control and the possibility of bringing the perpetrators to legal liability for violation of the established prescriptions. This model will eliminate the grounds for the so-called “indirect gifts” (which are actually addressed to a public servant but are provided to their relatives); they are also referred to as “gifts through other persons.” Introducing, along with such a prohibition, the duty to declare all gifts received, indicating the sources of their receipt, as by public servants so by their close persons, can actually strengthen the principles of transparency of “gift relations in the public service,” contributing to the “purity” of the public service, eliminating the preconditions for using the gift as a means of unlawful influence on a person.

Public officials, like other individuals, can also receive gifts that are not directly related to official activity, including from their close ones. At the same time, such gifts are not limited by their value, periodicity, and sources. This practice is widespread in all states, which is fully justified (so-called “normal gifts,” “ordinary gifts,” “private gifts” etc.), and provides for the mandatory declaration of gifts received since the latter is income received. It is considered expedient to introduce the indication of the source of gift’s receipt, along with the obligation to declare the corresponding gift by a public servant. In turn, in case of doubts as to the legality of obtaining such a gift, it allows asking certain questions to the “gift donor.” It is important to ensure the unification of the legal basis for declaring gifts received by public servants by extending the obligation to declare to all (and not only those whose value exceeds the limits) gifts, since all this is a person’s income, although, for example, in the United Kingdom, Members of the Parliament must declare only gifts worth more than one percent of their salary, and members of the German parliament – five thousand euros, while their colleagues from France must declare all the gifts regardless of their value (Manuel Villoria, Staffan Synnerström, János Bertok, 2010). The regulation of such a proposal will eliminate the practice of the existence of “grey zones” in the legislation on the declaration of gifts, when the maximum price limit of a gift allowed for a public servant significantly (several-fold) differs from the minimum value limit of the gift that is to be declared by this person (for example, in Ukraine the first position is equal to one (two) living wage for an able-bodied person, and the second one – to five, and hence there is a question regarding gifts that on a cost basis are between these two positions). Since a gift for a public servant is an income, including generally acknowledged bonuses, prizes, privileges, winnings in a lottery, etc., in order to eliminate any doubts as to the “purity” of his or her business activities, all gifts accepted should be declared.

It is appropriate to ask whether there may be exceptions to the general prohibitive model of “gift relations in the public service”? Yes, besides the so-called “private gifts” (“normal gifts,” “ordinary gifts,” that is, gifts from close

persons, with the confirmation of the last legal sources of funds for their provision), public servants may well receive gifts “on the occasion of certain special events.” For example, in the USA, the law provides that public servants can accept, including from their colleagues, subordinates, gifts on the occasion of “special events of personal nature – marriage, birth, retirement, transfer to another job, etc.” (§2635.304 of the Regulation of the United States Office of Government Ethics). In Ukraine, the provisions of such content are regulated with the possibility of accepting gifts by public servants, including from subordinates, concerning special events of personal or traditional importance, public or professional holidays (paragraph 25 of the Rules of Ethical Conduct and Corruption Prevention in the Bodies of the State Fiscal Service, approved by the Order of the SFS on 01.12.2017, No. 979). However, such exceptions should stipulate statutory value limits of the gift, the exclusiveness of the character of the gift, and the obligatory declaration by the public servant of all gifts received since this is also his income.

It is also quite right to question the expediency of extending the prohibition on the reception of “business” (“official”) gifts or their declaration. Among all the diversity of gifts, the main place is occupied by the so-called “business,” they are also called “official” gifts. These are gifts, accepted by public servants as representatives of the state, territorial community, state, communal enterprises, institutions, organizations, in the performance of their duties during official events. The specificity of such gifts also determines the peculiarity of the statutory regulation of principles of accepting them (a separate legal act, a separate section of a special legal act, etc.). It is unlikely that it is expedient to foresee a ban on their receipt, taking into account the specifics of these gifts, which, although directly and specifically provided to a public servant, are the property of the state, the community, etc. At the same time, the rules for handling such gifts require a detailed definition (transmission terms, the procedure for issuing the transfer, storage, destruction, etc.), as well as the responsibility for their violation. Given that these gifts are not revenue for public servants, it is also inappropriate to introduce a duty to declare them. However, it is quite possible to regulate the issue of the redemption of a given gift by a public servant (subject to a certain procedure), unless this is detrimental to the public interest. This practice exists, for example, in Latvia, Singapore, and other countries. Given the weighed detailed regulatory regulation of such relationships, it is quite possible to reduce the costs of the state, the community, etc. for the storage of the corresponding gifts and simultaneous provision of additional filling of the corresponding budgets. In order to eliminate the preconditions for considering “business” (“official”) gifts as a means of undue influence on public servants, their unjustified enrichment, it is necessary to ensure

officiality, transparency (first of all with regard to the source of receipt) of “gift relations,” thereby eliminating the privacy manifestation (personalization of the gift, its encouragement, financing, including in any form, size, on the part of private persons, etc.). A well-defined statutory regulation of this issue should contribute to this.

### 3. Conclusions

The current state of legal regulation of “gift relations in the public service” predetermines the presence of a significant number of problematic issues that do not allow, unfortunately, on the one hand, to fully use the gift resource as a manifestation of respect, gratitude, recognition to a public servant and, on the other hand, create preconditions for considering it as an unwarranted reward of such a person and means of unlawful influence on him. The lack of unified legal standards for regulating the relevant “gift relations” leads to the dispersion of the consolidation of legal principles in various legal acts, the provisions of which differ not only in a fragmentary nature, as a consequence – many “grey zones,” but also contradictory in nature. The collision of the content of the relevant acts, the saturation of the latest with valuation and generalized provisions, which creates preconditions for subjective discretion in the process of interpretation and enforcement, is rather widespread. The lack of a formulated thematic conceptual framework, as well as a systematic approach to the normative consolidation of the bases of using the resource of prohibitions and restrictions on the reception of gifts by public servants in the aspect of behavioural patterns, criteria for expressing the limits of the permitted cost together with the declaration of these gifts, results in widespread practice of obtaining unwarranted gifts by public servants, unlawful influence on the “purity” of their professional service activities, as well as the avoidance of legal liability by guilty persons. In order to eliminate this state of affairs, it is considered expedient: 1) statutory definition of a gift in a special anti-corruption legal act, with an emphasis on the legitimate nature of acts of a public servant as the basis for the possible provision of the gift, as well as the selfless symbolic, non-systemic nature of the gift itself and the

spontaneity of the donor initiative (“donor of a gift”). Thus, providing a separation of gifts for a public servant from unlawful benefits, promotion, remuneration for labour (payment for labour), compensation payments. 2) to formalize the prohibitive model of “gift relations in the public service”, removing the influence on the “cleanliness of the official activity” of the person. As exceptions to the general rule, provision should be made for: a) the reception of “private gifts” by public officials (“ordinary gifts,” “normal gifts”), that is, gifts that are completely unrelated to his or her official activity, including from the relatives, with the obligatory indication of sources for gifts by the latter; b) accepting “official” (“business”) gifts, which, although are issued by specific public servants in the course of their official activities during official events, are the property of the state, the community, etc. It is expedient to see a detailed statutory regulation of the rules of handling such gifts (including the possibility of their redemption), and the bases of legal liability for their violation; c) reception of gifts on the occasion of special personal events of a public servant, with the definition of an approximate list of such events, the allowed cost limits of the gift, the exceptional nature of the gift. 3) the normative consolidation of an obligatory declaration by all public servants of all received gifts, indicating their sources, as well as determining the principles of legal liability for non-compliance with these provisions. 4) unification of statutory principles of regulation of “gift relations in the public service” and hereby the harmonization of the provisions of anti-corruption legislation in the part of special prohibitions and declaration of incomes of public servants, tax legislation in relation to declaring incomes of public servants and “donors of gifts” for them, as well as tort law in part of determination of the principles of legal liability of the perpetrators for violation of the relevant legal requirements.

It is the practical implementation of the relevant proposals that will promote maximum transparency, certainty of “gift relations in the public service,” use of the gift resource as a manifestation of respect, gratitude to the public servant, and elimination of any grounds for considering it as a means of unjustified enrichment of a public servant or unlawful influence on his or her official activity.

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# FINANCIAL RISK MANAGEMENT AS A STRATEGIC DIRECTION FOR IMPROVING THE LEVEL OF ECONOMIC SECURITY OF THE STATE

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**Abstract.** *The purpose of the paper* is to generalize theoretical and methodological principles and develop practical recommendations aimed at improving financial risk management as a strategic direction for improving the level of economic security in Ukraine. *Methodology.* The methodology for this study was based on methods of scientific abstraction, methods of the system-functional approach, grouping, generalization and formalization, systematization, analysis and synthesis, statistical and economic methods, peer review. *Results.* It is proved that the economic essence of financial risk management as a strategic direction for improving the level of economic security consists in the permanent and continuous application of procedures for communication and definition of management context (management goals, distribution sector, list of criteria to be taken into account in the management process), management policy, as well as selection, comprehensive analysis, quantification and processing of financial risks (allocation of alternative ways to reduce the impact), which are characterized by specific characteristics of financial sector risks. The present situation of the financial environment of the financial sphere is analysed by calculating indicators and generalizing them in the integral index which dynamics in 2011–2017 tends to deteriorate values. This means lowering the level of financial security. The method of quantitative assessment of financial risks through reasonable algorithm is improved. It consists of the following stages: analysis of indicators of the state of financial security structured according to its subsystems; assessment of the level of financial risks in the system of economic security; comprehensive risk assessment in financial security subsystems; definition of the integral index of financial risks in the system of economic security. Directions of financial risk management in the system of economic security are generalized and their groupings are organized according to distinct subsystems of economic security in Ukraine. The mechanism of financial risk optimization is substantiated. It provides a description of the process of achieving the optimal characteristics of identified financial risks in subsystems of economic security. Its purpose is to minimize social and economic consequences of the destructive impact of the risk environment and improve the overall state of economic security of the country and society. *Practical implications.* The practical significance of the obtained results is the proven and justified feasibility of using proposed recommendations in the field of financial risk management to improve the level of economic security in Ukraine and a mechanism for optimizing financial risks, which describes the process of achieving the optimal characteristics of identified financial risks in the subsystems of economic security. *Value/originality.* The information base of the article is the legislative and regulatory documents, consolidated data of the State Fiscal Service of Ukraine, the State Statistics Service of Ukraine, Ministry of Finances of Ukraine, the National Bank of Ukraine, Ministry of Economic Development and Trade of Ukraine, periodicals and reference publications, Internet resources, and results of authors' studies and calculations.

**Key words:** financial risks, financial risk management, economic security, financial security, finance, financial risk assessment.

**JEL Classification:** D81, G30, G38, E30, E60

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## 1. Introduction

Under the influence of external and internal factors, the state of economic security, traditionally analysed as a complex of energy, macroeconomic, food, demographic, social, investment-innovation production, foreign economic and financial security, is rapidly changing. It should be noted that effective maintenance of a sufficient level of economic security is impossible without managing the risk environment of the financial sector, taking into account the fact that financial risks have a dominant influence on the level of economic security in comparison with others. Thus, realizing the economic interests of the country, we believe that the problem of financial risk management in order to improve the level of economic security of the state is extremely relevant.

The purpose of the paper is to generalize theoretical and methodological principles and develop practical recommendations aimed at improving financial risk management as a strategic direction for improving the level of economic security in Ukraine.

In accordance with the purpose of the article, the following interrelated tasks were determined and solved:

- To study the economic essence of financial risk management as a strategic direction for improving the level of economic security of the state;
- To analyse the current state of the financial environment;
- To improve methods of quantitative assessment of financial risks;
- To substantiate directions and identify financial risk management tools;
- To improve the mechanism and principles of financial risk optimization.

Various aspects of the issue of financial risk management were studied in many scientific works (Atamanyuk, 2005), (Dinu, 2014), (Hammoudeha, McAleer, 2013, 2015), (Kosmidoua, Kousenidisa, Ladasb, Negkakis, 2017), (Poltorak, Tymoshenko, 2015), (Poltorak, Volosyuk, 2016, 2017), (Ukrainska, 2010), and others.

The methodology for this study was based on methods of scientific abstraction, methods of the system-functional approach, grouping, generalization and formalization, systematization, analysis and synthesis, statistical and economic methods and peer review.

## 2. The economic essence of financial risk management

One of the most important issues in the field of achievement and sustainable maintenance of the necessary level of economic security of the state is the growth of threats to the financial sector. Among strategic risks to economic security, a special place is occupied by

financial risks that have certain essential characteristics, namely:

- Influence on financial management objects;
- Risk in relations that are characterized by a financial nature;
- Consequences of the negative influence of financial risks in the form of failure to achieve financial goals or planned indicators, including in the field of economic security;
- Financial nature of stochastic events (Ukrainska, 2010).

Financial risks also impede the implementation of effective reforms in the economy and create obstacles to the transformation of the financial system of Ukraine.

Taking into account the heterogeneity of risk factors and risk variability of the financial sector, the process of making an effective solution under the special conditions of the influence of quantitatively estimated financial risks is their management.

Accordingly, in our opinion, the economic essence of financial risk management as a strategic direction for improving the level of economic security consists in the permanent and continuous application of procedures for communication and definition of management context (management goals, distribution sector, list of criteria to be taken into account in the management process), management policy, as well as selection, comprehensive analysis, quantification and processing of financial risks (allocation of alternative ways to reduce the impact).

## 3. The current state of risk environment of the financial sector

It should be noted that methodological recommendations for calculating the level of economic security in Ukraine have resulted in a list of indicators, which generalized meaning provides an opportunity to quantify the level of economic security and, accordingly, all its components, including financial security.

The state of the Ukrainian financial security can be systematically evaluated by calculating indicators of its state and generalizing them to the integral index. Comparing its values in different periods, we will be able to describe key trends in financial security, as well as study the current state of risk environment of the financial sector.

The results of the analysis of absolute and normalized indicators of the country's debt security (dynamics of the ratio of debt obligations of the country to GDP, international reserves of the country to gross external debt and others) in 2011–2017 indicate a tendency for the deterioration of the debt security. So, in 2011–2013 the ratio of the state and state-guaranteed debt to the GDP of the country varied in the range of 36.3–40.1%, that is, in fact, was in the zone of unsatisfactory values. In 2014–2017, this indicator was characterized by the

values, which were in the critical range. These dynamics are extremely threatening.

The state of budget security as a component of financial and, accordingly, economic security characterizes the level of financial stability and solvency of public finances, the level of efficiency of the functional performance of state authorities.

It should be noted that the analysis of values of most indicators of budgetary security (the ratio of budget deficit to GDP, the level of GDP redistribution through the consolidated budget, the share of deficit/surplus of budget and extra-budgetary funds in the sector of national government in GDP structure) in 2011–2017 were in ranges of optimal and satisfactory values. However, the ratio of payments for servicing and repayment of public debt to the revenue part of the State Budget is steadily in the zone of critical values, which significantly reduces the level of budgetary security.

After examining the state of the currency security in Ukraine, it is proved that the change in the rate of the national currency to the US dollar in 2014–2017 was mainly in the area of critical values. Volumes of gross international reserves of Ukraine, determined in months of import, tend to decrease. In addition, indicators of the share of foreign currency loans in the structure of all loans and the level of dollarization of the money supply are in the zone of dangerous values and tend to deteriorate the values.

An analysis of the indicators of the state of financial security in Ukraine can be used to substantiate the impact that determinants of financial market development have on the level of financial security. In particular, there are reasons to assume the influence of such a system of factors: insufficient level of overall market development, lack of financial resources and their ineffective placement in assets, insufficient level of activity of the state in the financial market.

Thus, integral coefficients of the state of the financial security subsystem in Ukraine in 2011–2017 are shown in Table 1.

Thus, having carried out a comparative analysis of the state of financial security in Ukraine, it is proved

that the integral index of financial security in Ukraine summarizing indicators of monetary, budget, currency, banking, debt security, and security of the non-banking sector in 2011–2017 tended to deterioration of values. It means lowering the level of financial security.

#### 4. Methods of quantitative assessment of financial risks

The result of the quantitative assessment of various types of financial risks should be their numerical values and a generalized indicator of the risk environment of the financial sector. In our opinion, a comprehensive assessment of financial risks should take into account financial risks affecting all components of economic security and its results contribute to the formation of clear conclusions about the dynamics of changes in the state of risk environment of the financial sector and adoption of an effective solution under the conditions of alternative options. The most common methods for assessing financial risks are Delphi method, statistical method, analytical method, analogue method, and method of expediency analysis (Tymoshenko, 2015).

In our opinion, the significant advantages of the method of expert assessments in the field of financial risk assessment in the system of economic security in Ukraine are the possibility of timely adjustment of the scale of the estimation coefficients depending on changes in the internal environment and external conditions. To quantify the risks in the financial sector, ranges of the characteristic values are applied by means of standardization to interpreting indicators obtained using the analogue method, the legislative-normative criterion and Delphi method.

An algorithm for quantifying financial risks in the system of economic security is given in Fig. 1.

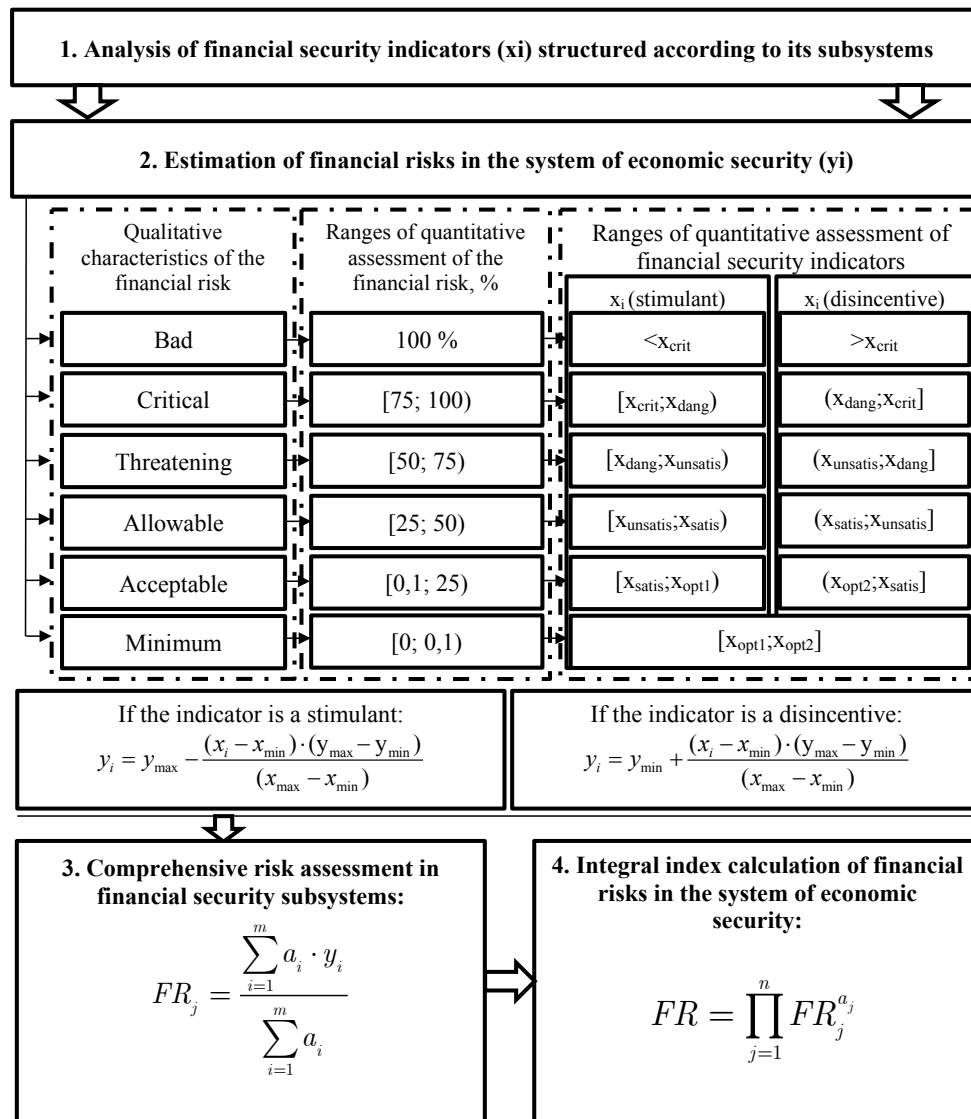
Due to the rating method, the improved algorithm for quantitative assessment of financial risks in the system of economic security of Ukraine takes into account a set of financial risks that affect the state of economic security of the country, as well as substantiates conclusions on the state of risk environment of the financial sector based on the evaluation results.

Table 1

**Integral indicators of the state of the financial security subsystem in Ukraine in 2011–2017**

Integral indicators of financial security subsystems	Values of integral indicators						
	2011	2012	2013	2014	2015	2016	2017
Monetary	40,36	39,96	38,70	39,19	37,21	33,46	33,51
Non-bank financial market	39,56	48,75	44,17	67,91	66,72	62,80	61,42
Currency	48,00	59,00	59,00	41,00	43,00	40,00	44,00
Budgetary	68,00	58,00	58,00	56,00	63,00	62,00	64,00
Debt	45,00	39,00	36,00	25,00	29,00	33,00	29,00
Banking	40,07	49,83	51,19	52,24	40,86	38,23	39,78
Integral index	47,91	49,29	48,29	45,73	45,75	44,21	44,32

Source is proposed by the authors



**Fig. 1. An algorithm for quantitative assessment of financial risks in the system of economic security \***  
 In the algorithm  $i$  is financial risk;  $j$  is security subsystem;  $x_{min}, x_{max}$  are marginal values of indicators of financial security in Ukraine in the appropriate range;  $y_{min}, y_{max}$  are marginal values of the financial risk in the appropriate range of indicators of financial security in Ukraine, %;  $a_i$  is weighing coefficients of relevant financial risks;  $a_j$  is weighing coefficients of complex indicators of financial risks in the system of economic security.

Source is improved by the authors based on (Tymoshenko, 2015)

### 5. Directions and tools for managing financial risks

Taking into account the structure of economic security, according to which the algorithm of quantitative assessment of financial risks was improved, it is expedient to analyse separately directions and tools of financial risk management in each of the financial security subsystems.

In order to minimize the negative impact of financial risks for budgetary security, it is appropriate to use the following measures:

- Increasing the accuracy of forecasting indicative budget indicators, updating the statistical system of the budget, improving the system of budget planning within the

boundaries of quarters, preventing underperformance of the plan for state budget filling, which may lead to an increase in government borrowing;

- Ensuring compliance of available financial resources of a certain type of budget and defined tasks of budget policy at the necessary level, which is especially relevant during the period of fiscal decentralization reform;
- Continuous monitoring of the targeted use of budget funds, improvement of the internal audit system taking into account standards of the European Union;
- Improving the quality of capital budgeting;
- Financing of the state budget at the minimum possible cost of public debt service taking into account risks;
- Optimization of state target and budget programs.

As a result of the systematic application of directions of financial risk management in the system of budgetary security, it is expected that the state budget deficit will be reduced, namely: 2.4% of GDP in 2018 and 2.2% of GDP in 2019.

Main tools for managing financial risks in the system of budgetary security are rates of taxes and fees; transfers; interest rate; budgetary norms and regulations; tariffs; creation of reserves; government loans; cost standards.

The modern debt area of Ukraine is characterized by a significant level of budgetary, currency and refinancing risks, as well as a moderate level of liquidity risk and interest rate risk. It is also necessary to take into account the deterioration of payment balance indicators and risks of public debt management, including those related to the support of the banking system and Guarantee Fund for Individuals' Deposits.

In the process of managing financial risks in the system of debt security in order to improve debt management mechanisms, it is expedient to have:

- Adherence to the medium-term strategy of public debt management in 2017–2019, including ensuring the effective functioning of the domestic market of government securities and expanding access to the international capital market;
- Expansion of cooperation with international financial organizations;
- Observance of limits of the average weighted term in the strategy of public debt management to debt obligation repayment of the state; minimization of risks by refinancing the debt;
- Optimization of public debt structural indicators in the context of interest rates and currencies;
- Avoiding peak budgetary burdens associated with payments for servicing public debt;
- Increasing demand for government debt securities by investors as a result of increasing their liquidity level;
- Ensuring transparency and publicity of public debt management activities.

Implementation of directions for the improvement of debt management mechanisms will promote compliance with an economically safe level of state and state-guaranteed debt and, accordingly, effective and transparent debt management.

Main tools for managing financial risks in the system of debt security include: term, interest rate, currency, type of state borrowing; restructuring; maximum limits of public debt and provision of state guarantees; loan unification; consolidation; conversion; delay in loan repayment.

In our opinion, under the conditions of the Ukrainian economic security, the issue of effective risk management in the banking system is of first priority. The risk analysis has shown that the integral index of economic security is reduced by 0.05% with an increase of 1% of the generalized indicator of financial risks of the banking sector.

Thus, directions of financial risk management of the banking sector are offered, namely: improvement of methods for problem loan repayment; increasing the efficiency of the bank reorganization and capitalization process; application of updated approaches to the quantitative assessment of bank risks; expanding the range of financial services of banks; raising the level of financial literacy of the population.

As a result of application of reasonable directions of financial risk management in the banking sector, it is expected: reduction in the share capital of foreign capital in the bank authorized capital; decrease in the proportion of problem assets in the general portfolio of assets of the Ukrainian banks in the medium-term to 7%, with its subsequent increase of 4%; adjusting the ratio of long-term loans and deposits.

Main tools for managing financial risks in the banking system include: interest rates; exchange rates; conditions for obtaining and repaying loans; security yield level; reorganization and capitalization of banks; introduction of a temporary administration; refinancing.

Thus, directions of financial risk management in the subsystems of the Ukrainian economic security are generalized and the main tools of effective financial risk management are defined.

## 6. Mechanism and principles of financial risk optimization

The mechanism of financial risk optimization in the system of the Ukrainian economic security should provide a detailed description of the process of obtaining optimal indicators of identified financial risks in order to increase the overall level of the Ukrainian economic security, as well as be used in different conditions, such as in periods of active development of the economic system and in periods of crisis phenomena.

The strategic goal of optimizing financial risks in the Ukrainian economic security system is to minimize social and economic consequences of the destructive impact of the financial sector's risk environment and improve the overall state of economic security of the country and society.

The process of optimizing financial risks in the Ukrainian economic security system should take into account principles presented in Fig. 2.

Priority tasks of financial risk optimization in the system of economic security in Ukraine include:

- Maintaining quantitative values of identified financial risks in each of the subsystems of economic security within the range, which will ensure a stable level of the Ukrainian economic security;
- Timely and systematic review of the complex of financial risks, identification of new risks, adjustment of ranges of indicators of the financial security status, taking into account the changing environment;

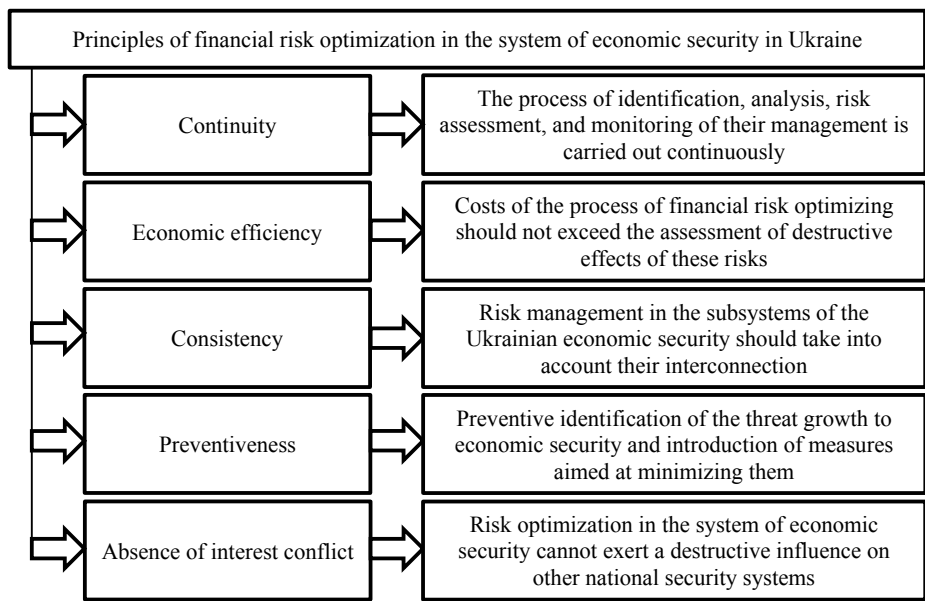


Fig. 2. Principles of financial risk management in the system of economic security\*

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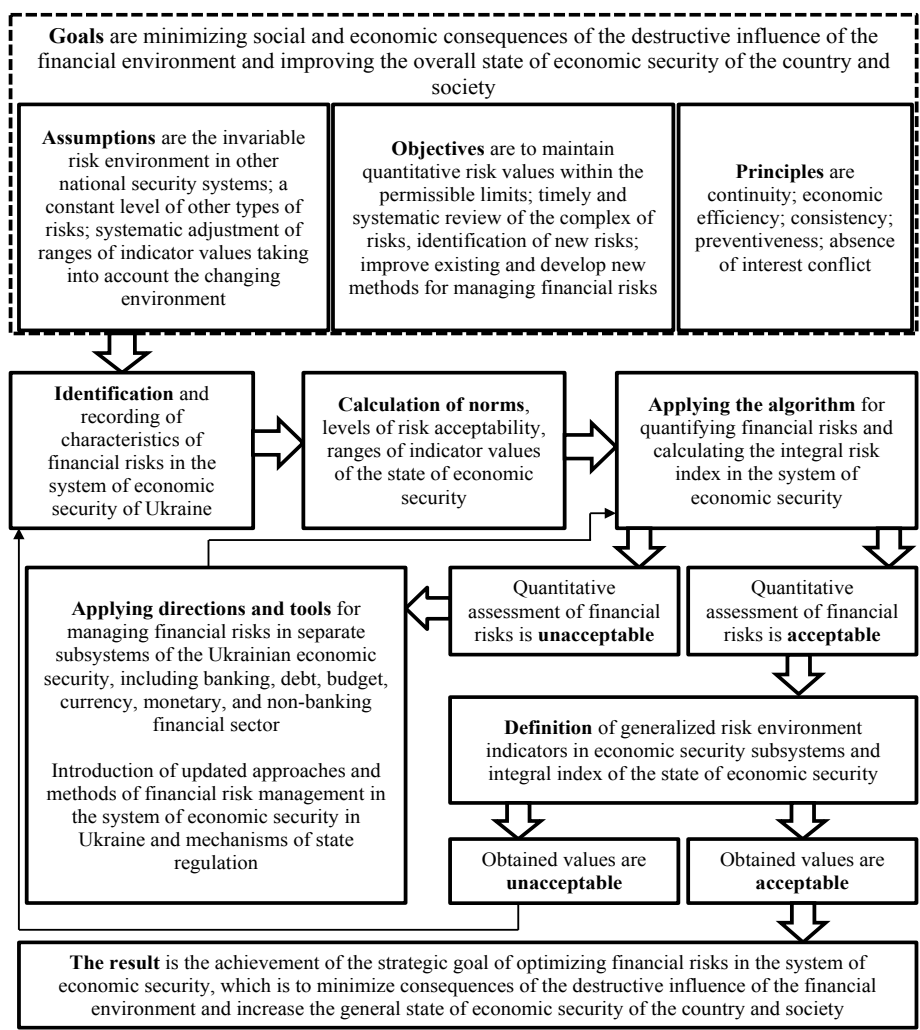


Fig. 3. The mechanism for optimizing financial risks in the system of economic security\*

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- Improvement of existing and development of new methods for managing financial risks in the system of economic security in Ukraine, as well as mechanisms of state regulation.

A mechanism for optimizing financial risks is shown in Fig. 3.

As a result of implementation of the financial risk optimization mechanism in the system of economic security, it is planned to develop and use updated approaches to assessing financial risks, ensuring transparency and efficiency of activities in the field of financial risk management, and achieving the strategic goal of optimizing financial risks in the system of economic security. This is to minimize consequences of the destructive impact of the financial environment and increase the overall state of economic security of the country and society.

## 7. Conclusions

In the process of generalization of theoretical and methodological principles and development of practical recommendations aimed at improving the financial risk management, the following conclusions were made:

1. It is proved that the economic essence of financial risk management as a strategic direction for improving the level of economic security consists in the permanent and continuous application of procedures for communication and definition of management context (management goals, distribution sector, list of criteria to be taken into account in the management process),

management policy, as well as selection, comprehensive analysis, quantification and processing of financial risks (allocation of alternative ways to reduce the impact), which are characterized by specific characteristics of financial sector risks.

2. In the process of analysing the current state of risk environment of the financial sector, the state of financial security in Ukraine is assessed by calculating indicators and their generalizing in the integral index. Its dynamics in 2011–2017 tended to deteriorate values, which mean lowering the level of financial security.

3. The method of quantitative assessment of financial risks is improved through the reasonable algorithm consisting of the following steps: analysis of indicators of the state of financial security structured according to its subsystems; assessment of the level of financial risks in the system of economic security; comprehensive risk assessment in financial security subsystems; calculation of the financial risk integral index in the system of economic security.

4. Directions of financial risk management in the system of economic security and their grouping according to distinct subsystems of economic security of Ukraine are overviewed.

5. The mechanism of financial risk optimization is substantiated, which provides a description of the process of achieving optimal characteristics of identified financial risks in the subsystems of economic security. Its purpose is to minimize social and economic consequences of the destructive impact of the risk environment and improve the overall state of economic security of the country and society.

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# CLASSIFICATION OF FORMS OF SHADOW ECONOMIC ACTIVITY FROM THE VIEWPOINT OF ENSURING ECONOMIC SECURITY

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**Abstract.** The article explores the problem of economic security and its important institutional threat – the shadow economy. The evolution of approaches to the problem of the shadow economy, external and internal conditions of functioning of the shadow economy are considered. The shadow schemes, which are used by some business entities to evade taxes, are revealed. *The research objective* – to explore the evolution of approaches to the problem of the shadow economy as an institutional threat to economic security, to reveal shadow schemes, by which business entities for the purpose of tax evasion, propose a classification of the shadow economy that can be used by fiscal and supervisory bodies in developing practical measures to reduce the impact Shadow economy on the economic security of the state. *The methodological and theoretical basis* for the article is general scientific and special methods of the theory of knowledge: system analysis and synthesis (in the study of the essence and conceptual provisions of the theory of economic security), synergistic representations (in the study of the shadow economy), logical generalization and the complex goal approach shadow economic activity), the program-target approach (in the formation of measures to counteract the shadow economy). Suggestions for the classification of shadow economic activities that various economists propose vary considerably depending on the period of research, goals and tasks that the authors consider to approach. The article examines the existing approaches to the analysis of the shadow economy, systematizes the external and internal conditions of its existence, proposes a classification of ways to transfer resources to the shadow turnover at the level of the business entity. Schemes of tax evasion are considered as a way of transferring resources to the shadow economy. Unified schemes of tax evasion are considered as an integral element of the shadow economy, as well as shadow economic activity in areas not related to taxation. Based on the analysis of existing schemes for the transfer of economic activity into the shadow turnover, it is proposed to classify the methods of economic evasion from social norms, rules, and obligations. *Practical implications.* The application of the proposed classification will greatly simplify the information interaction between those structures that oppose the shadow economy; this will allow more purposeful implementation of counteraction to shadow economic transactions, which are institutional threats to economic security.

**Key words:** shadow economy, economic security, institutional threat, shadow turnover, doctrine of “business purpose”.

**JEL Classification:** B40, B52, E62, H26

## 1. Introduction

The problem of ensuring the economic security and overcoming the shadow economy arose simultaneously with the emergence of new national interests in general and in economic ones in particular.

It is these processes that are taking place in Ukraine today. With varying degrees of urgency, this problem is relevant for many other countries, regardless of their level of economic development. But they become especially relevant in economic systems that function in the conditions of a deep transformational crisis. Under such conditions, the study of the issues of overcoming the threats to economic security is of great importance

and testifies to the urgency of solving the existing problems faced by economists-practitioners, leaders, scientists, and the government.

The shadow economy is an institutional threat to the economic security of Ukraine, the depth of research of this problem requires a detailed classification of this ambiguous phenomenon.

### **Relevant scientific researches and issues analysis.**

Questions of economic security and the classification of forms of shadow economic activity are considered in a number of works of foreign and domestic scientists, such as Z. Gerasimchuk, O. Golovchenko, A. Danilian, V. Zakharchenko, V. Kizim, T. Klebanova, E. Kovalev,

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T. Kovalchuk, G. Pasternak-Tarnaushenko, R. Sitnik, M. Chumak, V. Shlemko, G. Becker, K. Boulding, G. Grossman, J. Buchanan, A. Katsenelinboigen, M. Olson, A. Portes, H. de Soto, J. Ubarra, E. Feige, K. Hart, and others.

**Defining uninvestigated aspects of the general condition.** Suggestions for the classification of shadow economic activities that various economists propose vary considerably depending on the period of research, goals and tasks that the authors consider to approach.

**The research objective is:** a) to explore the evolution of approaches to the problem of the shadow economy as it is an institutional threat to economic security; b) to reveal shadow schemes, which two business entities can resort to for the purpose of tax evasion; c) to propose a classification of the shadow economy that can be used by fiscal and supervisory bodies in developing practical measures to reduce the impact of the shadow economy on the economic security of the State.

**The methodological and theoretical basis** for the article is general scientific and special methods of the theory of knowledge: system analysis and synthesis (in the study of the essence and conceptual provisions of the theory of economic security), synergistic representations (in the study of the shadow economy), logical generalization and the complex goal approach (in the formation of measures to counteract the shadow economy).

## 2. Types of the shadow economy

Often researchers (Gerasimchuk, Vavidyuk, 2006), (Golovanov, Perekislov, Fadeyev, 2003), (Golovin, 1992), (Zlupko, 1996), (Grossman, 1977) analyse two types of existence of the shadow economy: the shadow economy of the first type is an independent sector of the economy with an individual production function that differs from the legal economy, while the second type deals with a hidden aspect.

This type of shadow economy is mainly typical for the command and administrative system and for the economy of poor countries, in a number of cases it can be observed in a developed market economy, for example, when describing the shadow market of foreign currency, as well as a number of other goods and services, the turnover of which is strictly regulated by the state. According to G. Grossman (1977), the determining influence on the development of shadow markets is an exaggerated demand for goods and services. In his study, K. Boulding (1947) goes further, he believes that the size of the offer directly depends on the value of additional costs, namely penalties, and the offer price is the less, the higher the penalties for consumers.

The second type of shadow economy is observed in the market environment and represents a hidden version of the legal economy with an identical production function. The difference lies in the external social environment, which under the influence of a number of factors forms a number of conditions for the functioning of shadow activities (Tab. 1). For the purpose of investigating the manifestations of the shadow economy, such as that which is subject to taxation, we classify the ways of transferring resources to the shadow turnover. The classification is based on the model of the functioning of a business entity in the business environment (Fig. 1). Depending on the stage of the economic activity process, it is possible to identify ways of transferring resources into the shadow turnover that arise in the production process, as well as in the implementation of input and output commodity and financial flows.

For the purposes of investigating the behaviour of the shadow economy, as an economy, which is a threat to economic security and has acquired the character of a non-legal social institution (Tarasova, 2014), and is not also subject to taxation, we have classified the methods of transferring resources to the shadow economy. The classification is based on a business model of a business entity in its business environment (Figure 1).

In cases where the shadow activity of a subject is identified by any person, the reporting details of the

Table 1

### External and internal functioning conditions of shadow and legal economy

Operating Conditions	Shadow Economy	Legal Economy
Information availability	Maximally closed	Frankness of information (with the exception of information that carries commercial secrets)
Temporary orientation	Oriented to short-term development	Oriented to long-term development
The nature of communication between participants	Mainly locally oriented connections	Global connections (designed for many users)
Social security of participants	None	Guaranteed by the country
Legal support	Determined by participants	Determined by the country
Currency	Dirty money, barter	Cashless funds and hard currency
Risk assessment	Increased risks associated with the possibility of being revealed by the controllers	Standard risks caused by such a type activity and socio-economic condition of the environment

Source has been elaborated by the author

economic entity identify the forfeit amounts or the reimbursement of losses that arise due to non-fulfilment of obligations.

Transferring resources into the shadow economy with tax evasion is carried out through tax evasion schemes. In order to determine uniquely what actions of economic entities fall under this concept, it is necessary to consider the doctrine of “business purpose”.

The doctrine of the “business purpose” is that the operation consisting in reducing taxes and not any other economically justified or management purpose can be declared invalid. The determination of the existence of reasonable economic or any other reasons in the actions

of the taxpayer is carried out taking into account the assessment of circumstances that indicate his intention to obtain an economic effect as a result of real business or any other economic activity. Any operation should have any commercial purpose, that is, the direction for profit, which is the meaning of the entrepreneurial activity.

Taking into account that it is not obligatory, an operation should have a direct aim of obtaining profit. Basically, this is usually the case, but the commercial goal which is profit can sometimes be achieved in the chain of operations, some of which can even be planned as unprofitable. For instance, a taxpayer may sell goods

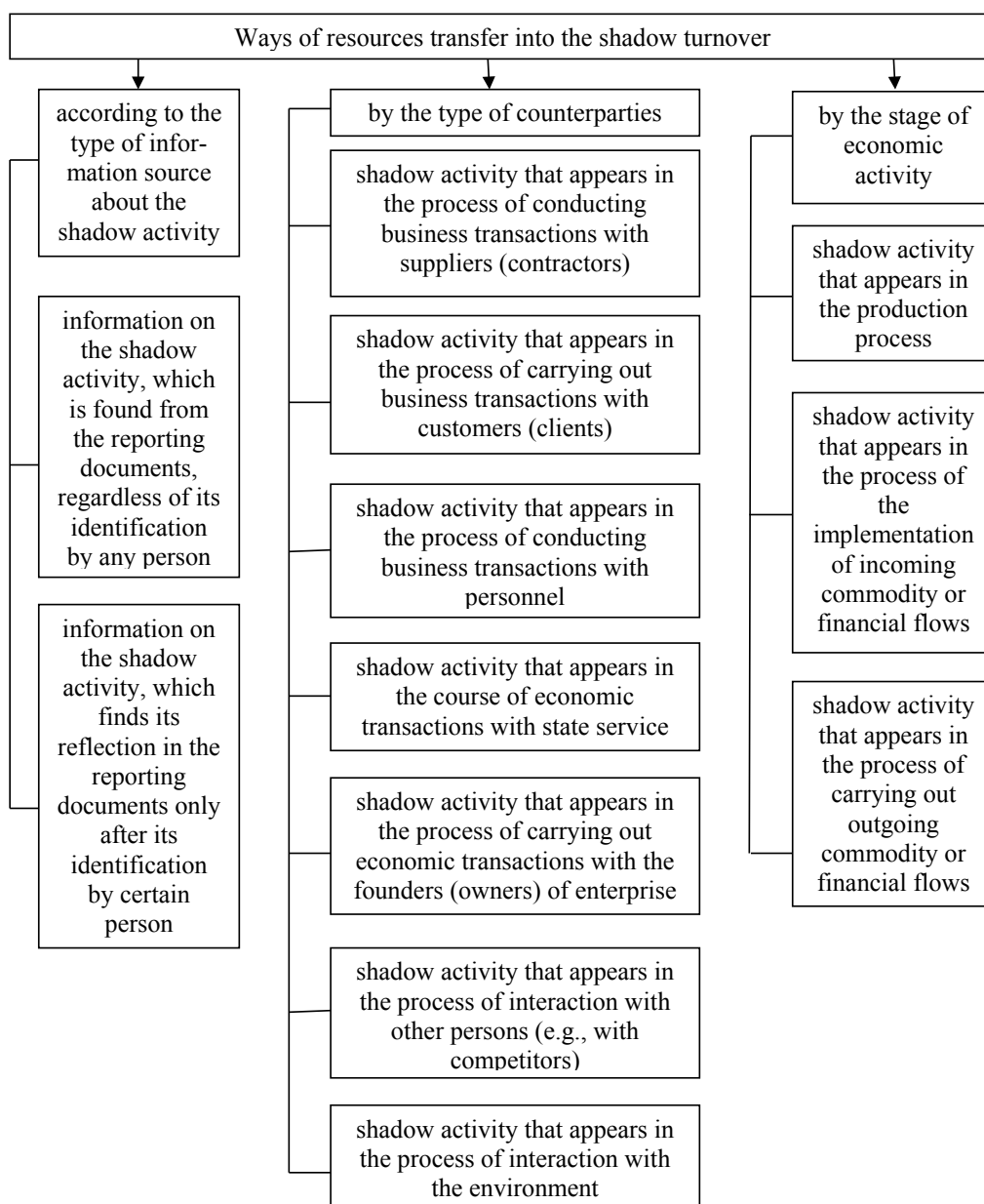


Fig. 1. Classification of ways to transfer resources into the shadow turnover at the level of the business entity

Source has been elaborated by the author

below the market value in order to capture a particular market segment and promote a new product. In this case, although the operation will be unprofitable, it will be aimed at making a profit in the future.

In practical terms, the doctrine of “business purpose” is revealed in such cases where the actions of the taxpayer deliberately have no other purpose than to reduce the tax burden. For example, carrying out unprofitable operations as an interdependent business entity in order to reduce the base of taxation. Proceeding from the doctrine of “business purpose”, one should proceed to the definition of actions that termed as tax evasion.

### 3. Ways of tax evasion

Tax evasion refers to financial and economic operations that do not have a business purpose but are aimed at obtaining unwarranted tax benefits. The evasion of taxation involves the construction of specific models of financial and economic activity, accounting and tax accounting, and documenting economic turnover. An unreasonable tax benefit can be obtained through a tax deduction, tax evasion, and unlawful tax reimbursement from the budget. Therefore, it is possible to formulate a definition of a scheme for evading the budget.

The scheme of tax evasion is a set of financial and economic activities and their display in the documentary of the payer of taxes intended to receive unreasonable tax benefits in the absence of a “business purpose”. This is a typical set of actions to avoid taxation with minor changes, which is often used by taxpayers. An analysis of the guidance materials of the state fiscal service and publications on minimizing the tax burden demonstrates a significant variety of schemes for tax evasion (Golovchenko, 2015). For example, in the information base of the fiscal services of Odessa, data on 190 patterns of tax evasion have been collected. Such a variety of actions of unscrupulous taxpayers complicates the identification and prosecution of tax evaders.

At the same time, among the applied schemes, it is possible to allocate a sufficient number of template actions for evading taxation. Many schemes use the same principles for concealing the taxable base and the schemes themselves are distinguished by minor nuances that are often due to the organizational and legal form, sectoral and regional specifics of the activity of taxpayers. In spheres that are not connected with taxation, shadow economic activity is carried out by means of evasion from public norms, rules, obligations.

There are many examples of such actions, for example, doing business without licenses, copyright infringement. These operations combine the existence of evasion of certain financial obligations or from the performance of compulsory actions, the implementation of costs. Evasion provides a kind of “economy” and, as a result, an unreasonable gain. Evasion is impossible without deliberate distortion or concealment of facts that are

significant for the emergence of obligations. Such actions are distinguished by a variety of forms that are constantly changing and improved by persons who carry out shadow economic activities, with the aim of complicating the identification of the true meaning of operations. Disclosure of actual information about the nature of the shadow economic operation should lead to imposing sanctions on the business entity that carries out these operations.

### 4. Classification of forms of shadow economic activity

Economic evasion from social norms, rules, and obligations is a set of financial and economic operations and their display in the document circulation of an economic entity aimed at obtaining unreasonable benefits. At the same time, deliberately distorted or hidden facts that are important for the emergence of obligations to the state or other economic entities. The variety of actions for economic evasion complicates the identification and bringing to justice of organizers of shadow economic operations. In the meantime, among the methods that are applied, a lot of template actions can be distinguished. Based on the analysis of guidance documents and publications on identified economic and tax violations, such criteria were formulated for grouping ways of avoiding public norms, rules, and obligations (Fig. 2).

The classification is focused on identifying schemes, which are used by business entities. The criteria for grouping the composition of participants take into account the fact that, usually, evasion schemes are implemented through specific counterparties.

Participation in the operations of interdependent fly-by-night companies (enterprises that were created for fictitious operations), offshore structures are one of the indicators of the possible application of the scheme of evasion by the business entity. The classification criteria from the “form of operations” group, which are used to conceal or distort information, must be constantly updated.

In order to complicate the detection of deviations, unscrupulous entrepreneurs constantly modify and find new ways of hiding or distorting information, often using the instability of Ukrainian legislation.

The actualization of classification characteristics should be carried out on the basis of systematization of the results of monitoring work. The classification has as its goal the development of unified methodological bases for identifying shadow economic activity in various spheres. The proposed classification will also ensure the creation of a data basis structure for preventing evasion of public norms, rules, and elements, which will effectively counteract the shadow manifestations in economic activities and, as a consequence, strengthening of the country’s economic security.

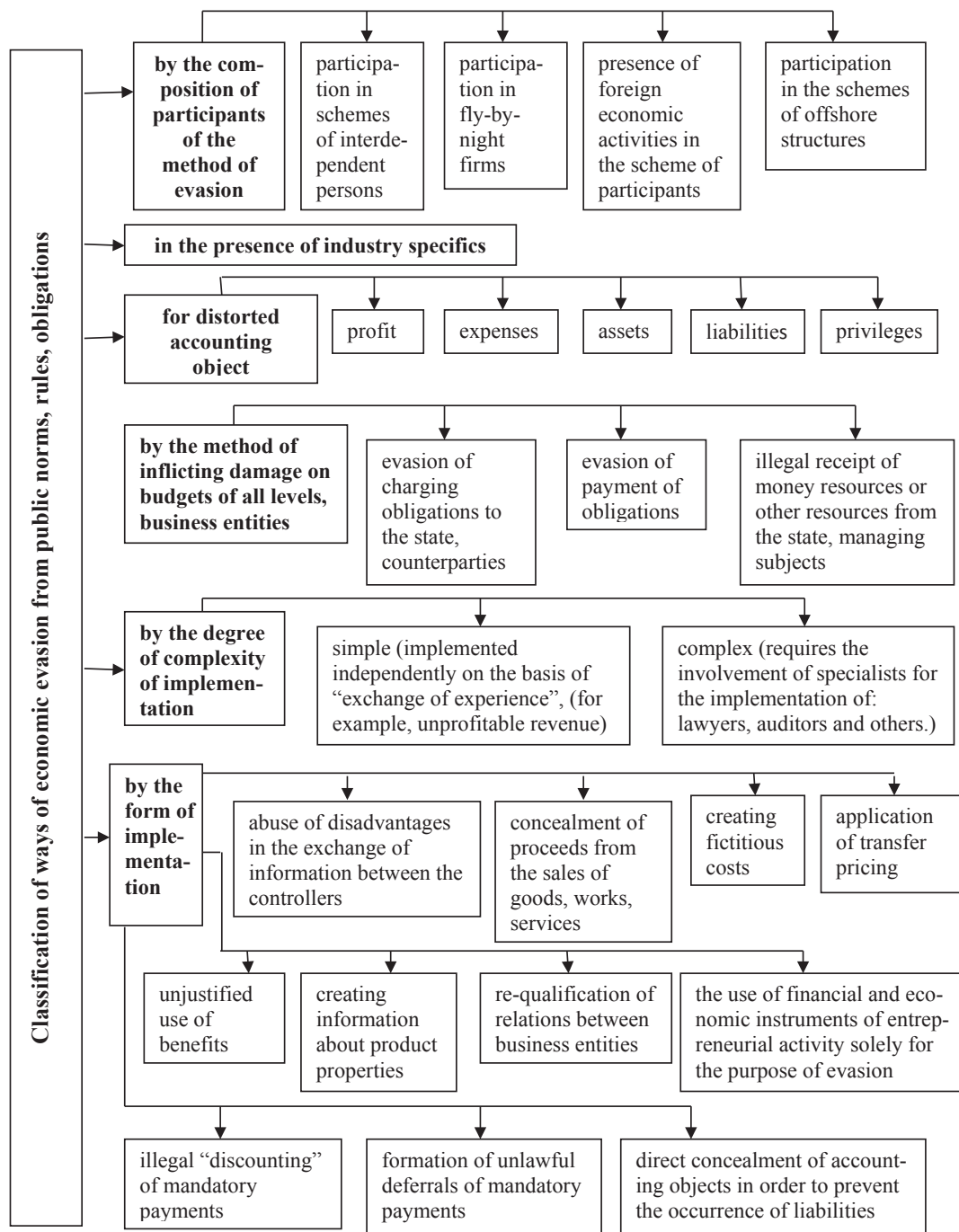


Fig. 2. Classification of ways of economic evasion from public norms, rules, obligations

Source has been elaborated by the author

With their help, information support can be provided for making decisions on conducting control measures.

**5. Conclusions**

As a result of the research, two types of shadow economy are identified.

The first type is the shadow economy as an independent sector of the economy, with an individual production

function different from the official economy. This type of shadow economy is typical, mainly for the command-administrative system and for the economy of poor countries, in a number of cases it can be observed in a developed market economy.

The second type of shadow economy can be observed in the market environment and it is a hidden version of the official economy with an identical production function. The main difference is in the external social

environment, which under the influence of a group of factors forms a number of conditions for the functioning of shadow activities.

The external and internal conditions of functioning of the shadow and official economy are investigated and their classification is proposed.

Systematization of the ways of transferring resources to the shadow turnover is carried out, which is based on the model of the functioning of the business entity in the business environment.

Depending on the stage of the process of economic activity, ways of transferring resources to the shadow turnover that arise in the production process, as well as in the implementation of input and output commodity and financial flows, are identified.

The sources of information that characterizes the shadow activity are also investigated.

The transfer of resources to the shadow economy in case of tax evasion is carried out using tax evasion schemes.

The doctrine of "business purpose" is proposed, which consists in the fact that an operation aimed solely at reducing taxes, and not any other

economically justified or economic goal, can be recognized as invalid.

Among the shadow schemes that are used to evade taxation, similar principles are singled out for concealing the taxable base.

Based on the analysis of instructive documents and publications on identified economic and tax violations, criteria are formulated for grouping ways of avoiding public norms, rules, and obligations: the composition of participants in the methods of evasion; the presence of specificity in the types of economic activity; distortion of the accounting object; ways of causing damage; degree of complexity of implementation; forms of operations used to distort information.

The developed classification will allow structuring databases on ways of evasion from taxation and transfer of economic resources to shadow turnover.

Practical application of the proposed classification will greatly simplify the information interaction between structures that oppose the shadow economy, which will allow more purposeful implementation of counteraction to shadow economic transactions as an institutional threat to economic security.

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# RESEARCH FRAMEWORK FOR SYSTEM SECURITY OF TECHNOLOGICAL & INNOVATION SYSTEMS

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**Abstract.** *The purpose of this study is to consider the main aspects of system security theoretical concept and practical aspect within the technological & innovation systems research methodology development according to their considering as structurally complicated systems. Methodology.* In this study, we propose to use the concept of technological & innovation systems, in which it is analysed the development of the technological field in terms of structures and processes that support or impede its development. So this approach can be considered as an expanding to techno-socio-economic analysis, considered for the innovation system in our previous studies. *Results.* The problem of study comes from the national security and defence objectives, which can be achieved within the national innovation systems, considering new meaning and problems in the age of globalization and high technologies development. We can underline that the important factor of technological & innovation systems system security consists in system identification within the management theory as the determination of the structure of the system and its parameters by analysing input data and system outputs. At the same time, we can note the system specifics, e.g. the identification of industrial systems security deals with the establishment of the identity of production facilities an ecological security etc. The most important relationships of innovation & technological systems designing that allow establishing appropriate adaptive management decisions were proposed. For the development of combined models of innovation & technological systems security, the main aspects of this type of systems were considered. *Practical implications.* Based on this, the author proposed to use system indicators for security providing process. Using these indicators, we can identify system synchronous development speed and autonomous of speeds of security providing process. The technological & innovation systems security management is proposed to be analysed in two interrelated subsystems: self-organizing subsystems and technological subsystem. The main activities for the system security of highly complicated system providing were proposed. *Value/originality.* Based on the foregoing, the authors proposed to use security relationships adaptive management as a set of methods that can generate management systems, able to change the security-related parameters of regulator or controller structure according to the change of control object parameters or external disturbances acting on the control object.

**Key words:** system security, technological & innovation system, national security, national innovation system, technology, analysis.

**JEL Classification:** C51, O14, O32

## 1. Introduction

Today the problem of security is the main from the list of nation's strategic importance development priorities. It includes the complexity of transformation processes at the beginning of XXI century and is the condition and the objective of development policy because it requires

the concentration of all forces and resources on problems solving. Their distraction from threats neutralizing makes difficult or sometimes makes it impossible for the successful realization of development strategy.

Security management system in different innovation systems can be considered as a set of methods and

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instruments of ensuring the maintenance of safe state of the object (system), prevention, detection, and elimination of threats, health, environment, property, and information, having common means of collecting and information processing, and management. In this general definition, the security is considered in terms of its functionality and is a common case of an integrated security system. The necessity for further innovation system analysis of methodology development through the improvement of existing and developing the new tools for security assessment and providing is caused by the fact that with the growth of complexity of human-made systems and numerous links in them, and the more elements are in them, the greater the potential danger and risks and accordingly processes of analysing and forecasting system condition become more difficult.

A brief literature review has shown that the problem of our study comes from the national security and defence objectives, which can be achieved within the national innovation systems, considering new meaning and problems in the age of globalization and high technologies development.

In this framework, the main purpose of “technological & innovation system” conceptualization and analysing according to (Hekkert, 2009) is to “analyse and evaluate the development of a particular technological field in terms of the structures and processes that support or hamper it.” Within this analysis, such basic steps are highlighted:

- analysis of innovation system structure (actors and rules, which make up the system);
- analysis of how the system is functioning (functions and interaction between the functions analysis);
- analysis of system problems, which block of system well-functioning.

We believe that this approach can be useful for system security analysis because it provides possibilities for extended analysis.

Necessary for innovation systems efficient models development is caused by a clear understanding that innovation component becomes the main part of the global economic competition (New Challenges, 2008).

Experts (OECD, 1997) have noted that there are different approaches to national innovation systems analysing. For example, innovation firm-level surveys consider enterprise’s sources of knowledge most relevant to innovation and rank of different linkages of industrial sector and country. Cluster analysis focuses on interactions between particular types of firms and sectors, which can be grouped according to some technological and networking characteristics (OECD, 1997). But all these approaches consider innovation system as a separate object without answering the list of questions concerning system dynamics, different types of influences and impulses, subsystems dynamics etc.

Among studies, devoted to problems of national security and defence objectives, we can name research

(Mowery, 2009) focusing, in particular, on the USA during and after the Cold War, including a brief description of post-9/11 trends in related to defence and national security investments using R&D strategy. Also, systems security issues can be defined from the confidentiality & trade secrets as a part of the innovation process. In general, we need to identify vulnerability as a weakness in the target, which potentially can be exploited by security threats. For example, in the term “security economy” OECD experts describe a cluster of activities concerned with preventing (reducing) risk of deliberate harm to life or property (OECD, 2004).

In NPR 8715.3 C system safety is defined as “application of engineering and management principles, criteria, and techniques to optimize security ... within the constraints of operational effectiveness, time and cost throughout all phases of system life cycle” (NASA, 2011). This definition gives a base for security management of various systems.

The complexity of modern technological & innovation systems necessitates carrying out their depth analysis using system approach, methods and algorithms for structural and parametric synthesis based on technology package approach (Artyukhov et al., 2016) as a set of technologies and additional elements that provide efficiency of innovation & technological system. This approach is consistent with Benner L. (1997), who has suggested that any system definition describes dynamic interactions among people, procedures, and things and their influences on outcomes.

The technology package approach can be applied based on different management approaches. E.g. in 2007 International Organization for Standardization has released ISO 28000 “Specification for Security Management Systems for the Supply Chain”. Although in the title supply chain is included, given Standard specifies the requirements for security management system, including those aspects critical to security assurance for any organization or enterprise wishing to manage the security of organization or its activities.

**The purpose of this study** is to consider the main aspects of system security theoretical concept and practical aspect within the technological & innovation systems research methodology development according to their considering as structurally complicated systems.

## 2. The methodology of technological & innovation systems study review

The complexity of modern technological & innovation systems leads to the necessity of carrying out their depth analysis using system approach, methods and algorithms for structural and parametric synthesis, based on technology package concept as a set of technologies (industrial, social, organizational) that provide expected efficiency in the relationship of innovation & technological system.

In this study, we propose to use the concept of technological & innovation systems (Hekkert, 2009), in which it is analysed the development of the technological field in terms of structures and processes that support or impede its development. So this approach can be considered as an expanding to techno-socio-economic analysis, considered for the innovation system in our previous studies (Marekha, Omelyanenko, 2016; Omelyanenko, 2014; Prokopenko, Omelyanenko, 2013; Omelyanenko, 2015a; Omelyanenko, 2015 b).

That's why through the review of previous studies and according to rational approach, given in (Chechkin, 2009), we consider as a base for our study the concept of "system security of complex (complicated) system" that means an unconditional preservation of its main functions, main components of complex system and their relationships in solving any particular problem for the system life cycle ensuring the proper functioning of the complex system (i), as well as its system integrity within its metasystem (ii).

In respect that the main characteristic of technological innovation system approach is its focus on system dynamics (Suurs, 2009), we propose to analyse it in terms of its system components and (or) in terms of its general dynamics. That's why we can apply virtuous circle (also referred as a vicious cycle) that refer to complex chains of events, which reinforce themselves through the feedback loop (Webel, 2012).

In our research, we also use approach for the identification of system security of technological & innovation systems based on system protection by reducing the risk of loss of its integrity and availability of information for decision-making to an acceptable level.

### 3. Technological & innovation systems security

Modern technological & innovation systems can be referred as structurally highly complicated systems, which in the mathematical description cannot be reduced to simple serial, parallel or tree structures but can be described by complex network scenarios with cycles and repeatability arguments in formalization. The complex phenomenon of these type of systems, which include, for example, information and computing systems, nuclear power stations, space stations, space vehicles, etc., in scientific terms are not known until the end and their security is not solved satisfactorily in an applied sense.

For the system security detailed analysis, we need such three basic points' acknowledgment:

1) in the macroeconomic and international levels the security of structurally complicated innovation & technology systems, we propose to consider as a classical situation, when the "impact of factors (external and internal) does not lead to system deterioration or impossibility of its operation or development" (Zaplatinskiy, 2006);

2) system's security analysis is aimed at the identification and assessment of factors that determine the undesirable internal incidents probability, the study of incident and development of preventive measures to reduce their probability (internal security of system);

3) system's security analysis is also connected with the identification and evaluation of external factors that determine the probability of undesirable incidents (conflicts, events etc.) inside of it, the study of an incident's nature and, recently, the development of preventive measures to reduce an incident's probability (external security of system).

So, according to the mentioned points and definitions, the system security of the highly complicated system can be provided through such main activities:

- monitoring and elimination of conflicts between its components (subsystems) and their linkages that appear throughout the system life cycle stages;
- monitoring and elimination of conflicts between the complex system and other external systems (its metasystem).

Based on methodology, given in (Hekkert, 2011), and our previous studies, we can underline that the important factor of technological & innovation systems system security consists in system identification within the management theory as the determination of the structure of the system and its parameters by analysing input data and system outputs. At the same time, we can note the system specifics, e.g. the identification of industrial systems security deals with the establishment of the identity of production facilities' ecological security etc.

Similar in formulation and meaning is the task of calculating the reliability of the systems, i.e. analysis of system's ability to maintain the properties, necessary to comply with the specified purpose, during normal operation. But in the case of innovation & technological systems, we are facing with different external impulses (competitors, macroeconomic dynamics) that do not correspond to its normal (initial) conditions. Analytical description of all above-mentioned issues can be conducted in two directions:

1. Identification and description of different types of improper actions and incorrect management decisions according to different interrelations;

2. Identification of consequences of malfunction, which causes other problems (or not cause), which ultimately leads to undesirable incidents and evaluate their probability.

To solve these tasks from the standpoint of classical cybernetics, the technological & innovation management we propose to consider as function-oriented activity (i) for maintenance system basic properties (set of properties or functions (subsystems), loss of which entails the destruction of system or losing of its capacity or safety) in the environmental conditions change and (ii) for certain actions implementation,



ensuring the stability of its functioning and development to achieve some target.

In the context of function-oriented system analysis of objectives and appropriate optimization of technological & innovation systems, we propose to consider mechanism of complex transformation of a wide range of initial resources into the final results using the tools complex based on humanity-established skills and knowledge, as well as adequate information and management system of necessary resources and sub-system of dissemination various economic, social, environmental, and other results, which are related to this system (Fig. 1).

Function-oriented security approach significantly expands the tasks of traditional factor analysis since provides that the object of security analysis should be systematic (integrated) and accordingly involve a number of sub-supply systems (scientific, technical, information, logistics, personnel, organizational, etc., that separately can be considered as a subsystems) must be function agreed through the set of different types of flows (material, energy, information flows, states changing etc.). From this perspective, the innovation & technological system's structure can be considered as a set of restrictions on flows system in space and time.

So we can apply system security approach to the consideration of the role of international relations in technological & innovation systems development within political and economic associations' framework. This means that the necessity to manage

of different resources (including valuable and limited resources) flows led to international integration processes development from simple economic and trade associations to interstate political, economic alliances and networks, as well as to different kinds of economic and technological wars.

System security also corresponds to "technological economy" concept that characterizes "social technological" systems, their transforming socio-natural character with the predominance of economic and scientific-technical development and rationalizing landmarks. So the technological & innovation systems security management according to the selected object is proposed to be analysed in two interrelated subsystems:

- first deals with the characteristic of self-organizing subsystems;
- second deals with the technical (technological) subsystem.

For each of these subsystems security, two basic approaches can be used: activity analysing approach and process analysing approach. Selection of specific approach depends upon the nature and complexity of object of management and focuses on the appropriate range of methods of analysis and decision-making (qualitative or quantitative). Within the management of technological & innovation systems, which, as it was already mentioned above, are the most complicated types of systems, the first approach currently is dominant, and methodological spectrum share of qualitative methods of analysis and decision-making significantly exceeds the share of traditional quantity methods.

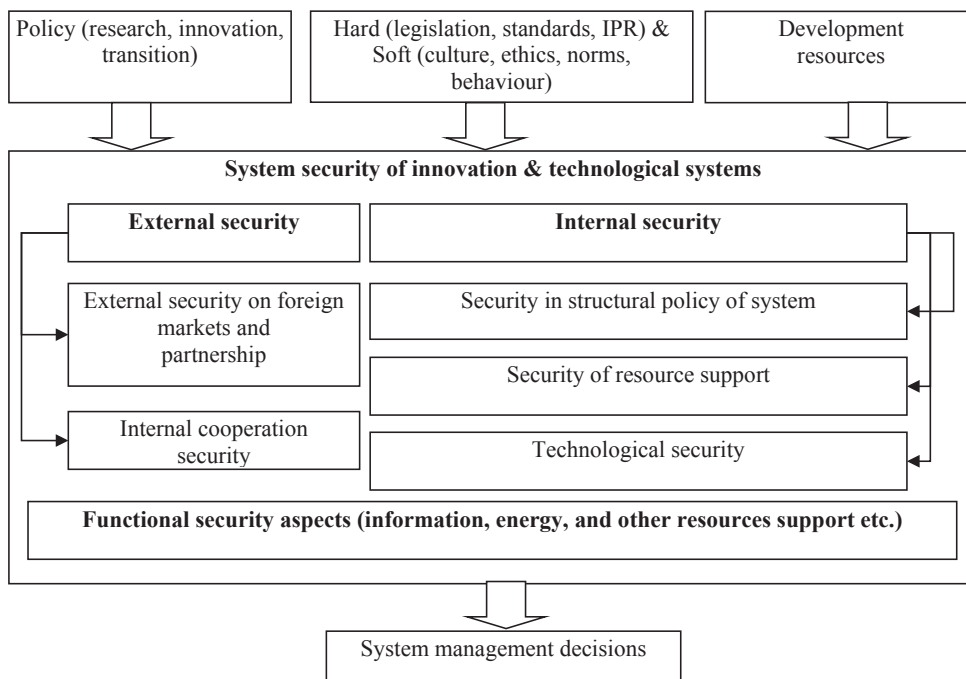


Fig. 1. System security of technological & innovation

The author's approach

#### 4. Technological & innovation systems development management

The mentioned methods in the application for the technological & innovation systems should be considered as a part of system controlled evolution, which we offer to understand as a process of formation and implementation of such target impacts on technological & innovation system, as a result of which the system will turn to the target condition. As a part of the evolutionary management of technological & innovation systems, we offer to consider such analysis:

- 1) analysis of a variety of purposes based on potential and resource capabilities of the system;
- 2) analysis of internal environment of system formation processes;
- 3) data envelopment analysis, based on external factors (impulses and requests).

Therefore, for innovation & technological systems security analysis, we propose to use adapted evolutionary models in compliance with the dialectics principles and systematic approach. These models are based on the combination of constant (hereditary) part and variable component, which reflects the changes in the system and its environment. We also should underline the presence in evolutionary models of the efficiency concept as the dominance of one group of objects over another. This predominance can be achieved through the use of innovations and their interaction with other elements (technologies) in the system or the consequences of a technological innovations impact on the other areas. So with this understanding, we can identify causal relationships in a security context.

So we came to the conclusion that the effectiveness of technological & innovation systems security instruments depends on balance (level of synchronization) of system's development and relevant processes, caused by the introduction of specific elements (activities) into

the system within the controlled evolution. Assessment of system security, based on synchronization processes, we propose to realize according to a comparison of indicators, which characterize the systems development and development of investigated processes. Based on these indicators, we can identify system synchronous development speed and autonomous of speeds of security providing process. The most important relationships when designing innovation & technological systems, which allow decisions making, can be:

- the hierarchical relationship between the main system's function (a function of quality, a cost function) and sub-functions;
- managing relationship, reflecting the dependence of one system's function (subsystem) from another as a way out of control directed to another;
- functional (technological) relationship, which provides the fact that one output function (subsystem) is input to the next function (i.e., this relationship shows the actual technology). In the case of security models of technological & innovation system development, we propose to distinguish the direct connection for the input, when the output is transferred from the higher to the lower subsystem, and feedback on input, when output is transferred from lower to the higher subsystem. These aspects are relevant especially for technology cycles independency from the foreign or external suppliers;
- consumer (resource) relationship, when the output of one system's function (subsystem) is a mechanism (input) for the other (others);
- logical relationship between homogeneous functions (subsystems) that performs the same activity but by the different (alternative) ways or uses different data (resources);
- resource relationship that occurs between the functions (subsystems) that are used for their activities the same resources;

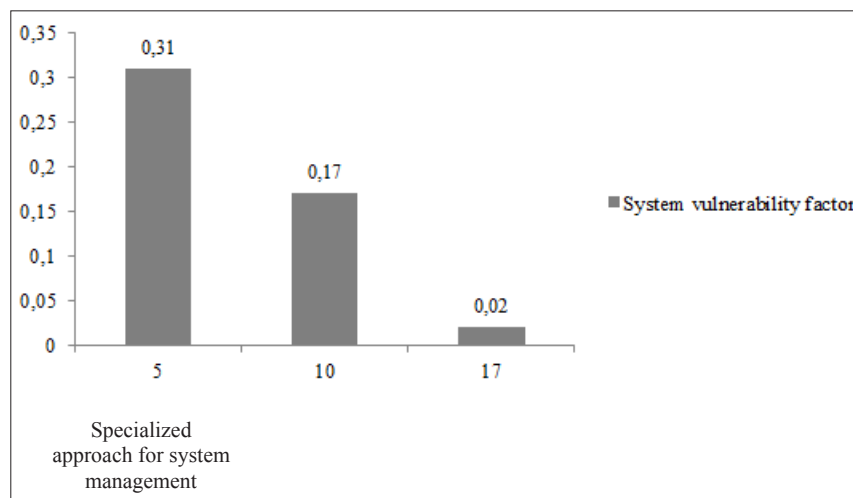


Fig. 2. Comparative analysis of system security providing approaches

The author's calculations

– information relationship that takes place between the system's functions (subsystems) that are used as input of the same information;

– time relationship occurs between the system's functions (subsystems) that are performed simultaneously after another function results obtaining.

Fig. 2 illustrates comparative analysis of application of three main approaches for system security providing (specialized approach, which orients only on the system main function, innovation approach, which orients on the innovation development of the system main function and proposed system security approach), which for the management of IT project for the e-governance.

Based on the foregoing, we propose to use security relationships adaptive management, which can be defined as a set of methods that can generate management systems, which are able to change the security-related parameters of regulator or controller structure according to the change of control object parameters or external disturbances acting on the control object. Model of adaptive management based on precedents contents of possible outcomes (precedents) database that can occur before the start of adaptive management actions based on real or simulated precedents, after processing of control action results.

The precedent structure for technological & innovation systems adaptive management can be written as:

1. Status of the system before the action. Description of the system (a set of agents, processes and their features, belonging to some class of states (situations));
2. Control action. Influence description (where possible formalization, in particular, the classification of control actions);
3. State after impact. Description of the object system (a set of agents, processes and their features, belonging to some class of states);
4. Outcome (positive outcome / negative outcome / controversial outcome).

In the context of initial technological & innovation system subsystems adaptive management at different

levels (company, cluster, sector), we propose to use the similar to IDEF0 methodology for functional modelling and graphical notation, which is intended for the business processes formalization, based on the hierarchical ranking of objects.

## 5. Conclusions

In our study, we have shown that the modern technological & innovation systems are structurally complicated systems, which are not reduced to simple serial, parallel or tree structures but can be described with complex network scenarios with cycles and repeatability arguments in their formalization. Based on this, we have considered system security concept as an analytical approach that can be an efficient base for innovation and economic policy efficiency assessment. As a framework for system security, we use function-oriented security approach, which significantly expands the traditional factor analysis. We came to the conclusion that the effectiveness of technological & innovation systems security instruments depends on balance (level of synchronization) of system's development and relevant processes. In the development of innovation & technological systems security adapted evolutionary models, we proposed the main aspects of this type of systems (general laws, external system's trends, internal system's trends, trajectories of development).

In the further our studies, we will consider the system security of technological & innovation systems development indicators in conditions of objective processes of rapprochement, interlacing and integration of national economies into the global economy and global innovation system.

## 6. Acknowledgements

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# METHODS OF ANALYSIS OF THE EFFECTIVENESS OF PUBLIC SECTOR PROJECTS: FEATURES AND CONSTRAINTS

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**Abstract.** The *purpose* of the paper is to consider the main provisions of methods of analysis of the effectiveness of public sector projects. A number of issues remain controversial in the methodology of analysing costs and benefits. So, in addition to determining the costs and benefits to be included in the analysis, one should outline the problem of assessing in the monetary equivalent of the social effects that society receives from the project implementation. *Methodology.* The social nature and scale of tasks that are solved in the public sector deepen the issue of identification of social effects. Discounting costs and benefits and assessing the social effect in the cost-benefit analysis involves the application of the rate of time preference. The parameters of this rate are analysed and substantiated in the study. In addition to the CBA method, an attention is paid to other methods of efficiency analysis, in particular, the method of cost-effectiveness analysis, method of weighted cost-effectiveness analysis, method of cost-utility analysis. Each method has its own specific features and limitations that determine the direction of their application. *Results.* It is concluded that finding solutions in the direction of studying the relationship between the social rate of intergovernmental preferences and other methods of discounting will allow us to get an idea, in which range may be the value of social discount rate. The ability to determine the range will allow taking into account the specificity of the project being implemented.

**Key words:** cost-benefit analysis, social rate of discount, cost-effectiveness analysis, weighted cost-effectiveness analysis, cost-utility analysis.

**JEL Classification:** J00, K10, K20, K23

## 1. Introduction

The feature of projects in the public sector is that their implementation contributes to the growth of the welfare of society and is a prerequisite for its development. It is worth noting that public sector projects are often characterized by negative profitability and, therefore, cash flows do not generate a commercial effect. At the same time, the importance of implementing such projects is to increase the welfare of society and to promote economic growth, capital accumulation, and increase in the competitiveness of the national economy.

The benefits that society receives as a result of the implementation of public sector projects, due to their specificity, cannot be offered on the market and,

therefore, market prices are not applied when evaluating such projects. In addition, during market failures, market prices do not reflect marginal benefits and costs (Atkinson, 1980). The ineffectiveness of the market mechanism for revenue generation is the reason that complicates the use of classical investment analysis tools to assess the effectiveness of public sector projects.

A classic method for analysing the effectiveness of public sector projects is the cost-benefit analysis method – CBA. The analysis is conducted by comparing the benefits (social effects or results), measured in monetary terms, and the costs incurred. Subsequently, the analysis tool was expanded. This led to the emergence of other methods for analysing the effectiveness of

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public sector projects, such as cost-effectiveness analysis – CEA, cost-utility analysis – CUA, weighted cost-effectiveness analysis – wCEA.

Despite the rather significant experience of using tools for analysing the effectiveness of public sector projects, issues remain controversial about the methodology for assessing the social effects derived from their implementation. The problem is that it is necessary to determine precisely whether the social and cultural changes in the social situation (positive or negative) have become a consequence or result of the project implemented (Williams, Giardina, 1993). However, it is rather difficult to identify the social effect as a result of the project implementation, without understanding the nature of its origin. This is related to the fact that the social effect can be defined as a social benefit and as an externality.

Social benefit is the benefit of any activity that includes the benefit of the entity that carries out activities, as well as benefits to people who do not pay for it. At the moment, we are talking about evaluating the benefits based on a willingness to pay indicator (WTP), which reflects the readiness of the individual to pay money for a certain social benefit. However, the definition of the value of the social benefit is also quite problematic. To solve this problem, it is suggested to use the ordered binary choice models (ordered logit model, ordered probit model) (Verbeek, 2008).

Another problem when analysing the effectiveness of public sector projects is the need to take into account the externalities associated with the results or effects of the project being implemented. In this case, there are issues regarding their identification by the form of manifestation. For example, if the implementation of the project contributed to the transfer of demand from one producer to another, then society as a whole has no gain or loss. Here we are talking about the redistribution of cash resources within a single market. Taking into account such monetary externalities for determining the costs and benefits does not make sense. However, there may be another situation. For example, project implementation has the consequence of saving or increasing resources for a group of producers or degrading or improving the environmental status of the region. It is clear that under such conditions there are real effects that maximize or minimize the volume of social benefits. The actual (technical) externalities affect the estimation of costs and benefits of the project. The problem is the choice of a range of the most significant externalities; moreover, it is necessary to distinguish those that do not have a redistributive character. This is a rather difficult task since the externalities can be manifested in the same processes but have different nature of occurrence. In addition, it makes no sense to take into account all externalities. Therefore, in practice, there are certain limitations to take into account real externalities to determine the costs and benefits of the

project. The first limitation concerns the consideration of only indirect externalities; the second one is that costs and benefits of the project should be assessed from the perspective of the impact of externalities on the development of society. Thus, for a public comparator, the task is to maximize the difference between social benefits and social costs.

Public sector projects are not implemented right away. They have a certain period of life. Therefore, when assessing the social effect, it is necessary to take into account changes in costs and benefits in time, that is, lead costs and benefits to the initial or final period. It is this aspect that determines the problem of choosing discounting methods for public sector projects. The complexity of the matter is that the public emphasis of public sector projects, the scale of tasks that are being solved, require the study of a wide range of factors for assessing the social effect. Scientists agree that the social discount rate should be positive, but there are discussions about the choice of methods for estimating this rate. Differences in the views of different researchers in determining the social rate of discount create a certain debate and encourage further research.

The purpose of the article is to identify specific features and limitations of the methods used to analyse the effectiveness of public sector projects and to substantiate recommendations for their practical application.

In order to achieve this purpose, it is necessary: to study the methodology of the analysis of the effectiveness of public sector projects based on comparing costs and benefits, focusing on approaches to determining the social discount rate; define the limits of application of the method of CEA analysis and its modifications; compare existing methodologies for analysing the effectiveness of public sector projects to determine their specificities and areas of application.

The research used the following methods: the method of comparative analysis – to identify advantages and limitations in the study of methodology for analysing the effectiveness of public sector projects; method of generalization – when analysing the accumulated experience in applying the methodology of the analysis of the effectiveness of public sector projects; scientific abstraction method to reveal the essence of social discounts; mathematical statistics for determining parameters of estimation of discount rate.

## 2. Method of analysis of cost-benefit efficiency

For the analysis of projects in the public sector, a system of methods based on a cost-benefit analysis (CBA) is developed. However, as pointed out by researchers, for the analysis of costs and benefits, there is a significant gap between the theory and the practical application of analysis tools (Dreze, 1985). The issue of the need to reduce this gap was considered in works

of Boardman A. (Boardman, 2006), Dasgupta A. K. (Dasgupta, 1978). The reasons lie in the complexity of determining the social effect of project implementation.

The issue of determining the social effect is quite controversial. In science, there are various approaches to its justification. These approaches have diverse, ambiguous, and conditional interpretations, although the essence of the social effect is understandable at the intuitive level of perception. F. Vanclay (Vanclay, 2003) substantiated a number of principles which, in his opinion, are fundamental to the identification of the social effect. The author emphasizes, firstly, that it is necessary to clearly understand the nature of the origin of the social effect, that is, only the effects, which have become a consequence of the project (for example, as a result of the project, the cost of working time to produce a unit of production reduces or the social situation improves). Secondly, as F. Vanclay points out, the indicator of improving the quality of life (public welfare) should be used as the basic indicator of the social effect. Thirdly, it is necessary to take into account the opinion of society. Through the survey, determine the degree of utility that society identifies with the resulting effect. As you can see, the costs and benefits of the project should be evaluated from the standpoint of the whole society. So, maximizing the difference between social costs and social benefits will determine the increase in social benefits.

$$NB=B-C \quad (1)$$

where NB – net present benefit; B – present benefit (social effect);

C – costs in the current period.

The method of CBA is of scientific interest to many researchers. The theoretical foundations of CBA are rather thoroughly described in the economic literature by Squire and Layard (Squire, 1989; Layard, Glaister, 1994). No significant achievement is the study of Lomborg (Lomborg, 2007), which developed a methodology for the use of CBA for various sectors of the economy.

An analysis of costs and benefits helps to assess whether a project is effective in terms of improving social well-being. This analysis is applied when full market assessments of consequences or outcomes of public sector projects cannot be identified over the inability to adequately describe individual components of total costs or full benefits with price indices, how much to take into account externalities and social benefits. This is the main advantage of the CBA method. With the help of the CBA methodology, it is possible to assess the impact of the project on changes in public welfare.

The advantages of CBA are, firstly, the ability to assess the aggregated long-term effect on the basis of bringing the net benefit indicator by discounting to the present moment, and secondly, the ability to compare projects between themselves and in time.

The classical CBA approach involves evaluating the effect through the definition of net present benefits brought to a certain point in time

$$NB=\sum_{t=0}^n \frac{B_t-C_t}{(1+SDR)^t}, \quad (2)$$

where NB – net present benefit;

$B_t$  – benefits at time  $t$ ;

$C_t$  – costs at time  $t$ ;

SDR – social rate of discount;

$n$  – life cycle of the project.

However, the methodological issue of determining the discount rate inevitably arises. The necessity of its application follows from the fact that the main volume of investments, as a rule, occurs at the initial stage of the project implementation, and the expected social effects appear only after its implementation. However, in a situation where market prices do not reflect the marginal benefits and costs for society (as a consequence of market failures), the market discount rate cannot be applied. This market failure is solved only under conditions of state intervention. Consequently, it is impossible to estimate the social discount rate as a return on alternative projects given that the alternative yields of these projects are unobserved.

The choice of SDR relates both to the timing (future benefits) and the size of the social distance (benefits to others). This is precisely what determines different approaches in the estimation of the discount rate. In the case of discounting time, decision-makers estimate the remuneration available at different times (the choice is made over a period of time, so the choice is intertemporal). In terms of social discounts, the choice raises concerns about remuneration for people who have different positions along the axis of social distance (choices are made within the social distance, so the choice is interpersonal). Persons are distributed along the social distance axis according to A. Karbowski's criterion of closeness to the decision makers (Karbowski, 2016).

Social rate of time preferences (SRTP) reflects the willingness of society to abandon consumption at the present time in order to obtain certain benefits after project implementation. Researchers focus on SRTP establishment issues. Some argue for the need to differentiate the social discount rate (Baumol (Baumol, 1952), Pierce D. (Pearce, 1985, 2003), Sen A. K. (Sen, 1961, 1967, 1982)), others – believe that a single discount rate should be used to discount public sector projects in a particular country (Kula E. (Kula, 1985), Evans D. (Evans, 2004), Lopez (2008)).

The calculation of SRTP is based on the solution of the problem of maximizing the public utility function, which is drawn on the utilitarian approach, which is based on the assumption that for the society the significance of the welfare of all members of society is

the same. As a public function of utility, a function with constant elasticity is selected:

$$U(C_t) = \frac{1}{1-\mu} \cdot C_t^{1-\mu}, \quad (3)$$

where  $U(C_t)$  – utility derived from consumption;  
 $C_t$  – consumption at time point;  
 $\mu$  – parameter of public utility function on consumption.

The goal of maximizing utility, which reflects the individual's choice for today's consumption or deferred consumption for tomorrow, is determined for two periods:

$$U(C_t) = U(C_1) + \frac{U(C_2)}{1+\rho} \rightarrow \max(C_1; C_2) \quad (4)$$

$$C_1 + \frac{C_2}{1+SRTP} = 1$$

where  $C_1; C_2$  – consumption in different periods of time;

$U(C_t)$  – public utility function of consumption;  
 $\rho$  – individual rate of time preference;  
 $SRTP$  – the social rate of time preference.

The equality of the unit of the amount of discounted flows in equation (4) is based on the assumption that there is no preservation, that is, the entire available volume of consumption is distributed between two periods.

The result of solving the system of equations is the expression:

$$SPTR = (1+g)^\mu (1+\rho), \quad (5)$$

where  $\rho$  – the rate of time preference;  
 $g$  – the rate of consumption growth per capita;  
 $\mu$  – parameter of public utility function on consumption.

To estimate the rate of time preference, the approaches that are formalized in (6) are used (Evans, Kula, 2011). In essence, the resulting formula is a linear approximation of formula (2).

$$\begin{aligned} 1+SRTP &= (1+g)^\mu (1+\rho), \\ \ln(1+SRTP) &= \ln((1+g)^\mu (1+\rho)), \\ \ln(SRTP+1) &= \mu \ln(1+g) + \ln(1+\rho), \\ SRTP &= \mu \cdot g + \rho \end{aligned} \quad (6)$$

By analysing the parameters of the final expression (5), it can be concluded that  $SRTP$  is additive and includes such components ( $\rho$ ) that reflect time preference of the population and ( $\mu \cdot g$ ) – the growth of public utility derived from consumption by society.

In turn, the rate of time preference is the sum of the net rate of time preference and the parameter that reflects the risk to life.

$$\rho = \delta + L, \quad (7)$$

where  $\delta$  – “net rate” of time preference;  $L$  – the level of risk to life or catastrophe risk.

The “net rate” parameter ( $\delta$ ) in many techniques equates to zero, based on ethical considerations, so as

not to undermine the welfare of future generations, that is, the benefits are not provided to any generation. However, M. Olson and M. Bailey (Olson, Bailey, 1981) state that when setting the zero discount rate, the probability of shifting time preferences in favour of future generations, that is, increasing one generation's poverty in order to increase the welfare of the following, appears. It is believed that this parameter of the social rate of time preference is not subject to empirical analysis. For different approaches, the range of this rate is set from 0% to 0.5%.

Parameter ( $L$ ) is interpreted as a catastrophe risk (life risk). This implies that there is a probability of events that all project achievements will void or radically and unexpectedly change. In the life risk assessment as a basis, the risk of a shortfall in income from the project implementation in the future is taken.

When calculating parameter ( $L$ ), it is necessary to pay attention to the fact that its value varies considerably. Therefore, the ratio of total deaths to population is usually used in methodologies.

The elasticity of the marginal public utility value or ( $\mu$ ) is determined by some methods based on the average saving rate. However, there is no unanimous opinion among the world scientific community. This indicator is quite varied by different methodologies.

Since the social discount rate is intended to identify benefits in the future, it is considered expedient to use the projected values of growth rates of consumption per capita ( $g$ ) during the calculation. The growth rate of per capita consumption reflects the potential for more consumption in the future, which is achieved through the introduction of innovations and the development of technical progress (Pearce, Ulph, 1995). It is necessary to find out what horizons of forecasting should be applied during the calculations. However, it should be borne in mind that forecasts are more acceptable only in the short run.

The problem of determining the social discount rate has a fairly wide range of judgments and requires a more in-depth study but in a separate format. Based on the task, the emphasis, first of all, is on the justification of advantages and limitations of the CBA methodology. In the defined context, CBA limitations can also be considered as the disadvantages of social discounting.

### 3. Cost-effectiveness analysis method

The method of cost-effectiveness analysis (CEA) has a significant distinguishing feature, which is that the benefits are not measured in monetary terms, but in physical units (Kahn, 1969). The issue regarding the use of the CEA methodology is rather controversial, so the comparison of different approaches is complicated, and thus the generalization of different opinions is difficult.

The application of the method of cost-effectiveness analysis is not complicated by the need to assess the



social effect in monetary terms, as in CBA. However, there is a problem in comparing the results of the analysis of interventions that are different in nature. The high degree of sensitivity of results to the change in the indicator, which reflects the social effect received as a result of interventions, limits the positive characteristics of the CEA method. This attracts a constant interest in the development of various variants of its modification.

For a reasoned comparison of alternatives, it is necessary to compare not only the costs and results but the cost changes in relation to the change of results. Consequently, in the case of CEA, an incremental cost-effectiveness analysis (ICEA) is carried out (Tan-Torres Edejer, 2003).

$$ICER = \frac{\Delta C}{\Delta E}, \quad (8)$$

where  $ICER$  – (Incremental cost-effectiveness ratio) – an indicator of the ratio of increase in costs and productivity gains;  $\Delta C$  – an increase of costs as a result of interventions;  $\Delta E$  – increase in the effectiveness (social effect) as a result of interventions.

The analysis of indicators of formula (2) allows concluding that the lower the value of  $ICER$ , the lower costs are directed to achieving a certain level of effectiveness, and the more effective the considered variant of intervention. As a limit, there is WTP (willingness-to-pay), which reflects the inclination of the financial decision-maker to pay for the corresponding project (Levin, McEwan, 2001).

In practice, the CEA method is the most appropriate for use in choosing alternatives in the healthcare system, since its toolkit allows for project analysis and choosing the most appropriate option in case of achieving a goal, for example, to increase life expectancy. In the broad sense, CEA is used, firstly, if it is necessary to decide on the choice of alternative, mainly when there is a need for intervention to determine the degree of intervention. Secondly, when it comes to the generalization of health policy (Jamison, 2009).

As CEA is not measured by cost indicators, the result is expressed in such aggregated non-financial indicators as, for example, Quality Adjusted Life Years – QALY (an indicator expressed in years of life, adjusted for quality), or Disability Adjusted Life Years – DALY (an indicator expressed in years of life, adjusted for the degree of disability). However, limitations can determine some distortion of qualitative assessments. For example, it is difficult to take into account the impact of changes in the ecological environment on disease. Such results are difficult to take into account in DALY or QALY indicators.

There are certain preconditions and restrictions associated with the use of CEA, in particular: the limitation of comparing interventions that have a different social effect; the complexity of taking into account time-based costs and effects; a high degree of

sensitivity to the choice of indicator that reflects the social effect.

Undoubtedly, the analysis of CBA is wider than the cost-effectiveness analysis, since all benefits at the time of application of the first one have cost estimates, and therefore, the effects of different projects can be compared. This is a fairly substantial statement for a public comparator, based on the premise of the social nature of the tasks being solved. The CEA method can be used to make decisions when comparing projects whose effects are defined as homogeneous or can be measured in terms of key results. Consequently, the limitation of CBA analysis does not make it possible to decide if it is necessary to choose the option of investing resources of the public sector in different spheres of activity. The problem is the disparity of effects between themselves.

#### 4. Methods of weighted cost-effectiveness analysis

There are cases when it becomes necessary to analyse the effectiveness of the project to combine several different social results that do not have a monetary equivalent. In such situations, it is necessary to evaluate the importance of each of them and to find a single composite mark. To obtain a single composite estimate, we use the method of weighted cost-effectiveness analysis – wCEA (Belli, 1996). This method is one of the modifications of the CEA method. As a social effect, it is its conditional expression through an aggregate indicator, which includes various characteristics of the object of evaluation. To determine the final effect, it is necessary to assign certain weights to the indicators that collectively formulate the target.

$$wCE = \frac{\text{sumpamu}}{\sum_{i=1}^n w_i \times E_i}, \quad (9)$$

where  $w_i$  – the weight of the  $i$ -th effect;  $E_i$  –  $i$ -th effect.

The method of wCEA is characterized by weaknesses in expert analysis, that is, dependence on subjective thought. However, this method is widely used in assessing the effectiveness of educational programs and healthcare programs, since the benefits that society receives from such programs cannot be measured in monetary terms.

#### 5. Method of cost-utility analysis

In the case where a project is subject to evaluation that is described by a spectrum of results or if the results differ not only in quantity but also in quality, it is expedient to apply a cost-utility analysis (CUA) method. In essence, this method is a slightly complicated modification of the cost-effectiveness analysis. Originally, it called generalized CEA (Torrance, 1971), and later – utility maximization method (Torrance, 1972). Now, this method is singled out as an independent one. CUA

is distinguished by the fact that during the analysis, conventionally, similar quality results are used. The estimation of utility coefficients is carried out through expert assessments, which have methodological difficulties related to the qualification of experts, a clear statement of tasks, subjectivity of evaluations, and the complexity of processing information.

$$CUA = \frac{C}{U}, \quad (10)$$

where  $C$  – costs;  $U$  – utility.

It is advisable to use the CUA method in cases where it is necessary to determine the result, taking into account side effects, whether it is necessary to determine a single criterion for comparing costs and benefits, whether there is a need for ranking the results for weighting, or whether decisions are made on choosing alternatives.

## 6. Comparative characteristics of the methods of efficiency analysis

The comparative characteristics of the methods used to analyse the effectiveness of public sector projects are given in Table 1.

The study of methods for analysing the effectiveness of public sector projects showed that, notwithstanding certain features of each of the considered methods, the main approaches to measuring costs, benefits, and results are based on a single theoretical basis. In this context, existing limitations in all methods of analysing the effectiveness of public sector projects reveal significant prospects for further research and improvement.

## 7. Conclusions

The investigated methods of analysis: cost-benefit, cost-effectiveness, weighted cost-effectiveness, cost-

utility are a very important basis for making grounded decisions by public comparators regarding the direction of investment in the most demanded sectors of the economy. Using the tools of efficiency analysis methods, they can distribute limited public resources according to policy priorities.

One or more methods of analysis of efficiency can be used to analyse the effectiveness of public sector projects that are implemented within a single industry. The main thing is to determine in which units the result is evaluated. If the result can be estimated in cost units, then it is advisable to use the methods of CBA and CUA, and in other cases – the methods of analysis of CEA and wCEA.

Choosing a social discount rate is a difficult task, as it involves assessing, among other things, the future benefits that other people may receive. A broad debate on determining the social discount rate has led to the formation of different views on the need to establish or differentiate the social discount rate or to determine its single value within a single country. When evaluating public sector projects, it is necessary to decide whether to use a single discount rate for the country as a whole and for all projects, or differentiated depending on the nature of the project. In general, discussions are about determining the size of the discount rate.

In existing studies, as a rule, the method of time preference is mainly studied. In this case, an attention is not paid to the study of the relationship between the social rate of time preference and other methods of discounting. Finding solutions in this direction will allow getting an idea of what range the social discount rate may be. The ability to determine the range will allow taking into account the specificity of the project being implemented.

Table 1

### Characteristic features of methods for analysing the effectiveness of public sector projects

Method of analysis	Characteristics	Applicability of the method of analysis
Cost-benefit analysis	Provides a comparison of aggregated benefits in monetary terms and public expenditures in a specific direction.	It is used to compare different results in different fields of activity.
Cost-effectiveness analysis	Provides an assessment of benefits that do not have monetary value, but are expressed in physical terms as a result or consequence of the project implementation. Allows you to determine public spending on the realization of a specific result and identify an alternative to its achievement.	It is expedient to apply when public spending limits are determined and it is necessary to determine the ways of their best use in a certain direction.
Weighted cost-effectiveness analysis	The multiplicity of benefits from the use of public expenditures, which cannot be measured in monetary units, is estimated.	Applicable when the project involves the acquisition of multiple social effects.
Cost-utility analysis	Results can be expressed in different units of measure because the costs and utility are compared. Provides the use of a conditional comparative indicator close to the nature of results by using weight coefficients.	Applicable when analysing the effectiveness of the project, which involves a significant number of effects from the use of public funds.

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# INNOVATION POTENTIAL: IMPACT ON THE NATIONAL ECONOMY'S COMPETITIVENESS OF THE EU DEVELOPED COUNTRIES

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**Abstract.** The success of the economy of each country is determined by its innovation development. The *purpose* of the paper is to investigate the essence of innovation potential and its role in providing the national economy's competitiveness under the conditions of technological changes on the example of the European Union developed countries. The subject of research is the innovation potential of Austria and Germany. *Methodology.* The study is based on a comparative analysis of approaches to determination and evaluation of innovation potential in specialized economic literature. Analysis and synthesis and the system approach were used to outline the entity of innovation potential, to explore and structure its elements in the context of providing the national economy's competitiveness. The quality and quantity analysis were used to discover general characteristics of the EU countries' innovation development, special aspects of the national innovation systems of Austria and Germany, the role of innovation potential in the national economies competitiveness of these countries. The method of mathematical modelling in economics, in particular, regression analysis based on annual data for the period from 1995 to 2015, was applied to assess the impact of innovation potential on the Austria and Germany competitiveness. The absolute value of GDP and the share of export of goods and services in GDP are used as a dependent variable. Elements that characterize the country's innovation potential were used as independent variables: the share of researchers in R&D of total population, the share of labour force with advanced education of total working-age population with advanced education, expenditure on tertiary education as a percentage of GDP, R&D expenditure as a percentage of GDP, patent applications as a percentage of total population. *Results* of the survey of theoretical works showed that the most multifaceted and comprehensive approach to determining the essence and elements of innovation potential is the "Resources-Results" approach. This very approach was used for empirical analysis of Austria and Germany's innovation potential and evaluation of its impact on the national economic competitiveness of these countries. It has been found that the greatest impact on the development of Germany's national economy is provided by: scientific resources, financial and economic resources, human resources. The most important elements of Austria's innovation potential are financial and economic resources, scientific resources, human resources, as well as the effectiveness of innovation. Generally, the results of the empirical study show a significant contribution of innovation potential to the national economy's competitiveness of the EU developed countries. It was revealed that a pivotal role in the implementation of innovation potential belonged to the state and its efficient innovation policy. *Practical implications.* Elements of innovation potential (that has a positive effect upon Austria and Germany's economic development) indicate differences in the general characteristics and efficiency of national innovation policy. This allows us to determine and ground the main directions of innovation policy to increase innovation potential efficiency. It was revealed that Austria should adjust its education policy: education system should be more oriented towards the R&D development and its implementation in the economy. Germany should improve an efficiency of innovation policy (especially in export-oriented industries) and the effectiveness of implementing the R&D results in the

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economy, optimize education and employment policies. *Value/originality*. The obtained results can be used for further developing and improving the investment policy of Germany and Austria. Further research of separate resources and elements of innovation potential will allow expanding the opportunities for the national economy competitiveness increasing that is important in the context of tougher international competition.

**Key words:** innovation potential, technology, competitiveness, innovation policy, innovation-led growth, innovation potential elements, EU, Austria, Germany.

**JEL Classification:** C50, O32, O33

## 1. Introduction

Innovation is the basis and the driving force of economic growth and the determinant of the national economy's competitiveness. The external economic priorities of countries are changing under the current conditions of globalization, informatisation, and transformation of world processes. Today, one of these priorities is the transnationalization of the world economy through the development of foreign economic activity through the expansion and deepening of bilateral trade and economic relations between countries. In this context, innovation-based competitiveness is becoming a key factor in the success of the countries' economic development. With the growth of global uncertainty, sustainable development can take place only when it relies on a competitive economy, the researchers note (Heiets, Danylenko, Zhulynskyi, Levenets, Libanova, & Onyshchenko, 2010).

According to scientists, modern economic growth is characterized by the defining importance of scientific and technological progress and the intellectualization of the main economic resources. The innovation component of GDP growth of developed countries increased from 1980 to the beginning of the 21st century: from 31.0% to 34.6% in the US, from 30.6% to 42.3% in Japan, from 45.5% to 50.0% in Europe (Heiets, et al., 2010).

A great number of international organizations research deals with the study of innovation potential. The development of this problem is actively carried out by the World Bank, the US National Science Foundation, the World Economic Forum (WEF), the Organization for Economic Cooperation and Development (OECD), the Maastricht Economic Research Institute on Innovation and Technology (MERIT, the Netherlands), and the Commission of the European Communities (CES).

European countries take 15 of 25 first places in the Global Innovation Index ranking (Cornell INSEAD WIPO, 2017): Germany – 9th; Austria – 20th. All this allows us to assume that innovations always have played an important role as the basis of the national economies' competitiveness of Austria and Germany.

The purpose of the paper is to investigate the essence of innovation potential and its role in providing the national economy's competitiveness under the technological changes on the example of the European

Union developed countries. To achieve this goal, it is necessary to solve the following tasks: to determine the essence of innovation potential in the "Resources-Results" approach, to discover and structure its elements for the evaluation of innovation and scientific and technical potential, and to assess their role for competitiveness of the national economies of Austria and Germany.

To solve these problems, the main approaches to the definition of innovation potential were considered in the specialized economic literature, its essence in the context of providing the national economy's competitiveness was justified on the basis of analysis and synthesis methods; innovation potential elements were systematized using the method of comparative and system analysis. Based on the qualitative and quantitative analysis, the special aspects of the EU developed countries innovation policy and Austria and Germany national innovation systems were determined. Further, the influence of innovation potential elements on the competitiveness of Austria and Germany was evaluated on the basis of mathematical modelling in economics, in particular, regression analysis using annual data for the period from 1995 to 2015.

## 2. Theoretical background of the research

During the last decade, a large number of scientific and practical works was devoted to the study of an innovation development, especially within the context of the national economy's development. Various aspects of this problem are covered in the works of such authors as P. Drucker, L. Fedulova, C. Freeman, A. Galchynskyi, M. Gaman, V. Heiets, Z. Kalcsú, D. Magyar, C. Nauwelaers, F. Porter, A. Reid, V. Semynozhenko.

In the context of the current economic development, the category "innovation potential" deserves a special attention. The concept "innovation potential" was first introduced by C. Freeman in the 1970s-1980s. He believed that innovation was a system of measures to develop, exploit, and deplete the economic, social, and institutional capacity of key innovations. The practical aspect of the "innovation potential" concept is reflected in the works of P. Drucker, where he studies the sources of modern industry development (Drucker, 2009).

The survey of studies (Nauwelaers & Reid, 1995; Kalcsú & Magyar, 2009) allows us to generalize that the innovation potential means the ability to create, implement, and master both own and acquired innovations. Thus, in general terms, innovation potential can be defined as a set of resources, processes, and conditions that are necessary and sufficient for the implementation of innovation activity to achieve the goals of innovation and technological development.

In the economic literature, there are no unified methodological approaches to innovation potential evaluation, distinguishing the structure elements and determining its factors. Some authors explain it as a set of innovation resources (financial, material, intellectual, scientific and technical) that provide an opportunity for innovation activity and creation of innovation technology, products, services – it should be considered as a resource approach to the innovation potential definition. Others examine the innovation potential from the standpoint of the result of innovation: the real product obtained in the innovation process. In this case, the innovation potential is presented as possible, produced in the future, innovative products (Kornilov & Beliaev, 2012).

We are of the opinion that innovation potential should be considered from two sides: the innovation process and the result of this process. Thus, the combination of resource-based and results-based approaches deserves the greatest attention. The key indicators for assessing innovation potential in the framework of the resource-efficient approach are presented in Figure 1.

An identical methodological approach to the evaluation of innovation development is used to determine the Global Innovation Index (GII). GII is an indicator of the country’s innovation and technological development: the efficient use of resources. It is calculated by the method of the International business school INSEAD in conjunction with Cornell University and the World Intellectual Property Organization (WIPO) and represents the most comprehensive set of indicators of innovation development in various countries of the world. The index is calculated as the average of two sub-indices: available resources and conditions for innovation (Innovation Input) and practical results (Innovation Output). Thus, the final index is a cost-effectiveness ratio, which allows an objective assessment of the effectiveness of efforts to develop innovations in a particular country (Cornell INSEAD WIPO, 2017).

European countries show high results in the GII world ranking. In the GII 2017 report, European countries take 15 of 25 first places in the world ranking. Europe is strong in human capital, scientific researches, infrastructure and business development level. European countries are almost leading half the indicators in composing the GII, including the highly skilled specialists’ share in general employment, university and industry cooperation, patent applications and scientific and technical articles and the quality of scientific papers (The World Intellectual Property Organization, 2017).

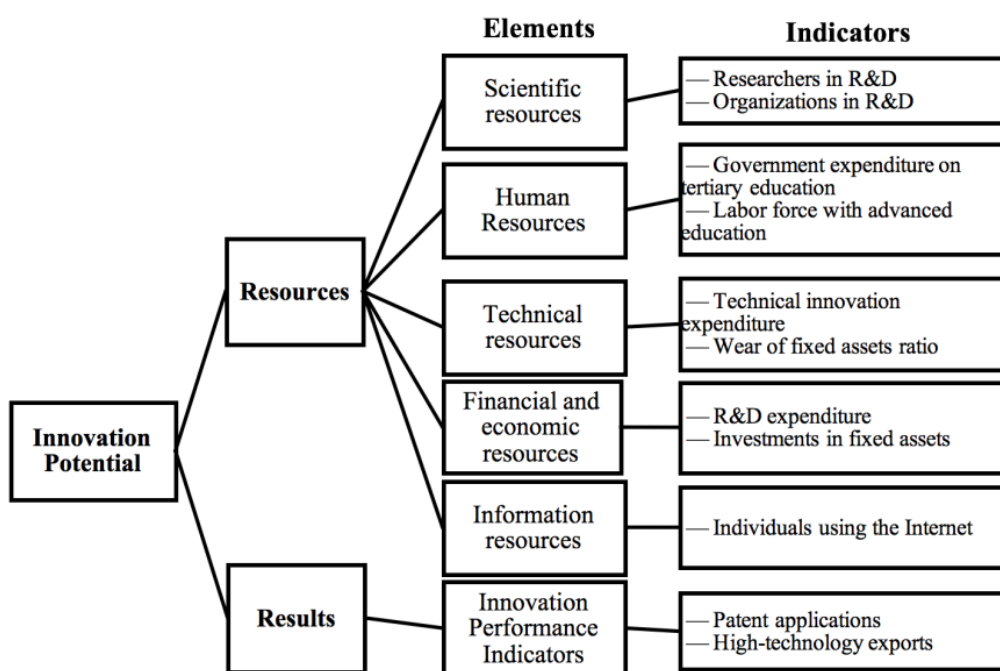


Fig. 1. Innovation potential in the “Resources-Results” concept

Source: developed by the authors

### 3. Innovation development in the European Union countries

Innovation is vital for European competitiveness in the global economy. The EU is implementing policies and programmes to support the innovation development to increase investment in R&D. The EU Commission is developing policies that support innovative development in priority areas and SME and helps to accelerate the broad commercialization of innovations, mainly through the program "Horizon 2020" (The European Commission, 2017).

Small and medium-sized enterprises (SMEs) are a priority area in EU innovation policy. The smaller the company, the more it encounters restrictions on innovation or the commercialization of the innovations. According to the European Commission (2017), about 63% of companies with from one to nine employees having introduced at least one innovation since 2011, compared to 85% of companies of 500 or more workers. However, an important challenge for SMEs remains the lack of financial resources to commercialize innovation.

Innovation takes on enormous importance in crisis periods. The success of national innovation policy depends on the government's ability to foresee and actively promote the innovations during the depression and recovery periods (Akaev, 2010). Overcoming structural crises requires the introduction of innovations at the centre of any governments' decision-making process, while "innovation policy must become growth policy and vice versa" (Mazzucato & Perez, 2014). At the same time, innovation policy should influence: financial market, labour market and especially taxation (Mazzucato & Perez, 2014).

Research and Development Expenditure (R&D) is the main indicator of public and private sector activities targeted at getting competitive advantages in science and technology. The 20-years statistics of EU countries R&D expenditure dynamic (Fig. 2) demonstrates the following. During the 1996–2007 R&D expenditure

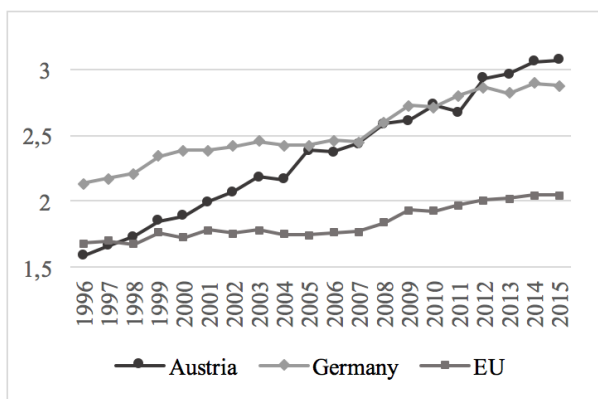


Fig. 2. Research and development expenditure (% of GDP)

Source: developed by the authors, taking into account (UNESCO, 2017; the World Bank, 2017)

were stable at 1.6-1.7%. Since 2008, the level of EU countries R&D expenditure skyrocketed from 1.77% in 2007 to 1.93% in 2009. The positive trend continued in the following years, and the indicator exceeded 2% in 2012. Such dynamics show that the EU pays due attention to innovation development. That is especially important during the fundamental technological changes that are currently going on.

The example of the European Union developed countries, which achieved a significant result in the construction of an innovation-oriented economy, shows that balanced government innovation policy provides sustainable economic development. Thus, government support for innovation sector is extremely important because of the risks that inevitably arise in the process of innovation.

For a more in-depth research of the innovation potential and its impact on the national economy of individual countries, in particular, their competitiveness, further we will consider this problem on the example Australia and Germany.

### 4. Innovation potential of Austria

Austria ranked 15th in the world in terms of GDP per capita (the World Bank, 2017). Despite the fact that the Austrian contribution to the world GDP is about 0.5%, Austria took the 20th place in the Global Innovation Index ranking 2016 (The World Intellectual Property Organization, 2017). According to the European Patent Office (2017), Austria ranks 14th in the world ranking by the number of patents registered for the first time and 7th by the patent applications for 1 million citizens. In 2015, the number of patents increased from 1964 to 1992. Leaders were power engineering, special machinery, transport, medical technologies, measurement and control instruments. The Austrian innovation-based economy determines national high competitiveness. According to the Global Competitiveness Index, Austria ranked 18th in 2017 (the World Economic Forum, 2017) rising to one position.

Austrian innovation policy analysis shows that the measures designed to create new mechanisms for organizing interaction between the industrial and scientific sectors at different levels are constantly being undertaken in the country. There are great numbers of different business forms, research and industrial centres. Clusters and competence centres are the largest of them. A network of clusters was established in 2008 on the Ministry of Science, Research and Economics Initiative, in cooperation with the federal states. These clusters unite enterprises, technological parks, and scientific centres to support business and science cooperation under the Industry 4.0, as well as to increase the SMEs competitiveness (Trade Representation of the Russian Federation in the Austrian Republic, 2017).

The basis for the Austrian high-tech economy sector success is active R&D and focus on the implementation of their results. Leading innovation companies are supported at the state level through the Austrian Research Support Agency (FFG). It is the national Austrian agency for financing industrial R&D. The FFG estimates that around 420-450 million Euros are annually allocated as grants to stimulate innovation R&D (Trade Representation of the Russian Federation in the Austrian Republic, 2017). FFG classifies Austria as one of the 3 leading European sites for research in the field of ICT. In particular, 15-20% of all Austrian R & D in ICT is channeled into the development of microcircuits. The successful development of ICT companies in Austria is facilitated by the participation in the EU framework programs (Österreichische Forschungsförderungsgesellschaft, 2017).

The Austrian innovation system and its prospects are the subject of constant discussions in political and scientific circles. According to independent assessments, Austria does not belong to the so-called Innovation Leaders, it tops the list of so-called Innovation followers – countries whose innovation level is at the level is the average European and higher (The European Commission, 2012).

Summarizing the innovation potential of Austria, one can single out a high level of spending on R&D (3.07% of GDP in 2016) (the World Bank, 2017). The share of R&D expenditure in Austria is at the level of 3.07-3.10% of GDP for the third consecutive year, according to EU targets 2020. According to this indicator, Austria is on the third place in the EU after Finland and Sweden, and above Germany with a rate of 2.88% since 2012 (the World Bank, 2017). Overall private sector financing reached 64 percent (UNESCO, 2017), which almost corresponds to the optimal ratio of state-business investments, according to European experts: 1/3 to 2/3. At the same time, it is worth noting some potential human resources problems: the share of graduates with higher and higher technical education in Austria is almost twice lower than in Europe (the World Bank, 2017).

Austria has consistently ranked at a high average among EU innovation ratings: on 8–11th place among 28 EU countries (Trade Representation of the Russian Federation in the Austrian Republic, 2017). There are still several deterrents to improve these ratings: human resources problems, as well as a significant backlog in the development of venture capital financing – in recent years, this indicator as a percentage of Austria's GDP has decreased by 8 percent, while the EU average has grown by 10 percent (Trade Representation of the Russian Federation in the Austrian Republic, 2017).

Experts believe that an increase of industrial companies innovation potential is possible through comprehensive measures, including: formation of scientific priorities, development of principles for supporting the scientific

and industrial sector, personnel training, simplification of research and innovation activity management, sustainable and increasing funding for R&D (Trade Representation of the Russian Federation in the Austrian Republic, 2017). The analysis of the Austrian government's measures in support of R&D shows that there were a number of steps in this direction during the recent years.

## 5. Innovation potential of Germany

The German economy is the largest, most stable and competitive economy in Europe. Germany took the 2nd place in the world in Global Competitiveness Index for 2017–2018 (the World Economic Forum, 2017). Over the past 10 years, Germany has entered the world's leading positions in research and innovation spheres, despite the crisis.

Today, German innovations have the highest demand in the world. The country ranks first in the world in some innovation products research and production, while in others it seeks to reach the leading positions in the near future. Germany confidently ranks first in Europe in innovation products export: exports of high-tech products are 16.6% of total exports in 2016 (the World Bank, 2017).

The country could not provide such a high innovation products level without investment in science and scientific developments. R&D expenditure to GDP is one of the most important indicators of the national economic development. Germany is very attentive to this indicator, evaluating R&D expenditure as an opportunity to provide constant growth and sustainable economic development to maintain national economy's competitiveness in the world market. In 2015, the total amount of German R&D expenditure reached 112 billion US dollars (the World Bank, 2017). State financing reached about 19 billion US dollars when Austria has a high degree of dependence on public funding (about 36% of total expenditure on R&D) (UNESCO, 2017).

Focusing on the European "Strategy 2020" (it is planned to achieve the indicator of R&D expenditure at 3% in the EU countries.), Germany has already exceeded its target and seeks to further increase its spending on science and research. This indicator is planned to increase to 3.5% by 2020. Priority R&D areas are: energy and ecology, healthcare, communications, engineering and transport, security. Key sectors among them are: alternative energy sources, electric car industry, information technology, energy efficiency, health (emphasis on caring for the elderly), healthy eating of the population, etc. (Trade Representation of the Russian Federation in the Federal Republic of Germany, 2017).

The German government notes the need to maintain high R&D level in the priority field of science and



technology using both governmental and public support mechanisms, improving the professional scientific training in higher education institutions and paying attention to fundamental research that makes it possible to maintain the German science competitiveness in the world.

The German R&D management system consists of bodies and departments at the federal and land levels. The Council for Science (Wissenschaftsrat – WR) is one of the main advisory bodies in the field of science that determines the priority areas of scientific research in Germany. The main source of R&D funding is the BMBF, the body responsible for the general formation of state R&D policy. The allocation of R&D funds is based on the principle of public-private partnership. The public funding share is about one-third, two-thirds are provided by industry (Trade Representation of the Federal Republic of Germany, 2017).

Germany national innovation system (NIS) is a complex and diversified system, including government authorities, scientific and educational organizations, high-tech business, primarily SMEs. In total, there are about 750 research organizations in the FRG that receive funds from the state budget. In addition, special centres for research and development have been established, working directly with industrial enterprises. About 460 thousand people are engaged in R&D, about half of them – scientists and engineers (Trade Representation of the Federal Republic of Germany, 2017).

The development of the innovation-based economy is an effectiveness criterion of public policy according to the policy of the German government. The government claims that only innovation-led growth will provide Germany with global competitiveness. In this regard, the German government is increasing investment, improving education and research quality, promoting the cooperation between universities, research institutions and the industry.

To stimulate innovation processes, a set of measures is being implemented to create favourable conditions for the rapid implementation of R&D results into the industrial sector. German government increased innovation research funding to 3% of production across the country in 2016, the, with a target of 3.5% for 2017 (Trade Representation of the Federal Republic of Germany, 2017). The R&D development should help to reduce costs of national enterprises, as well as increase their competitiveness.

All this makes it possible to evaluate German innovation potential as high one: resource base, conditions for innovation development and implementation, and the practical results achieved in implementing the innovation policy.

The method of mathematical modelling in economics, in particular, regression analysis based on annual data for the period from 1995 to 2015, was used to assess the impact of innovation potential on the Austria

and Germany competitiveness. The absolute value of GDP and the share of export of goods and services in GDP are used as a dependent variable. Elements that characterize the country's innovation potential were used as independent variables: the share of researchers in R&D of total population, the share of labour force with advanced education of total working-age population with advanced education, expenditure on tertiary education as a percentage of GDP, R&D expenditure as a percentage of GDP, the patent applications as a percentage of total population.

## 6. Innovation potential as a determinant of competitiveness: empirical research

The impact of national economy's innovation potential on the competitiveness growth was investigated using mathematical modelling in economics, in particular, regression analysis. Annual data for the period 1995–2015 were used for the research. We used the value of GDP and exports of goods and services as competitiveness indicators. As independent variables, we defined a number of ones characterizing the national innovation potential (Fig. 1): the share of researchers in R&D of total population ( $X_1$ ), the share of labour force with advanced education of total working-age population with advanced education ( $X_2$ ), expenditure on tertiary education as a percentage of GDP ( $X_3$ ), R&D expenditure as a percentage of GDP ( $X_4$ ), – as a “resource” and the patent applications as a percentage of total population ( $X_5$ ) – as a “result”. Information resources and infrastructure are important elements of the innovation potential having a high level in Austria and Germany. Their role in providing the competitiveness of these countries is beyond doubt. Therefore, we do not include these elements in the model.

We will investigate the impact of the innovation potential on the absolute value of the gross domestic product ( $Y_1$ ) of Germany and Austria.

Constructing the model for Germany, the variables  $X_2$   $X_4$   $X_5$  were excluded from the model as insignificant by step-wise selection of independent and evaluation of their significance. The obtained model has the form:

$$Y_1 = 0,662 * X_1 + 0,382 * X_3 \quad (1)$$

By analysing the statistical results of the model (1), it was found that the model is significant with 99% probability by the Fisher criterion. All independent variables are significant with a confidence level of 99% and affect the dependent variable by the Student's criterion. The R-square and its corrected value are about 0.854 and 0.837, respectively, that means the statistical quality of the constructed model. Thus, the dynamics of the number of researchers in R&D and government spending on advanced education has a direct impact on Germany's GDP growth.

Germany is an export-oriented country that is its competitive advantage in the EU. The share of high-tech

export in the total export of goods is 16.7% (the World Bank, 2017). In this regard, we will evaluate the impact of Germany's innovation potential on exports of goods and services ( $Y_2$ ).

When constructing the model, the variables  $X_3$  and  $X_5$  were excluded from the model as insignificant by stepwise selection of independent and evaluation of their significance. As a result, the following model was obtained:

$$Y_2 = 1,737 * X_1 - 0,538 * X_2 - 1,247 * X_4 \quad (2)$$

The model is statistically qualitative according to the R-square and its corrected values are 0.947 and 0.937, respectively. Estimating the significance level of the model (2), it can be argued that the model is significant with 99% probability by the Fisher criterion. All the coefficients are significant with 99% probability and affect the dependent variable by the Student's test. Based on the results of the model, it can be concluded that the growth of German exports of goods and services depends on the increased number of researchers in R&D. The share of labour force with higher education among people of working age with advanced education and expenditures on R&D has a reverse effect on GDP dynamics.

It can be concluded that there are some obvious problems in the human resources' element of the German innovation potential. On the one hand, it is possible to affirm an effective government education policy that has been conducted for many years, as evidenced by direct dependence on GDP. On the other hand, the growth of the labour force with advanced education affects negatively the country's exports that can also be explained by the consequences of the global financial crisis, the EU debt crisis, and the migration situation in the country, which are typical for the research period. It is necessary to note a non-optimal structure of higher education graduates in terms of innovation development, namely, the shortage of technical majors graduates. Under the current conditions of globalization, the humanitarian, social, and public spheres majors are becoming increasingly popular. Growing immigration leads to an increase in the number of people with higher education, but it can be assumed that their education level does not meet the requirements of the modern technological mode of the German economy.

The results for Germany can also be explained by the fact that high-tech products are mostly sold on the domestic market and are less exported due to a high price competition in international markets. Competition with Asian countries leads to a cost increase of new patents, so the R&D comparative costs are also increasing.

During the regression analysis, there has been revealed an ambiguous interconnection between the economic competitiveness and R&D expenditure and not revealed the interconnection with patent applications. Thus,

despite the high efficiency of Germany's innovation policy, its effectiveness is insufficient. This can be explained by the fact that not all R&D results are fully implemented.

So, Germany should further strengthen its position in the world high-tech products market by searching for new ways to reduce its cost, needs to improve the policy orientated on speeding up the broad and effective implementation of R&D results in the real sector of the economy.

To analyse the impact of innovation potential on the competitiveness of Austria's national economy, we will construct a regression model using a similar set of independent variables and the volume of GDP as a dependent ( $Y_3$ ):

$$Y_3 = 0,194 * X_1 + 0,808 * X_4 + 0,232 * X_5 \quad (3)$$

After the analysis in SPSS, it can be concluded that this variation of factors are largely explained the selected dependent variable, according to the determination coefficient and its corrected value are 0.931 and 0.916. The evaluation of the model showed that all coefficients are significant and affect the dependent variable by the Student's test, and the dependence is significant with 99% probability by the Fisher criterion. So, the positive impact on the GDP of Austria is provided by researchers in R&D, R&D expenditures, and the patent applications.

The share of high-tech export in the total export of goods and services in Austria is 13.4% that is lower than in Germany (The World Bank Group, 2017). The impact of innovation potential on the volume of exports of goods and services ( $Y_4$ ) as an indicator of the Austrian competitiveness will be examined. As a result of regression analysis, the following model was obtained:

$$Y_4 = 0,798 * X_1 - 0,667 * X_3 + 0,519 * X_4 \quad (4)$$

The model evaluation (4) determined the high level of its significance by the Fisher criterion. By the Student's criterion, all independent variables are significant with 95% confidence level and affect the dependent variable. The R-square and its adjusted value are 0.835 and 0.799, respectively. As a result, it can be summarized that the researchers in R&D and R&D expenditures have a direct impact on the export of goods and services, as well as GDP. The expenditure on tertiary education and the export of goods and services in Austria are inversely related. There is no correlation between patents and GDP.

So, the results of researching the impact of innovation potential on GDP and the export of goods and services in Austria are almost identical. It can be generalized that, other things being equal, Austria innovation potential in the context of the national economy's competitiveness is used more efficiently than Germany in the period under study. It should be noted that as the scientific, financial, and economic resources of

the innovation potential, as the results of innovation activity have been identified with the positive effect for Austria's GDP. However, the impact of the human resources of innovation potential on Austria's GDP was not revealed. In this regard, the Austrian government should further integrate the education system with the development and implementation of R&D in economic activity. Moreover, the model of the dependence of exports and advanced education expenditures revealed an inverse dependence. It can be assumed that this is a consequence of Austria's modern education policy aimed at the growth of graduates with higher technical education the indicator is almost half that the EU average (the World Bank Group, 2017). As a result, there is a large investment in education today, and return on investment is expected in the future.

Such disputable modelling results for both countries can be explained by the fact that the study period is a recession phase of the long economic cycle. Moreover, the indicators used for the mathematical modelling are not completely objective: it is more profitable for multinational companies, which are mainly implementing the newest technologies in mass production, to carry out production in subsidiaries than to produce goods and services in its own countries of origin and then export them.

## 7. Conclusion

Under the modern conditions of technological changes and globalization, it is important to use innovation potential to provide the development of national economy and increase its competitiveness. The most complete and comprehensive approach to the

evaluation of innovation potential is the "Resources-Results" approach. The main elements of the innovation potential are scientific, human, technical, financial and economic, information resources, as well as the effectiveness of innovation (patent applications, the volume of exports of high-tech products, etc.).

Germany and Austria as developed countries have sufficient information resources and are characterized by a high level of infrastructure development. Analysis of the innovation potential elements impact on GDP and export of goods and services in Germany and Austria revealed that the greatest impact on the national economy's competitiveness of developed EU countries is provided by scientific, financial and economic and human resources. For Austria, the significance of the effectiveness of innovation has been also revealed.

Generally, innovation potential plays an important role in providing the competitiveness of the Austria and Germany national economies in the global economy. At the same time, the innovation potential is not fully utilized. Among the reasons for this are economic, financial, social instability as a result of the 2008 global financial crisis, the EU debt crisis, migration processes. In addition, the human resource is not optimal. In this regard, countries need to correct the innovation policy aimed at strengthening the interconnection between the innovation potential elements. Austria should pay more attention to the integration of such elements as education, science, R&D development and implementation. It is advisable for Germany to improve the innovation policy in the context of increasing efficiency and effectiveness of implementing the R&D results in economic activity, as well as the creation and use of human resources.

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# STATE COMPETITION POLICY: CONCEPT, LEGAL REGULATION AND MECHANISMS OF ITS IMPLEMENTATION

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**Abstract.** The *purpose* of the paper is to analyze the definition “state competition policy”, its essence, functions and mechanisms of implementation. The main purpose of competition policy is to ensure and promote the development of competition in the country, minimize market monopolization and ensure the functioning of a market economy through fair competitive methods. All these goals can be achieved only through the use of effective mechanisms and tools for the implementation of competition policy by the state authority. *Methodology.* Competition policy of the state, as one of the directions of economic policy, requires revision of the means and mechanisms for its implementation for an effective functioning of the market. There is a need to reconsider the powers of competition authorities and the urgency of application of legislative and regulatory acts providing these issues, for an effective implementation of the competition policy and achievement of the goals. *Results.* Despite a considerable amount of various definitions of the concept of state competition policy, its main objectives are to promote competition at the marketplaces, and the promotion and protection of competition. *Practical implications.* The government’s competition policy is an instrument, the effectiveness of which proportionately depends on the functions performed by the state aimed at the achievement of positive results, specifically related to the support of competitive environment in the process of economic activity, support of competition in certain sectors of the economy, prevention of anti-competitive practices etc. *Value/originality.* A significant role in this context is played by introduction of amendments to national competition law and harmonization of this legislation with competition law of member states of the EU. It is necessary to reconsider the competences and powers of competition authorities, their operational efficiency and interaction of bodies with national and international organizations regulating competition protection issues.

**Key words:** state competition policy, means of implementation of competition policy, mechanisms of implementation of competition policy, state policy, functions of competition policy.

**JEL Classification:** E44, H1, K1, K13

## 1. Introduction

The effectiveness of a competition policy of the state and the use of viable mechanisms for its implementation is a guarantee of a proper functioning of the market and the growth of the competitiveness of goods and services. The mechanisms of regulation of competition play an important role in guarantee of a competitive environment. In particular, this issue becomes extremely relevant in the context of globalization and openness of the market.

Many researchers of economy and law who deal with this concept in various broad and narrow terms are

engaged in research in this area, emphasizing the main characteristics, directions, goals and mechanisms of the use of methods of competitive struggle. The author analyzed many articles devoted to the mechanisms of the implementation of competition policy, in particular the researches of V. Lahutin “Competition policy of the state: mechanisms of implementation” (Lahutin, 2016), which considers all mechanisms from the perspective of economy, also, the works of H. Filyuk were analyzed, in particular, the article “Competition policy of the state in the conditions of globalization” (Fyliuk, 2009)

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as well as the article of P. Lazur "Peculiarities of the policy of formation of a competitive environment in entrepreneurial activity" (Lazur, 2007), etc. However, the author emphasizes the need to consider the problem from a legal point of view. Based on the proposed definitions and a detailed analysis of the definitions, the author gives his own concept of competition policy through the prism of functional purpose, emphasizing the need to consolidate the mechanisms of regulation and application of effective methods of competition promotion, prevention of anti-competitive offenses and application of responsibility which is commensurable with the damage caused by such offenses. All these activities should take place at the legislative level and have action-oriented character of application.

The article is devoted to the solution of the main tasks as follows:

1. To study the opinions of scholars relatively the definition of state competition policy.
2. To make a detailed analysis of the Ukrainian legislation concerning competition regulation, consolidated in European normative legal acts.
3. To consider competition policy of the state through the prism of its functional purpose, which includes in its genesis both static and dynamic directions.
4. To propose effective directions for improvement of the implementation of state competition policy, which should be consolidated at the legislative level.

## 2. Competition as the basis of a market system

Competition as the basis of the entire market system is an incentive to ensure a vital functioning of the market. A competitive environment in the state can be achieved only due to well-developed state competition policy, which in turn requires a thoroughly elaborated strategy and tactics. The main goal and direction of the state's economic policy is realization and optimal congruence of interests of business entities and consumers, based on a mixture of private and public interests through methods of competition promotion. The Commercial Code defines antitrust-competition policy as one of the main directions of the economic policy of the state, the main focus of which is to create an optimal competitive environment for the activity of business entities, maintenance of their interaction under conditions of prevention of discriminatory practices of some entities towards others (Hospodarskyi kodeks Ukrainy), that is, based on the principle of equality and non-discrimination, and access to markets for all entities on equal terms. The main objective of competition policy, along with the combination of private and public interests, is the growth of an effective socially oriented market economy based on overcoming monopoly.

The real state of competition in the market and free goods turnover, free access to the market of consumers and business entities is possible only by virtue of

well-developed mechanisms for the implementation of competition policy, which in turn is achieved by a combination of administrative regulation and the consolidation of effective competitive norms at the legislative level. Competition authorities, along with preventive methods, should apply mechanisms for stimulation and development of competition, protection of business entities from manifestation of unfair competition. Unfortunately, the realities of the present are such that unfair competition methods largely dominate honest and fair rules of competition, consequently causing a disorder of market functioning.

As it follows from the norms of legislation, the main task of the Antimonopoly Committee of Ukraine is to participate in the formation and implementation of competition policy. The Law of Ukraine "On Antimonopoly Committee" (Pro Antymonopolnyi komitet Ukrainy) clears up in detail the tasks, powers and competencies of AMCU in relation to the implementation of antimonopoly policy of the state. But there is an issue of reconsideration of the mechanisms of practical application of set goals and tasks and introduction of cooperation with executive bodies of state and regional importance. At the same time, V. Mahas notes that it is necessary to understand that AMCU is unable to solve the issue of market demonopolization independently without implementing a systemic economic policy aimed at removal of the reasons which favour monopolization (Mahas, 2017).

The growth of competitiveness of the national economy and competitiveness of its own products at the national level, free market access as for consumers as economy entities, reduction of barriers of market entry and exit can be achieved only through reconsideration of legislative provisions and introduction of effective mechanisms in practice.

Today, we have a situation where the norms consolidated in the current laws do not have effective application, all while generating certain negative consequences of the market activity. On this issue, the author emphasizes the need of reconsideration of legislation in effect and implementation of efficient norms, the primary tasks of which will be to develop both policy documents and strategies for the development of competition in the market. An important point is to overcome monopolized markets in many sectors, to ensure equal opportunities for market entry of all business entities and to remove barriers for market entry, including administrative ones.

## 3. Definition of the concepts "antitrust policy", "antimonopoly policy", "competition policy", "antimonopoly-competition policy"

Along with the notion "competition policy", in modern economic science there are the concepts "antitrust policy", "antimonopoly policy", "antimonopoly-competition", etc.

The main focus of antitrust and antimonopoly policy is a strict prohibition of the existence of monopolies and trusts, any kind of conspiracies for which even criminal liability is foreseen. The European model, a more specific name for which is competition policy, allows one to occupy a monopoly (dominant) position on the market, while prohibiting abuse of this dominant position and market power. The Ukrainian model is more prone to the European model of competition regulation, while Ukrainian legislation does not have a clear definition of this policy. The Commercial Code is called "antimonopoly-competition policy" (Hospodarskyi kodeks Ukrainy), while the Law of Ukraine "On Protection of Economic Competition" defines it as a policy in the field of development of economic competition and restriction of monopoly in economic activity (Pro zakhyst ekonomichnoi konkurentsii). Today, most scholars insist on the need to balance competition policy with industrial, innovation, investment, pricing and other policies defined in the economic code (Lazur, 2007).

Such international organizations as the *WTO*, *the World Bank*, *UNCTAD*, *WIPO*, *OECD*, *ICAP* pay attention to the definition of the concept "competition policy". Their cooperation with competent authorities of different countries aimed at harmonization of national competition policies and mechanisms of its implementation (Lazur, 2007).

Analyzed the definition of scientists in relation to the competition policy of the state, in particular, proposed by such scholars as Z. Borysenko, V. Lahutin, H. Fyliuk, P. Lazur, etc., and the definitions given by the World Trade Organization and the World Bank, the author highlights the main trends of competition policy aimed at prevention and cessation of violations of antimonopoly regulation, with that the main focus is creation of the competition environment. This issue can be realized only through the use of effective methods of influence, the use of the responsibility for these violations by the antimonopoly authorities, along with the introduction of incentive methods for the development of competition. An important aspect is the instrumental nature of competition policy as the desired result will be achieved only due to the use of effective tools.

#### **4. Functional use of competition policy, mechanisms of its implementation**

Examining the essence of competition policy, it is important to understand its functional purpose. Let's consider it through the prism of the functions of economic competition, among which are regulatory, stimulating and control-signaling. By the same classification, it is possible to divide the functions of competition policy that have both static and dynamic directions in its genesis. The regulatory function

has features of static character and consists in the establishment of rules of competitive practices, which is provided by regulation on the part of anti-monopoly authorities, in order to prevent the concentration of power in one's hands, regulation and support of the level of competition in the country and prevention of abuses by monopoly entities. The stimulating function should be aimed at motivation of competition participants to improve production, introduce innovations, improve the quality of products, enter the international markets and increase the competitiveness of the national economy. This function has more dynamic aspect in the context of creation of the necessary conditions for the development of competitive national commodity producers that could be worthy competitors in the world markets. Along with it, it is impossible to skip the consideration of the control-signaling function, which is a kind of driver of economic development and lies in monitoring of participants of competition over their own production in terms of its efficiency, which due to certain signals on the market in relation to the supply and demand for one or other goods, the possibility of entrance to the new markets or entrance to the markets of potential competitors, induces the business entities to improve their own production. An active policy of the state should be oriented to the interaction of competition policy with industrial, innovative, investment and other areas of economic policy of the state, the main task of which should be to ensure the competitiveness of enterprises both in the domestic and foreign markets as well as the competitiveness of the national economy as a whole.

It is impossible to consider competition policy separately from other directions of the economic policy of the state. The main goal should be functioning of the market on the basis of balancing public and private interests, while it is necessary to balance the interests of private entrepreneurs in the normal functioning of their business in the home country and in international markets as well as the state's interest in maintaining the level of competitiveness of national goods and commodity producers in the world arena.

The necessary and important task of realization of the competition policy is overcoming the existing level of monopolized markets, creation of a decent competitive environment, and not only consolidation of this concept at the legislative level. All this requires the use of effective methods of government and a revision of legislative provision on this issue. The norms of national competition law need revising and improving based on the experience of foreign countries.

Increase of the effectiveness of antimonopoly and competitive regulation can be achieved only through the establishment and implementation of the State Concept and the State program of measures of guarantee and support of competitive principles for the functioning of the national economy and assistance of

its long-term competitiveness and will be developed taking into account international standards in this area and agreed with the relevant EU documents. Such approach will allow Ukraine to continue harmonization of domestic competition law with best international practices and to take into account the conditions for the implementation of competition policy in the context of globalization. The main goals of this concept should be to achieve a reduction of the level of the shadow economy and corruption; reduction of barriers for enter of new business entities to the market, reduction and rationalization of state interference and improvement of control over subjects of natural monopolies, which requires the creation of controlling bodies in those spheres of natural monopolies where they have not yet been created; clear distribution of functions between different controlling structures; bringing the domestic legislative framework in line with international law, etc.

It also needs to revise and reconsider the provisions of the Law of Ukraine "On the Development and State Support of Small and Medium Business" (Pro rozvytok ta derzhavnu pidtrymku maloho i serednoho pidpriumnytstva v Ukraini) in terms of tax legislation and the provision of privileges to small businesses at the development stage. It's hard for a small business to compete with large giant companies creating artificial barriers for entry.

According D. V. Zadykhailo, Ukraine's accession to the WTO also requires providing the national producers with the highest possible level of competitiveness with the help of active means of state regulation. The problem of guarantee of economic growth due to innovative factors of production with all the very favourable social and environmental consequences of such structural transformations is also impossible without an active state economic policy, appropriate state regulation of economic relations (Zadykhailo, 2012).

Anti-competitive concerted actions, which may even have a global scale, are a real disaster for the economy and for competitive situation in the market. In foreign laws, we find the concept of cartels or cartel conspiracies, which is one of the most dangerous violations of antitrust laws. The European Union legislation prohibits the existence of concerted behavior between economic agents which may adversely affect trade between member countries, impede competition within the common market, restrict or distort it as referred to in Article 101 of the Treaty on the Functioning of the European Union (Pro rozvytok ta derzhavnu pidtrymku maloho i serednoho pidpriumnytstva v Ukraini). In Ukraine, the level of anticompetitive conspiracies is quite large, in particular as at the horizontal as at the vertical levels. Along with the arrangements that have any written evidence of the existence of a connection between the cartel participants, a situation is often formed where is very difficult to find out the existence of a conspiracy, so-called "gentleman's agreements", which have enormous complexity in relation

to the evidence base and the possibility to bring offenders to responsibility. Cartels have features of stability while each enterprise keeps its autonomy of functioning. The Law of Ukraine "On Protection of Economic Competition" (Pro zakhyst ekonomichnoi konkurentsii) highlights the distortion of bidding results, tenders, auctions, which is a conspiracy between a party and a customer in the field of public procurement, as one of the most popular and widespread forms of anticompetitive concerted actions. Even after the introduction into effect of the system of electronic procurement, this type of offenses continues to be the most widespread, and therefore the system of conduction of electronic trade and the Law of Ukraine "On Public Procurement" (Pro publichni zakupivli) also needs to be improved.

The Ukrainian legislation highlights a number of violations in the field of protection of economic competition and protection against unfair competition along with the abuse of a monopoly position and anticompetitive concerted actions that lead to violation, restriction or elimination of competition. Above mentioned offences have negative consequences for the Ukrainian economy, and therefore the author stresses the need to reconsider the rules that regulate the issues and modernize the methods of struggle against the manifestations of antitrust violations and the application of appropriate sanctions.

An own base of legal regulation of competitive relations is developed at the level of international regulatory legal acts. It is important to understand that national competition law must be harmonized in some way with European law, but taking into account the peculiarities of national application of legislative norms, there should be its own categorical apparatus, its own means and tools for the implementation of competition policy, and a balanced system of mutual relations. Harmonization and, in some cases, unification of competition law at the supranational level takes place, mainly within the framework of intergovernmental organizations. The most famous and most successful example is the European Union, which created a single competition law for all member states.

## 5. Conclusion

According to the results of the study of the application of effective mechanisms for implementation of a competitive policy for the adequate functioning of a market economy, we can come to the following conclusions.

1. State competition policy has an instrumental nature and its effectiveness proportionally depends on to the performed functions aimed at the achievement of practical results – maintaining the competitive conditions in economic activities, maintaining the state of competition in certain sectors of the economy, prevention of anti-competitive practices, etc.



2. The legal aspect of consolidation of competition policy at the legislative level needs a thoroughly reconsideration and improvement, the main areas of which should be optimization of legal means of guarantee of competition's decent level, the systematization of competition law and the legal provision of the necessary competencies of the Antimonopoly Committee of Ukraine. Improvement of the national competition law and its harmonization with the competition law of the EU countries plays an important role in this sense.

3. The main directions of state competition policy are maintaining the level of competition in the country, which can be achieved only through the application of effective mechanisms of implementation of the policy by the anti-monopoly authorities.

4. The main directions of competition policy should be the overcoming monopoly entities; creation of a real level of competition and reduction of barriers mark entry and exit of new business entities; overcoming the level of corruptions of state bodies; application of more effective mechanisms of combating unfair competition; regulation of the issue of activity of natural monopoly entities and creation of more effective regulators in these spheres; creation of economic conditions for guarantee of international economic competitiveness of national economic entities, etc. These measures can be realized through the proper use of the tools and be clearly differentiated depending on the types of goods, works or services as well as depending on the supply and sale markets.

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## FEATURES OF UKRAINE'S PARTICIPATION IN INTERNATIONAL CONTRACTUAL RELATIONS

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**Abstract.** The article highlights theoretical and practical aspects of economic rivalry escalation between countries in the process of deepening international economic relations, which are not mediated by investments. *The purpose* of the research is to summarize the empirical data and theoretical developments of the determinants, macroeconomic effects, and peculiarities of the countries' participation in international production and marketing cooperation through the format of non-investment contractual relations and investigate their potential for Ukrainian enterprises. *The subject* of the research is contractual relations as an instrument for incorporating the country's enterprises into global value chains. *Methodology.* Assessment of competitive advantages of countries integrated into the international subordinate production was carried out using the techniques of Vollrath T.L. and G. Lafay. *Results.* Based on the generalization of empirical data and theoretical studies on the latest trends in deepening economic rivalry among participants in international cooperative relations, there were found out factors of activation of non-investment forms of external expansion by TNCs, in particular, the exhaustibility of the extensive way of cross-border production development and investment, and the increased level of investment risks caused by permanent economic crises, political instability, corruption of local elites in the countries where TNC units are localized, regional military conflicts. Estimation of the level of comparative advantages according to Vollrath T.L. and G. Lafay approaches made it possible to identify the competitive positions of the producers of individual countries in the system of international cooperation. Estimation shows that among 41 tested countries, the most significant index of the identified comparative advantages in production under contract was demonstrated by the following countries: Bangladesh, Bolivia, Bosnia and Herzegovina, Paraguay, Romania, South Korea, Hungary, Poland. Additional testing according to the criteria values of the Lafay index confirmed the list of countries with the highest level of advantages Honduras, El Salvador, Nicaragua, Poland, Romania, Morocco, Malaysia, Hungary, Czech Republic, China, Bolivia, and Albania. Assessment of the state and potential for the development of international cooperative relations for Ukraine allowed us to identify a number of destructive factors, in particular, the lack of a relevant legal framework for contractual relations and the instability of the political and economic situation in the country. *Practical implications.* Possibilities for deepening the participation of Ukrainian enterprises in the contractual relationship system are related to their resource and technological comparative advantages, in particular, the availability of free production facilities, a relatively high level of production processes automation in comparison with selected African and Asian countries; availability of skilled labour force with its relatively low cost to the customer countries. *Value/originality.* The study of the Ukrainian enterprises' participation in the system of international cooperation and the definition of sectoral specifics in the use of cross-border contractual relations make it possible to identify the problems of macroeconomic effects for the national economy.

**Key words:** contractual relations, international cooperation, global production networks, subordinate production, theory of comparative advantages, Ukraine.

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## 1. Introduction

The current state of the world economy can be characterized by intensive interpenetration and intertwining of trade and production relations between countries at various levels of management, incl. corporate. Transnational companies are actively forming new localization centres for their own production, expanding the range of the location of production facilities in new foreign markets. At the same time, the international practice of cross-border movement of capital and production indicated limited traditional investment methods of external expansion that is determined by a number of factors. Firstly, the number of countries that can be the object of investment is reduced annually, so the extensive development of cross-border production and investment is exhaustive; Secondly, as the last decade shows, in a global recession and the turbulence of global and national development, direct investment is associated with a growing level of risk: permanent economic crises, political instability, corruption of local elites, military conflicts, and other factors are responsible for this process.

In this regard, more and more companies are beginning to use methods of organizing their own international production, which are alternative to direct investments. Moreover, the tightening competition in the world markets of final goods and services has been transformed into an intensification of economic competition among intermediate products producers. Countries compete for the possibility of localizing production at any stage of the technological process, as this issue directly relates to the increase of jobs and its share in value added in global production and distribution networks. The peculiarity of the new stage of the world economic development expresses the high level of the probability of its reformatting in terms of changing key centres of investment, intermediate consumption, and final production, which is connected with the desire of the governments to intensify production on the national territory. The established networks of corporate and non-corporate TNCs' relations can be restructured by removing parts of regions and countries from the global cooperation system in case production is returned to the TNC home-country.

Ukraine is also included in the system of international contractual relations as an executive country in the processing of intermediate products. There are also risks of production activities decreasing in case of limited non-resident companies orders. Now, the scientific and practical problem of assessing the backgrounds and effects of the participation of enterprises of individual national economies in the system of international cooperation is being updated through the mechanism of contractual agreements that are not related to investments. After all, this understanding allows us to assess more critically the feasibility of institutional

assistance in localizing production processes and technological stages in the territory of individual states both in terms of its advantages for national economic development and in the plane of destructive impact.

*The purpose* of the research is to summarize the empirical data and theoretical developments on the factors, macroeconomic effects, and peculiarities of the countries' participation in the relations of international production and marketing cooperation through the format of non-investment contractual relations and the disclosure their potential for Ukrainian enterprises. To achieve the goal, it is necessary to solve the following *tasks*: to study the theoretical foundations about the specifics of the countries' participation in international cooperation through the format of contractual relations, to analyse the participation of countries in international cooperation on the basis of statistical data, to identify the macroeconomic effects of countries' participation in the relations of international production and marketing cooperation, and to determine positive and the negative effects of Ukrainian enterprises' participation in international contractual relations. *The methodology of the study*. Assessment of the competitive advantages of countries integrated into the international subordinate production was carried out using the approaches of Vollrath T.L. and G. Lafay to identify the level of comparative advantages of individual countries in terms of international contract manufacturing.

## 2. Contractual relations in the system of international cooperation

The participation of enterprises integrated into the international system of supply-and-demand cooperation acts as a driver of structural changes in many economies of the world, while ties deepening led to both positive and negative changes. Empirical studies show that access to a whole range of foreign intermediate goods, which can be parts and components or any other details used in the production of end-use products, at competitive prices is crucial for improving productivity in both the economically developed countries and in dynamically developing, particularly in India and China (Miroudot et al., 2009).

Empirical studies also confirm the fact that enterprises-executers of manufacturing services and works under the order of non-residents in developing countries or countries with transitive economies can achieve a greater success in their own markets due to association with higher standards of production organization and business processes that are regulated by foreign orders.

The largest exporters and importers of intermediate goods are unchanged from 2010 to 2014. There remain 28 countries of the European Union with an indicator of about 30% of total exports/imports of intermediate goods, the second place is occupied by China, the third – by the United States. These countries import and export

more than 60% of the value of intermediate goods in the world. On average, the rest block of the countries (per one country) account for between 2.5 and 0.1 percent of the world of intermediate goods turnover (World Bank, 2014). This statistics confirms the fact that countries with different levels of development are involved in the system of international cooperation, the most active from which are the EU states, the USA (acting as leading countries or as contractor countries), and developing countries, mainly from the Asian region. The PRC occupies a special place, positioning itself as a country with dynamic economic development. The contractual relations of Chinese enterprises with foreign customers have become a factor both in the creation of new and development of existing industries in the PRC. Acquiring rapidly foreign experience and technology, there were established a huge number of companies that began to produce end-use goods that compete with the leading companies from economically developed countries in the world market.

An analysis of international experience shows that a business model or strategy of a transnational corporation can incline a company to use a certain type of contractual relations in the system of international production or marketing cooperation. So, in case of franchising, which provides that business model is built on the use of the industrial or intellectual property as the core competence, an exclusive franchise is used for distribution in both domestic and foreign markets (Reid, Mark, 2008). In pharmacology, the trend towards outsourcing of production stages along the entire value chain encourages TNCs to use this format of contractual relationships as contract production. In particular, according to the outsourcing strategy of the international giant Pfizer, contractual relations are being formed with about 150 producers (on contract manufacturing terms) all over the world. From 2003 to 2008, Pfizer reduced the number of its own enterprises by almost 50% (up to 46 plants). The main considerations in choosing outsourcing were: the supply possibility, the capacities flexibility, cost competitiveness and technology, as well as ensuring the integrity/reliability of the supply chain, product quality, and regulatory compliance (website [www.pfizer.com](http://www.pfizer.com)).

Peculiarities of contract production in some industries, in particular, automotive and electronics, are determined by the fact that the contractual relationship model is matured, and the contract producers turned from suppliers to large TNCs with strong competencies and cost advantages. For global automotive brands, investing in their own intermediate production capacity is impractical. For example, Denso (Japan), automotive parts manufacturer and Foxconn (Taiwan Province of China), however, electronics contract manufacturers, have huge volumes of operations in many locations, as well as investing heavily in research (Cattaneo and et al., 2010).

### 3. Countries' competitiveness in contract manufacturing

Contractual relations are the subject of the theory of comparative advantages; therefore, in assessing the extent to which the countries have used contractual relations in their international activities, it was decided to use the methodology for assessing the level of competitiveness of certain types of contractual relations across the world. We use the approach of Vollrath T.L. – index of the revealed comparative advantages RCA (Revealed Comparative Advantage) (Vollrath, 1991) and G. Lafay – index of LFI (Lafay, 1992). Among the existing types of contractual relations, there was selected the contract manufacturing. This choice is justified by the availability of relevant statistics for selected countries for the selected period, which is provided by the IMF database from the countries' balance of payments. The indices of the revealed comparative advantages and the LFI index for contract manufacturing are given in Tables 1 and 2.

The value of the RCA index in contract manufacturing allows ranking countries from the sample as having the greatest advantages: Bangladesh, Bolivia, Bosnia and Herzegovina, Honduras, Paraguay, Romania, Republic of Korea, Hungary, Poland. A country that does not have any comparative advantages according to calculations is Peru. Other countries with a score of 0.1 to 5.0 can be considered as those that have comparative advantages in contract manufacturing.

Table 1

**The index of comparative advantages of contract manufacturing for selected countries, 2007–2015 years**

№	Countries	RCA – Index of the revealed comparative advantages								
		2007	2008	2009	2010	2011	2012	2013	2014	2015
1	Albania	4,6	4,6	3,4	6,1	7,1	6,5	4,5	6,1	7,5
2	Australia	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
3	Austria	2,8	2,3	2,1	1,7	1,9	1,3	2,6	3,1	3,2
4	Azerbaijan	4,3	1,5	4,6	4,1	2,2	2,0	0,0	0,0	0,0
5	Bangladesh	11,8	4,4	0,4	0,5	0,5	0,5	0,5	0,7	0,6
6	Belarus	5,4	3,3	2,9	2,4	2,4	2,0	2,0	1,7	1,4
7	Belgium	4,4	3,4	2,9	2,9	3,3	3,5	2,4	2,4	2,7
8	Bolivia	13,7	10,7	10,0	8,3	6,1	3,8	3,1	2,7	3,1
9	Bosnia and Herzegovina	49,2	34,1	18,7	22,4	26,1	22,1	21,1	24,9	22,7

End of Table 1

10	China	9,0	6,9	7,5	7,1	5,6	5,0	4,2	3,1	2,9
11	Costa Rica	5,9	4,4	6,2	6,5	7,3	7,1	6,0	4,1	1,8
12	Côte d'Ivoire	8,2	6,8	7,1	6,3	6,5	5,9	6,1	0,0	0,0
13	Croatia	4,7	3,8	2,6	2,6	2,4	2,6	1,9	2,0	2,0
14	Czech Republic	4,8	3,7	3,0	2,6	2,0	2,8	3,7	4,3	4,6
15	Dominican Republic	26,9	19,3	16,5	1,3	2,5	2,3	0,7	0,7	0,8
16	El Salvador	14,8	13,1	15,1	16,2	15,9	12,3	12,0	10,5	13,0
17	France	2,0	1,9	1,8	1,7	2,0	2,5	2,7	3,5	3,9
18	Germany	2,4	1,7	1,6	1,8	1,9	1,7	1,4	1,7	1,8
19	Honduras	41,8	30,2	30,5	32,6	31,6	27,9	32,0	34,5	38,0
20	Hungary	5,5	3,3	2,6	2,8	3,5	4,4	4,6	5,6	6,4
21	Iceland	10,3	8,6	6,0	7,7	7,2	6,1	5,9	3,1	2,1
22	India	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1
23	Indonesia	-4,9	-3,2	-3,0	-0,5	1,9	0,6	0,7	0,8	0,7
24	Italy	0,9	2,9	3,1	3,3	2,8	2,7	2,8	2,8	2,9
25	Republic of Korea	4,8	3,6	4,9	4,9	5,7	5,2	5,2	5,4	5,9
26	Lithuania	3,6	2,9	5,7	6,0	3,8	2,9	2,8	2,4	2,2
27	Luxembourg	0,3	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
28	Malaysia	0,0	0,0	0,0	3,6	3,3	2,9	2,7	3,0	3,2
29	Morocco	11,2	7,7	10,8	9,5	7,5	7,4	5,5	6,2	6,1
30	Netherlands	0,0	0,0	0,0	3,4	4,0	4,0	4,1	4,0	3,9
31	Nicaragua	24,6	17,9	19,0	21,1	22,7	23,1	24,6	27,6	26,6
32	Paraguay	32,9	8,0	5,2	7,8	9,2	7,9	8,3	10,3	10,0
33	Peru	-11,7	-8,8	-5,0	-10,7	-15,5	-13,9	-10,8	-5,8	-6,3
34	Poland	3,2	1,9	2,6	2,7	3,0	3,1	4,4	5,2	5,5
35	Portugal	1,8	1,1	0,9	1,0	1,1	1,2	1,3	1,2	1,0
36	Romania	19,5	11,6	9,2	8,8	9,8	8,7	10,5	11,5	11,1
37	Russian Federation	2,5	2,1	1,9	1,9	1,6	1,3	1,3	1,0	0,9
38	Slovakia	0,0	1,5	2,3	2,6	2,8	2,5	2,2	2,4	2,0
39	Slovenia	0,4	2,6	1,6	1,8	1,7	2,9	2,2	1,8	1,5
40	Switzerland	0,0	0,6	0,6	0,4	0,4	0,6	0,5	0,7	0,7
41	United Kingdom	0,1	0,1	0,1	0,2	0,2	0,2	0,9	0,8	0,8
42	Ukraine	4,8	3,5	3,4	4,0	5,0	5,3	4,9	5,0	5,3

Calculated by the author on the basis of balance of payments

Table 2

**The LFI Index, calculated for contract manufacturing (countries of the world), 2007–2015 years**

№	Countries	LFI – Lafay index								
		2007	2008	2009	2010	2011	2012	2013	2014	2015
1	Albania	3,81	4,82	3,33	5,65	6,65	6,09	4,29	5,31	5,82
2	Australia	0,02	0,02	0,06	0,04	0,02	0,01	0,01	0,01	0,01
3	Austria	-1,09	-1,13	-0,50	-0,99	-1,00	-0,98	-1,53	-1,49	-1,41
4	Azerbaijan	5,23	2,45	6,21	5,28	3,09	2,66	0,02	0,00	0,01
5	Bangladesh	5,25	3,11	0,52	0,70	0,71	0,72	0,77	0,93	0,82
6	Belarus	3,33	2,58	2,13	1,78	1,63	1,41	0,99	1,05	0,94
7	Belgium	2,70	3,04	2,42	2,01	2,03	1,66	1,27	1,36	1,36
8	Bolivia	14,10	18,63	14,95	10,55	7,30	5,10	4,33	3,54	3,50
9	Bosnia and Herzegovina	29,22	31,23	11,31	9,06	11,57	10,19	9,38	11,29	9,04
10	China	7,94	8,01	8,71	8,08	6,49	6,19	5,31	3,60	3,34
11	Costa Rica	2,42	2,32	3,63	3,86	3,80	3,79	2,97	1,91	0,85
12	Côte d'Ivoire	1,15	1,46	1,91	1,46	2,45	2,47	2,74	0,00	0,00
13	Croatia	-1,13	-1,08	0,64	-0,07	0,21	0,08	0,44	0,67	0,67
14	Czech Republic	2,37	2,12	2,21	1,87	1,16	1,40	2,45	2,70	2,53
15	Dominican Republic	9,66	9,75	8,07	1,05	-0,33	-0,28	0,42	0,40	0,43
16	El Salvador	11,83	13,53	14,00	14,58	14,09	11,05	10,22	8,08	9,58
17	France	0,27	0,39	0,64	0,68	0,98	0,63	0,42	0,27	0,25
18	Germany	0,20	0,30	0,47	0,44	0,31	0,20	0,15	0,24	0,17

End of Table 2

19	Honduras	26,76	25,84	22,19	24,63	26,00	26,04	27,61	27,50	28,22
20	Hungary	2,46	2,45	1,79	1,90	2,05	3,09	2,99	3,31	3,67
21	Iceland	8,80	9,03	5,41	6,83	6,50	5,80	5,02	2,48	1,52
22	India	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,05	0,04
23	Indonesia	-5,69	-4,60	-4,10	-0,61	2,39	0,81	0,90	0,88	0,79
24	Italy	0,07	0,45	0,58	0,91	0,50	0,44	0,47	0,20	0,25
25	Republic of Korea	-0,97	-1,52	-2,55	-2,22	-3,36	-3,00	-2,50	-2,39	-2,34
26	Lithuania	2,26	2,55	4,77	4,88	3,04	2,42	0,25	0,64	1,43
27	Luxembourg	0,05	0,04	0,04	0,01	0,00	0,01	0,01	0,02	0,03
28	Malaysia	0,01	0,00	0,00	3,66	3,34	3,14	2,74	2,84	3,02
29	Morocco	5,42	5,26	7,32	6,69	5,57	5,55	3,89	4,20	4,03
30	Netherlands	0,00	0,00	0,00	-0,59	-1,25	-1,27	-1,25	-1,33	-1,39
31	Nicaragua	21,86	19,60	18,31	19,32	20,37	20,86	22,75	22,62	19,57
32	Paraguay	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
33	Peru	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
34	Poland	2,01	1,60	2,15	2,30	2,38	2,64	3,32	3,57	3,30
35	Portugal	0,91	0,65	0,60	0,64	0,65	0,68	0,66	0,61	0,51
36	Romania	12,93	9,81	7,22	6,68	7,75	6,53	7,29	7,05	6,31
37	Russian Federation	1,95	2,25	1,99	2,13	1,70	1,52	1,40	0,98	0,85
38	Slovakia	0,00	1,08	1,95	1,57	1,50	1,16	0,97	1,07	0,97
39	Slovenia	-0,37	1,17	0,69	0,44	0,19	-0,88	0,59	0,81	0,56
40	Switzerland	-0,03	0,54	0,53	0,40	0,37	0,47	0,47	0,49	0,58
41	United Kingdom	0,05	0,09	0,09	0,11	0,11	0,12	0,29	0,24	0,24
42	Ukraine	3,62	3,51	3,15	3,48	3,99	4,47	4,15	4,14	4,04

Calculated by the author on base of Balance of payments

According to the estimated values of the LFI index, the larger its value, the higher the level of benefits in the country. Countries with high levels of benefits include Honduras, El Salvador, Nicaragua, Poland, Romania, Morocco, Malaysia, Hungary, Czech Republic, China, Bolivia, and Albania. The lack of competitiveness in production under contract is demonstrated by the Republic of Korea, Austria, and other countries from the sample, which is less than zero.

The balance of payments' statistics shows that the increase in licensing activity in developing countries is spontaneous and is not stable, while developed countries are consistently leaders in licensing. In the process of choosing a country for the implementation of a license, royalties play a decisive role and, on this basis, developing countries and countries with transitional economies in modern reality pay a quarter of the global royalties. The geographic distribution of licensing is wide enough, although South, East, and South-East Asia cover about 70% of developing countries and countries with transition economies, followed by Latin America and the Caribbean, South-East Europe, Africa, and West Asia. In each region, licensing activity is concentrated in several countries, for example, South Africa and Egypt in Africa, Brazil and Argentina in Latin America, and Turkey in Western Asia. The licensing case is more developed in Western and South-West Asia, in Singapore, China, and the Province of Taiwan.

#### 4. Ukraine's participation in international contractual relations

Pointing out the peculiarities of Ukraine's integration into the system of international cooperation relations, it is important to note that it has experience of deep industrial and marketing cooperation within the framework of the unified national economic complex of the USSR. After having got independent, Ukrainian enterprises began to enter into the production systems of European and a part of Asian markets, whose companies act as contract customers. For Ukraine, the complexity of the formation of contractual relations is not only consisting of the fact that this is a new phenomenon both in international and national territories but also because there is a lack of experience in building contractual relations with foreign counterparties. Obviously, Ukrainian companies take a weaker position on many aspects related to contractual relations, although in some areas it is possible to observe the positive consequences of such international cooperation.

Complications for the development of international cooperation are led by the fact that now in Ukraine there is no legislative basis that would resolve all controversial and risky issues of contractual relations. Besides, the country generally experiences an unstable political and economic situation, which affects the performance of all spheres of business, and not only activities based on international contractual relations. On the other hand,

foreign customers of contractual relations are attracted to Ukraine with unconditional advantages: firstly, the availability of free production facilities, the automation level of which is much higher than the underdeveloped African and Asian countries; secondly, a skilled workforce and, thirdly, it is the low cost of quality labour in relation to labour costs in the contracting countries. Given the historical aspects of the contractual relations formation and the specifics of the collection, processing, and submission of information in Ukraine, we were able to conduct an analysis of the involvement of Ukrainian enterprises in international cooperative relations, taking into account their specific branch structure.

By the mode-sectoral structure is understood a combination of contractual relations by types/sector, where a particular type is used in large volumes. The generalization of empirical and statistical information allowed us to distinguish the following typical formats of contractual relations between Ukrainian enterprises (executors) and foreign contractors (customers): for apparel industry – contract manufacturing (tolling, processing of raw materials); in the hotel and restaurant industry – franchising; in the field of information technology and business process management – outsourcing; in the field of research and development and the implementation of patents, utility models, and other intellectual property products – licensing. Contract management is almost not common in Ukraine as a service for export. Also considering peculiarities of land resources management and economic complex in Ukraine, contract farming exists in very limited forms.

Analysis of data from the State Statistics Service for 2013–2016 showed that the key export positions among contractual relations are operations based on give-and-take raw materials (with a tendency to increase) in chemical products (commodity group VI) and apparel (product groups VII, XI, XII, XX) industries, machinery (commodity group XVI), as well as goods of Group X, of which the share made from customer-supplied raw materials, is more than 26% and other productions (commodity group XX). Thus, in Ukraine, in re-export positions in which the share of products made from customer-supplied raw materials exceeds 50%, only apparel industry product, that is, commodity groups VIII, XI, and XII. At the same time, there is deepening negative tendency of the share of production from the give-and-take raw materials in the machine-building exports, whose share in the commodity structure of Ukrainian exports for this period, on the contrary, it decreased by 0.96%. The imported raw materials for apparel industry (commodity groups VIII and XI) prevails, with a tendency to increase during the considered period. In addition to these goods, a significant share in the structure of imports is occupied (with a decline in 2016): various industrial goods (commodity group XX), machinery, equipment and mechanical

appliances (commodity group XVI) and polymeric materials, plastics and goods thereof (commodity group VII).

As a result, the reduction of commodity imports to Ukraine (primarily due to the growth of the foreign exchange rate) creates additional opportunities for the development of national industries in the direction of import substitution of goods for both final and intermediate consumption. However, the intensive growth in imports of tolling raw materials threatens the further functioning of individual industries (primarily textile and machine building).

It is important to focus on certain financial aspects of the domestic legislation, in fact, make it impossible to re-direct domestic contractor enterprises to seek other formats of activity as a subject of foreign economic activity, and the country's budget is deprived of the tax incomes. Expenses for operations with give-and-take raw materials for an entrepreneur-performer are recognized in the amount not exceeding the income received from such sale/exchange. Therefore, losses under tolling services by the Fiscal Code are not allowed (Regulation (Standard) of Accounting 21). Processing of customer-made raw materials imported by a non-resident to the customs territory of Ukraine (subject to further exportation of the products of its processing from the territory of Ukraine) is subject to VAT at a zero rate (Instructions for the application of the plan of accounts for the bookkeeping of assets, capital, liabilities and business operations of enterprises and organizations, 1999).

At the same time, a zero VAT rate in respect of works (services) for the processing of tolling raw materials is used both by the enterprise, which is determined by the main contractor for the contract on processing of the customer's raw materials, and for the enterprise involved in the technological process associated with the processing of tolling raw materials into finished products, if it is indicated in the contract for the processing of tolling raw materials. And last, the revenue for the taxation purposes of the processor usually arises only at the cost of its services for processing customer-supplied raw materials.

Summarizing the above, we can draw the following conclusions: firstly, the import duty rate and VAT for give-and-take raw materials is 0%; secondly, services for the processing of material resources are also not subject to VAT; thirdly, only the income of the processor from the services provided is the basis for the appearance of tax liabilities. Thus, only the tax on the results of the activity of processing enterprises settles in the country's budget.

International experience in the use of contractual relations as an instrument for incorporating the national business into the global production and marketing cooperation system confirms the possibility for the executing companies both to climb the technological

progress stages and to preserve their production capabilities in the weakest low-yielding chains of global value creation. This depends upon country's competitive advantages in locating production processes, institutional support for structural changes in the national economy, the course of economic competition between key producers and customers of international contractual services.

## 5. Conclusions

Summarizing the conducted research, we can make the following generalizations:

- the countries' participation in the system of international cooperation, including the format of contractual relations not related to investment, contains a number of opportunities in terms of increasing the rate of employment, simplified access to external markets, increasing the level of organizational and technological culture of production processes, nevertheless it is also accompanied by certain challenges, such as: the influence of endogenous factors on the development of the level of manufacturability of national production, the localization of low profitable production processes on the economy national territory; high level of dependence of the national economic dynamics of demand of non-residents;
- an assessment of the level of countries' competitive advantages, taking into account their

participation in international contractual relations through subordinate production, has shown the variability of the status of countries as participants in international cooperation: a significant level of comparative advantages can be enjoyed by a country from a group of states with a high level of economic development and developing country or with a transitional economy;

- the opportunities for deepening the participation of Ukrainian enterprises in the contractual relationship system are related to their resource and technological comparative advantages, in particular, the availability of free production capacity, a relatively high level of automation of production processes for selected African and Asian countries; the availability of skilled labour force with the background of its low cost in comparison with the countries-customers.

Further studies of this problem relate to a more in-depth analysis of the macroeconomic effects of Ukraine's participation in the international cooperation system and the identification of sectoral specifics in the use of cross-border contractual relationships.

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## FORMATION OF EUROPEAN INTEGRATION DEVELOPMENT STRATEGY OF UKRAINE

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**Abstract.** Today European integration is a strategic course of Ukraine, its speed increases. It obliges to pay attention to the consequences of European integration. European integration, that is, formation and further strengthening of ties with European countries, has a complex nature (economic, political, social, cultural, etc.) at all levels – transnational, interregional, between separate economic entities. The relevance of the article's topic is determined by objective nature of European integration process in Ukrainian economy and complex nature of consequences of this process. The purpose of the article is the analysis of the influence of European integration process on the economic development of the country on the basis of scenario approach. The presence of essential regional imbalances in the socio-economic development in Ukraine requires differentiated approaches to the elaboration of development measures aimed at promoting the creation of free trade area, as well as strengthening economic and sectoral cooperation between Ukraine and the EU. Thus, there appears a necessity to monitor and evaluate progress of economic reforms in regions of Ukraine in the context of European integration processes in order to reveal strengths and weaknesses, to substantiate priorities and means of their achievement, as well as possibility of their timely adjustment for improving the region's ability to follow the vector of European integration. For the purpose implementation, it seems most appropriate to calculate an integral value – European Integration Index ( $I_p$ ). In the most general terms, the index is a relative magnitude, designed to fulfil the role of a generalized measure of a certain phenomenon, which is formed under the influence of heterogeneous components, which cannot be directly summed up. European integration consequences for the economy of Ukraine are considered and it is shown that these consequences can have not only a positive nature in the form of new opportunities and open markets but also pose a threat. Scenarios for changing the national economy of Ukraine as a result of the influence of European integration processes are determined. A description for each of these scenarios is provided. Assessment of such scenarios is done according to criteria of desirability, probability, and time of realization. A relation between the considered scenarios for changing the national economy of Ukraine over the influence of European integration processes taking into account probabilistic cause-and-effect relationships between individual scenarios is shown. Consequences of these scenarios for the economic development of Ukraine are presented. The research result is the detection and characteristic of scenarios of changes in the economy of Ukraine as a result of the influence of European integration processes, as well as the characteristic of the influence of such scenarios on the country's economic development. Scientific novelty of research results is defining scenarios of changes in Ukrainian economy under the influence of European integration processes, characteristics of these scenarios and relations among them taking into account the influence of such scenarios on the country's economic security. The practical value of research results is considered a possibility to provide adaptation of regions of Ukraine to the consequences of European integration processes in the economic and legal field.

**Key words:** European integration, economic development, national security, infrastructure, planning policy, regional economic activity.

**JEL Classification:** E01, H56, O18, O21, R11

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## 1. Introduction

One of the objective trends in the modern economy of Ukraine is European integration, i.e. formation and further strengthening of relations with countries of the EU at all levels – interstate, interregional, among separate economic entities. Today European integration is a strategic course of Ukraine, its speed increases. It obliges to pay attention to the challenges and threats of European integration for the formation of a modern strategy of European integration development of Ukraine.

Relevant is the issue of the establishment of friendly, partnership relations between the EU and Ukraine. European Union is an active participant in the modern geopolitical space. European unification is one of the most significant geopolitical events of the XX century. As a result of a large-scale and deep integration, European Union has become a powerful geopolitical centre. The main task of Ukraine is to return to European civilizational space. Specific geopolitical location and history of long-term cooperation with European countries determine the interest of Ukraine in an active participation towards European integration processes.

Activation of European integration processes means a more intensive inclusion of Ukraine in the international cooperation in relation to conflict resolution and counteraction to the latest threats to international security.

The purpose of the research is the analysis of the current state of development of European integration processes and formation of adaptive directions from a strategic perspective.

The main objectives are the formation of such a strategic scenario that would allow: conducting an adequate analysis of the current state of Ukrainian development; creating opportunities for regular monitoring of the state and directions of Ukraine's movement in a specific vector; and the main one, proposing modern directions for the integration of Ukraine into European space.

## 2. The methodology of research

Full involvement of Ukraine in the European community involves creating and maintaining conditions for strengthening economic and trade relations, which will facilitate the gradual integration of the national economy into the European market. The presence of essential regional imbalances in the socio-economic development in Ukraine requires differentiated approaches to the elaboration of measures of regional development designed to facilitate the creation of free trade area, as well as strengthen economic and sectoral cooperation between Ukraine and the EU (Ivankiv, 2015; European integration, 2011). Thus, there appears a necessity to monitor and evaluate progress of economic reforms in regions of Ukraine, to substantiate priorities and means of their achievement, as well as possibilities

of their timely adjustment for improving the ability to follow the vector of European integration (Avanasova, 2016; Hluschenko, Tulenivova, 2016).

Given the civilizational choice of Ukraine and confession of European democratic values, in June 1998, the President approved by his decree the strategy of Ukraine's integration into the European Union. On its basis, practical, purposeful, and consecutive steps on the realization of the goal of gaining full membership in the European Union were developed. So, the Message of the President of Ukraine to the Verkhovna Rada "European Choice. Conceptual Bases of the Strategy of Economic and Social Development of Ukraine for 2002–2011" outlines the plan of concrete actions of the authorities. In addition to the tasks for creating the preconditions for joining the EU, the task of bringing the legislation of Ukraine in line with the EU legal requirements in priority areas is also distinguished.

However, Ukraine has not fulfilled a number of commitments to the Council of Europe. Today there is a need to prepare and adopt several hundreds of laws. Most of the draft bills were prepared and submitted to the Verkhovna Rada in the prescribed manner several years ago but, for various purposes, they are waiting for consideration for a long time. Bills aimed at the realization of social, cultural, and other rights and freedoms of man and citizen are considered as the priority ones.

Given the conceptual approach, adaptation of Ukrainian legislation to the legislation of the EU is to converge with the modern European system of law, which will ensure the development of the political, entrepreneurial, social, cultural activity of citizens of our state, its economic development within the framework of the EU, and will contribute to the gradual growth of the welfare of citizens, bringing it to a level that has developed in the EU member states. Adaptation of the legislation of Ukraine envisages reformation of its legal system and gradual alignment with European standards and covers private, customs, labour, financial legislation, laws on intellectual property, labour protection, life and health protection, environment, consumer protection, technical rules and standards, transport, as well as other sectors identified in the Partnership and Cooperation Agreement.

While considering prospects of the introduction of ideas of sustainable development in the consciousness of Ukrainian citizens, it should be recognized that for a long time, being in a transitive state, our society needs more regulatory concretization of measures on harmonization of relations with the EU and within the country.

Modern science proposes a wide toolkit for determining the state and dynamics of processes taking place in various spheres of society. However, now there are no studies related to measuring progressive changes in the economic sphere in terms of achieving the main

objectives of the Association Agreement between Ukraine and the European Union (Avanasova, 2016). Given the special relevance of the issue associated with the fulfilment of the basic provisions of the Association Agreement between Ukraine and the EU (The Association Agenda, 16.03.2015) and the Association Agenda (Association Agreement, 27.06.2014), it becomes necessary to develop a methodology that allows quantifying progress in the implementation of relevant economic reforms in regions of Ukraine (The EU-Ukraine Association Agenda on 16.03.2015).

For the research realization, the most expedient seems the calculation of the integral index of European integration progress ( $I_p$ ). In the most general terms, the index is a relative magnitude, designed to fulfil the role of a generalized measure of a certain phenomenon, which is formed under the influence of heterogeneous components, which cannot be directly summed up. Then  $I_p$  can be defined as a relative integrated magnitude that is calculated on the basis of aggregation of individual indicators that reflect the effectiveness of achieving the main objectives of economic integration with the EU in the regional dimension (Derij, Zosymenko, 2016).

Given the foregoing, one should dwell on the way of calculating  $I_p$ , which:

- allows going to scale with a range from -1 to 1 or from 0 to 1 as it limits the maximum level of European integration development of the region for a certain period, which allows using it as a benchmark for determining the position of one region compared to other regions of Ukraine. The calculation by the geometric mean method is impossible if the values of normalized partial coefficients will fluctuate in the interval [-1; 1];

- provides a possibility of the use weighing coefficients that reflect the extent, to which each component is affected, reflecting the effectiveness of achieving the main objectives of economic integration with the EU in a regional dimension;

- allows calculating  $I_p$  even in the case of acquiring zero value by one of its component indicators. Given all the above, we consider the most appropriate to use the weighted arithmetic mean for the calculation of the European Integration Index (Korobov, 2016; Pryimak, 2009).

In order to determine directions of the formation of development strategy, to calculate  $I_p$ , it is necessary to choose indicators, which, according to the EU-Ukraine Association Agreement, can be combined into two main directions:

- I. Trade and trade-related issues;
- II. Economic and sectoral cooperation.

Each of them will include the corresponding package of indicators, which reflect the priority directions of reforms (Figure 1).

For their description, it is necessary to select public statistical indicators, information about which is in open access:

1.1. Trade in commodities. As one of the conditions for the functioning of the free trade zone between Ukraine and the EU is to ensure the free access of Ukrainian-origin goods to the countries of the European Union and vice versa, indicators were selected as quantitative indicators of this process:

- the share of export of goods to the EU countries in total, %;
- the share of import of goods from the EU countries in total, %.

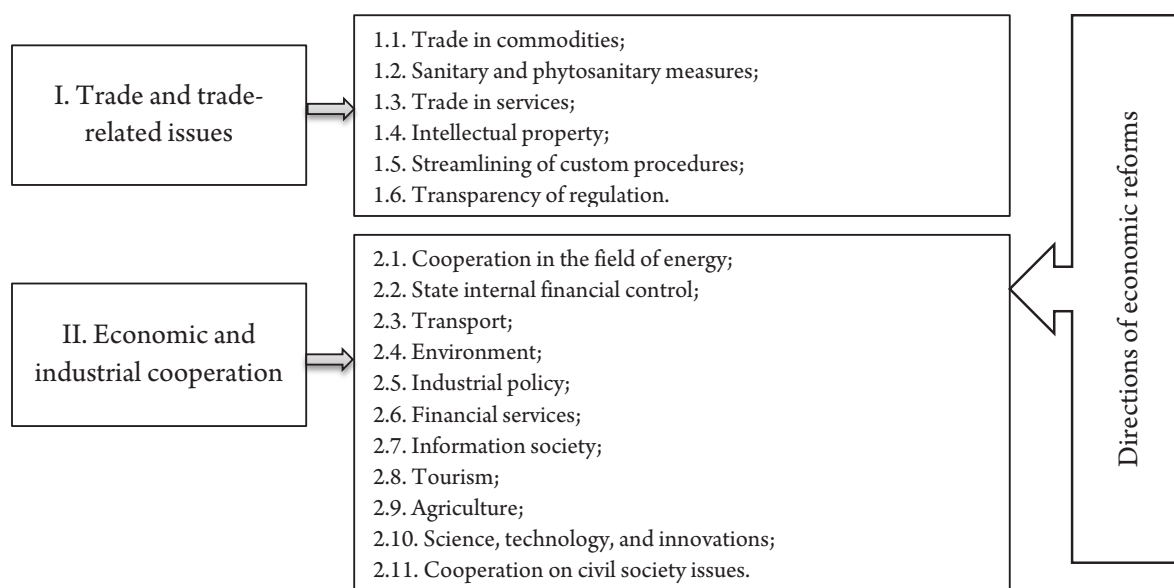


Fig. 1. Directions of economic development determined by the Association Agreement between Ukraine and the EU (formed by the author based on: Korobov, 2016; Pogorelov, Adamenko, 2015; Koriavets, 2017)

1.2. Sanitary and phytosanitary measures. To the indicators that indirectly display economic results of approximation of Ukrainian legislation in the field of sanitary and phytosanitary measures to the EU legislation, we included indicators reflecting the number of objects, which are granted by the State Food and Veterinary Service with the right to export food products (dairy products, meat products, eggs and egg products, honey and beekeeping products, mayonnaise, mayonnaise sauces, and margarine) to the EU countries.

1.3. Trade in services and investments. An important direction of the state policy in the area of business establishment, trade in services, and e-commerce should be, in particular, simplification of the creation and operation of companies, branches, and representative establishments, protection of investors' rights due to further approximation of the legislation in these areas to the legislation, standards, and practices of the EU.

The main indices of the growth of such indicators, such as: the share of exports of services to EU countries, %; the share of imports from EU countries, %; the share of direct investments of non-residents from the EU in the region in the total volume, %.

1.4. Intellectual property. One of the priority vectors of reforms in Ukraine in terms of European integration is the improvement of the national legislation taking into account the best world practice. The result of this should be the transformation of intellectual property into a strategic resource in the system of forming national wealth and improving the competitiveness of the economy of Ukraine, acceleration of innovative development and integration of Ukraine into international economic space. Accordingly, to resulting statistical indicators that reflect the efficiency of mechanisms of obtaining legal protection in the field of intellectual property, the creation of favourable investment climate, we propose to include the following: the number of applications for inventions; the number of applications for utility models from national applicants.

1.5. Streamlining of customs procedures and promotion of trade. Since the reformation of customs sphere is carried out on the basis of a new edition of the Customs Code of Ukraine, which is developed taking into account provisions of the International Convention on the Simplification and Harmonization of Customs Procedures, the Convention on Temporary Admission, the Union Customs Code, the only factor that can influence customs procedures is human one. It is possible to indirectly reflect such a negative influence at the regional level with the help of analysis of indicators of the number of appeals of individuals and legal entities in the light of zones of customs activities. Another important goal in the context of European integration of Ukraine is to reduce the number of points of coincidence of business and state, which is advisable to show by using an indicator of the number of inspections of business entities by the Tax and Customs

Audit Department relative to the number of economic entities.

1.6. Transparency of regulation. An indicator that, in our view, reflects the transparency of regulation is the number of suspended violations in the form of anticompetitive actions of authorities in the regional context.

2.1. Cooperation in the field of energy. Taking into consideration that the main purpose of cooperation of Ukraine and the EU countries is to improve energy security, competitiveness, and stability, performance indicators by this package of reforms were selected as a statistical indicator – disincentive: losses of energetic material and petroleum refinery products in the process of distribution, transportation, percentage to total volume. On the other hand, cooperation in the field of energy is aimed at providing available energetic resources for consumers, thus the second indicator having a chilling effect on the Index was selected as a level of arrears for the payment of housing and communal services, %.

2.2. State internal financial control. Cooperation in the field of public finance management is directed to providing development of fiscal policy and reliable systems of internal control and external audit, which are grounded on international standards, as well as meet the fundamental principles of accountability, transparency, economy, efficiency, and effectiveness. Thus, the main signs of progressiveness in this area should be a reduction of the following indicators: illegal and not for the intended purpose spent costs, shortage (theft) of funds and material values, thousand UAH; the volume of foregone financial resources, thousand UAH.

2.3. Transport. So far as basic vectors of cooperation in the field of transport include, in particular, the implementation of efficient and safe transportation, as well as the strengthening of the main transport links between the territories of the parties, thus the list of indicators of this package of reforms includes the following statistical indicators: the share of exports of transport services to the total volume of exports of services to EU countries, %; the share of import of transport services in the total volume of imports of services from the EU countries, %.

The indicator of the number of traffic accidents on the roads and streets of the region in relation to the passenger traffic of the ground type of transport (units per million pass. km) was chosen due to the importance of achieving the task of increasing the efficiency and safety of transportation.

2.4. Environment. Implementation of long-term objectives of sustainable development and green economy envisages the availability of proper investment provision of ecologization processes in regions of Ukraine. Thus indicator by this package is identified as an indicator of the share of capital investment in the protection and rational use of natural resources in the total volume, %.

2.5. Industrial policy. A priority direction of the cooperation of Ukraine and the EU in the industry and business is to improve conditions for entrepreneurial activity. Thus, positive achievements in this area should appear in the growth of such indicators as: the share of foreign direct investments in the industry in the total volume, %; the share of exports of services for the processing of material resources in the total volume of exports of services, %; the share of imports of services for the processing of material resources in the total volume of imports of services, %; the share of exports of industrial products in total exports of goods to the EU countries, %; the share of imports of industrial products in total imports of goods from the EU countries, %.

2.6. Financial services. Given the importance of the development of the financial services sphere for the establishment of a full-fledged market economy to evaluate the effectiveness of reforms by this package, it is expedient to use the indicators:

- the share of exports of financial services in the total volume of exports of services, %;
- the share of imports of financial services in the total volume of imports of services, %;
- the share of enterprises providing financial services and insurance services in the total number of enterprises, %.

2.7. Information society. Cooperation in this field covers, in particular, promoting broadband access, improving network security and widespread use of computer and information technologies by individuals, business, and administrative authorities due to the development of local Internet resources and the introduction of online services. Therefore, as statistical indicators, we have chosen indicators:

- the share of enterprises using computers in the total number of enterprises, %;
- the share of employees who used computers among the total number of employees, %;
- the share of enterprises having access to the Internet, in the total number of enterprises using computers, %;
- the share of enterprises having a website or homepage in the total number of enterprises having Internet access, %;
- the share of enterprises that carried out automated data exchange in the total number of enterprises using computers, %;
- the share of subscribers of the Internet in the total population, %;
- the share of mobile communication subscribers in the total population, %;
- RITS index of the level of IT penetration into the life of society.

2.8. Tourism. By this package, economic reforms should be aimed at the promotion and development of tourism products and markets, infrastructure, human resources, and institutional structures, building capacity in the tourism industry in order to improve the quality of provision of tourism services. In the structure of the

indicators, which allow quantifying the effectiveness of reforms in the field of tourism, we include: the share of subjects of tourism activity in the total number of economic entities, %; the number of tourists served by subjects of tourism activity; the share of exports of services connected with travel in the total volume of exports of services, %; the share of imports of services related to travel in the total volume of imports of services, %.

2.9. Agriculture. Reforms in this package are directed to the improvement of competitiveness of agriculture and efficiency and transparency of markets, as well as conditions for investing, sharing best practices on policy support mechanisms in the field of agriculture and rural development. Statistical indicators of the effectiveness of reforms are indicators:

- agricultural production per 1 person, UAH;
- labour productivity in agricultural enterprises per 1 employed, UAH;
- the level of profitability of agricultural production in agricultural enterprises, %;
- the share of small and medium enterprises, as a percentage of the total number of agricultural enterprises;
- the share of foreign direct investment in agriculture in total, %.

2.10. Science, technology, and innovations. Cooperation in this area should help Ukraine in the support of reformation and reorganization of the system of management of scientific sphere and research institutions (in particular, in the development of its potential as regards development of science and technology) for the purpose of promoting the development of the competitive economy and knowledge-based society. Taking this into consideration, we have selected such indicators of the effectiveness of reforms in terms of their impact on creating favourable conditions for the elaboration, development, and commercialization of innovations by business entities:

- the share of organizations performing scientific and scientific-technical work in the total number of enterprises, %;
- the share of industrial enterprises engaged in innovation activities, as a percentage of the total number of industrial enterprises;
- the share of financing of scientific and scientific and technical works at the expense of foreign countries, %;
- the quantity of introduced new technological processes at industrial enterprises;
- the quantity of mastered innovative types of products at industrial enterprises;
- the share of the realized innovative production of industry in the total volume of industrial products, %

2.11. Cooperation on civil society issues. As far as reforms of this package are intended to promote the process of institutional building and consolidation of organizations of civil society, as a quantitative indicator

of progressive changes, the indicator of the number of legalized civic organizations in relation to the population of the region was chosen.

Then in the general form, the formula for calculating the European Integration Index takes the form (1) (Pryimak, 2009; Korobov, 2016):

$$I_p = \frac{N_t * wt + N_e * we}{2} \quad (1)$$

$I_p$  – the index of European integration economic progress of the region;

$N_t$  – an indicator characterizing the direction of reforming “trade and related areas”;

$N_e$  – an indicator characterizing the direction of reforming “economic and sectoral cooperation”;

$Wt, we$  – weighting coefficients, direction levers, which are appropriately formed by the expert evaluation method.

It is clear that integrated index can be calculated only in the case when the value of each of the primary indicators will be reduced to the same dimension. To do this, it is needed to normalize them. Among the methods of normalization, we selected the Min-Max method, which allows avoiding the distorting effect of extremely large values and reduces all data to one range within 0 and 1. For the normalization of indicators-stimulants, one should use formula (2), and for indicators-disincentives – formula (3).

$$y_{ij} = \frac{x_{ij} - x_{i\min}}{x_{i\max} - x_{i\min}} \quad (2)$$

$y_{ij}$  – dimensionless (normalized) value of the  $i$ -th statistical indicator in the  $j$ -th region;

$x_{ij}$  – the value of the  $i$ -th statistical indicator in the  $j$ -th region;

$x_{\min}$  and  $x_{\max}$  – the minimum and maximum values of the  $i$ -th statistical indicator.

$$y_{ij} = \frac{x_{i\min} - x_{ij}}{x_{i\max} - x_{i\min}} \quad (3)$$

This method, although somewhat complicates the process of calculation in dynamics, at the same time, allows more adequately reflecting the amplitude of fluctuations of the corresponding quantities. In addition, the Min-Max method allows better data transfer in cases where the values of statistical data are close to each other by fields.

### 3. Results and discussion

As a result of conducted calculations and research, the European Integration Index for each region (EIIR) is obtained, which consists of two intermediate Indices for reform directions, which, in turn, consist of Indices for each individual reform package within the respective direction.

The research is conducted within the project “Visegrád Group Countries’ Assistance in Assessing Economic Reforms in Regions of Ukraine in Terms of the EU Integration” that was carried out by the Polissya Foundation for International and Regional Studies (Chernihiv), the Association of Regional Analytical Centres with the support of the International Visegrád Fund (Slovakia), the Research Centre of the Slovak Foreign Policy Association (Slovakia), the International Centre for Democratic Transition ICDT (Hungary), Polish-Ukrainian Cooperation Foundation PAUCI (Poland), the Policy Association for an Open Society PASOS (Czech Republic), and Chernihiv National University of Technology (Koriavets, 2017; Honcharenko, Bohatyrenko, Bakal, Vynokurova, Halimuk, Hejderova, 2017).

Table 1

#### Analysis of dynamics of changes of the Index of European integration economic progress of the regions of Ukraine, 2014–2016

	Region	Rating for 2016	Rating for 2015	Rating for 2014
1	Chernivtsi	0,4960	0,4309	0,4151
2	Volyn	0,4760	0,4370	0,3021
3	Ternopil	0,4649	0,4262	0,3937
4	Lviv	0,4518	0,4982	0,4828
5	Ivano-Frankivsk	0,4369	0,4081	0,4021
6	Transcarpathian	0,4341	0,4699	0,4144
7	Chernihiv	0,3983	0,3115	0,2851
8	Rivne	0,3952	0,3359	0,2332
9	Sumy	0,3932	0,4136	0,2674
10	Kyiv	0,3684	0,3727	0,3288
11	Zhytomyr	0,3604	0,3908	0,2616
12	Kherson	0,3546	0,3634	0,2404
13	Zaporizhzhia	0,3298	0,3193	0,3162
14	Cherkasy	0,3292	0,3299	0,2480
15	Khmelnyskyi	0,3288	0,3129	0,2388
16	Vynnytsia	0,3114	0,2892	0,2328
17	Dnipropetrovsk	0,3063	0,3368	0,2935
18	Odesa	0,3045	0,3214	0,2884
19	Poltava	0,3045	0,2668	0,2887
20	Kharkiv	0,2916	0,2755	0,2495
21	Luhansk	0,2862	0,2056	0,2261
22	Mykolaiv	0,2699	0,2127	0,2110
23	Kirovohrad	0,2028	0,2027	0,2017
24	Donetsk	0,1520	0,1121	0,1001

Table is made by the author based on: (Koriavets, 2017; Korobov, 2016; Kozachenko, Adamenko, 2015)

The research conducted indicates the insufficient use of the potential of European integration of regions of South-Ukrainian region (Odesa, Kherson, and especially Mykolaiv region), the presence of numerous imbalances in meaningful components of the system process. The most priority are Carpathian regions, regions of the central part of Ukraine have the mean values.

Among the most important imbalances, there is lack of institutional support for European integration, which negatively influences both the European Integration Index, which is the quintessence and generalization of such a support, as well as the effectiveness by purely economic components. The second imbalance is unevenly distributed financing of economic relations between the regions and the EU, as well as import substitution, especially for goods with high value added. Additional asymmetry of corresponding flows is illustrated by examples of such indicators as: the number of transfers from the EU, the share of accumulated investments of non-residents in the regions, and so on. The analysis conducted only confirms the general conclusions about the state of reforms in the direction of the European integration economic progress of the regions.

The process of Ukraine's integration into the European community continues. Such a process cannot be considered in a specified manner, i.e. only in one plane (economic, political or cultural). It is complex in essence, and its consequences have different nature. Such consequences may be both positive and negative. Using the method of scenario analysis in the most general terms, the consequences of the European integration for the economy of Ukraine in general are presented in Figure 2 (Tarasiuk, 2013; Marmazov, Pilyayev, 2013; Draškovic, Draškovic, 2012).

It is appropriate to investigate the influence of European integration process on the development of Ukraine step by step. At the first stage, one should study how European integration will influence the national economy, its state, and processes that make a significant impact on the economic development of

enterprises. To conduct an analysis of the influence of European integration on the economic development of Ukraine, let us use the scenario method that provides an opportunity to identify the most probable scenarios.

At the second stage, it is necessary to consider what threats to economic development each of the scenarios of changes in the economy of Ukraine over the processes of European integration has. Formation of such scenarios is possible (Table 2) (Three scenarios for the development of Ukraine-EU relations after the elections, 2012; Yermolaiev, Parakhonskyj, Yavorska, Reznikova [ta in.], 2012; Elements of the EU strategy for Ukraine (Czech view: Policy statement), 2013).

Names of scenarios to some extent reflect their essence. Certainly, the scenarios provided do not exhaust all possible ones and the given list of scenarios cannot be considered as closed, that is, finally formed. The proposed list of scenarios demonstrates possibilities of determining changes in the economy of Ukraine over the processes of European integration.

Each of the scenarios in Table 2 should receive a qualitative assessment. It is proposed to be given by the following criteria:

- the desirability of scenarios (on a five-point scale, where 1 means an extreme reluctance and threat to the national economy, and 5 is a positive and desirable scenario);
- the probability of implementation of the scenario (on the three-position qualitative scale “high”, “average”, “low”);
- time of implementation of the scenario.

The choice of the latter criterion is determined by the fact that the consequences of European integration are not immediately evident. Thus, it is expedient to



Fig. 2. Determining the consequences of European integration for the Ukrainian economy

Table 2

**Scenarios of Ukraine's economic changes as a result of the influence of European integration processes**

Scenario's name	Brief description
1. Capture of the national economy by TNCs	Transnational companies, through mergers and acquisitions, occupy a dominant position in the Ukrainian economy. The most attractive sectors of the economy go beyond the control of state administration bodies and move on the basis of the ownership right to TNCs.
2. Development of the national economy	All segments of the national economy, due to the inflow of investments, new technologies, entering new markets, are essentially qualitatively and quantitatively growing. National GDP is increasing.
3. Investment sea	Significant volumes of foreign investment have a health impact on the domestic economy, which allows improving its state at the expense of openness of new markets and access to new resources.
4. Intervention and assignment of quotas	There is a competitive intervention of foreign producers in the Ukrainian market, which results in a reduction in the share of national producers. At the same time, the access of Ukrainian producers to foreign markets is limited to using the quota mechanism.
5. Specialization	Only certain segments and sectors of the national economy, thanks to the international division of labour and the existing competitive advantages, will be able to develop. In other segments, over the domination of foreign manufacturers, stagnation will take place.
6. Tariff deficit	The domestic market raises prices for a significant list of goods at the expense of equalization of prices in the Ukrainian and foreign markets. Products whose prices in foreign markets are higher than prices in the Ukrainian market are exported, which may lead to a commodity deficit in the national market.
7. Agrarian development of the national economy	Serious development at the expense of new technologies and openness of the new markets of the agrarian sector of the Ukrainian economy. Other segments of the national economy are developing slowly and gradually moving along the path of stagnation.
8. Shortage of skilled manpower	A significant number of qualified specialists, through the simplification of employment abroad, leave the Ukrainian labour market, which is why domestic enterprises are starting to experience shortages of skilled personnel.
9. No significant change	Serious changes in the Ukrainian economy due to institutional reasons, despite an access to new resources and opportunities, will not happen. Cases of a successful exit of domestic enterprises into foreign markets and successful partnerships with foreign producers will remain rare.

Compiled by the author

consider two horizon periods – mid-term and long-term. Characteristics of scenarios of changes in the national economy according to the results of the influence of European integration processes are provided in Table 3.

It is evident that scenarios presented in Table 2 cannot be implemented simultaneously. Separation of scenarios according to the criteria “time of implementation of the scenario” and “probability of implementation of the scenario” allows building a scenario map.

An analytical study of the scenarios of changes in the national economy as a result of the influence of the processes of European integration provides the basis for the following conclusions:

- in the mid-term period, only one scenario out of four considered – Investment Sea – will be favourable for domestic enterprises. Other scenarios, although some of them are scarcely probable, will make problems for domestic enterprises, including in providing economic security;
- in the long-term period, in spite of positive consequences for the national economy due to European integration, the scenario of Capturing the National Economy with Foreign Transnational Companies is quite likely. Such a scenario for the economic security of enterprises that will not be of interest to transnational companies is threatening;
- the scenario of Flowering of the National Economy is possible under three conditions of the previous realization

Table 3

**Assessment of scenarios of changes in the Ukrainian economy as a result of the influence of integration processes**

Scenario's name	Desirability of scenario implementation	Probability of scenario implementation	Time of scenario implementation
1. Capture of the national economy by TNCs	2	Average	Long-term
2. Flowering of the national economy	5	Low	Long-term
3. Investment sea	4	Average	Mid-term
4. Intervention and assignment of quotas	1	Average	Mid-term
5. Specialization	3	Average	Long-term
6. Commodity shortage	2	Low	Mid-term
7. Agrarian development of the economy	2	Average	Long-term
8. Shortage of skilled manpower	1	Low	Mid-term
9. No significant change	2	High	Long-term

Compiled by the author



of the scenario of Investment Sea, which envisages significant foreign investment inflow in Ukraine. However, foreign investments are always targeted, that is, funds are invested in enterprises, which, according to certain criteria, are selected by foreign investors. If the enterprise does not meet the criteria of foreign investors, then it will not receive these investments, which will negatively affect its economic security.

- other mid-term scenarios do not allow entering the path of sustainable development of the national economy and economic security;
- in the long-term period, there is a significant scenario uncertainty since the relation between scenarios with long-term and mid-term periods of implementation is very close and, at the same time, absolutely uncertain;
- the scenario of the Specialization of the domestic economy as a result of the international division of labour is likely in the whole set of scenarios. A partial kind of such a scenario is the agrarian development of the Ukrainian economy, which will negatively affect the economic security of enterprises by other types of economic activities, which are not related to agriculture directly or indirectly;
- probable is the scenario of the lack of significant changes in the domestic economy regardless of all European integration process of Ukraine. The basics of such a scenario are largely laid down by actions of the government today – lack of real reforms, an effective fight against corruption, and political stability.

The given scenarios of changes in the national economy due to the influence of the processes of European integration may be of interest to the study, it is especially important to consider the issue of influence on the economic security of domestic enterprises.

#### 4. Conclusions

The research conducted allowed selecting a toolkit that can be used for evaluating the progress of economic reforms in the context of European integration and identifying the directions of activation of economic security of the country as a whole and individually by regions. In order to calculate the integral index (European Integration Index), it is proposed to use the method of the weighted arithmetic mean. The effectiveness of European integration of the region depends, on the one hand, on the effectiveness of reforms by the direction I: Trade and trade-related issues and, on the other hand, on the effectiveness of reforms by the direction II: Economic and sectoral cooperation. Each of them includes corresponding blocks of indicators reflecting reforms' priority directions. For their description, the statistical indicators, information about which is in open access, were selected.

The promising direction of further research is to conduct a comparative analysis of integrated indexes of European integration of regions, values of their subscripts by the main directions of reforms.

According to the provisions set forth, the following conclusions can be drawn:

- European integration is an objective process, which takes place at the level of the national economy, and individual enterprises cannot significantly affect it;
- European integration as an objective process has a set of consequences for all facets in Ukraine;
- European integration consequences form both opportunities and threats to domestic enterprises;
- overcoming or neutralization of threats to the economic security of domestic enterprises as a result of European integration opens up new opportunities for them, strengthens their positions (including in the markets), and the realization of threats, on the contrary, weakens them;
- European integration processes for the economy of Ukraine can develop according to provided interrelated scenarios that are evaluated according to the proposed criteria;
- consequences of implementation, which can influence the economic security of Ukraine, are determined for each of the presented scenarios of changes to the national economy as a result of the influence of European integration processes.

The practice of the EU-Ukraine cooperation in the field of justice testifies about the inconsistency, delay in government legislative harmonization measures. That is why it is necessary to combine the efforts of the Centre for Democratization of Society (public organization) and the Ministry of Foreign Affairs of Ukraine during the implementation of the project "Assistance to Executive Authorities of Ukraine in the Implementation of the Strategy of Ukraine's Integration into the European Union." Support on the side of the EU provides for two components – the counselling assistance on issues of planning and the transformation of the legal and institutional framework, which is the basis of the civil service, in order to improve activities of government structures, increase their capacity and professional level. It is necessary to reform administrative structures and mechanisms of their activity, determine political responsibility and administrative capacity of authorities to ensure the implementation and enforcement of cooperation agreements with the EU.

We consider that difficulties in the process of adaptation of domestic legal environment to the EU legal framework to a great extent appear due to the extra-low level of legal consciousness of society, first of all, its political and economic management that, in its turn, is influenced by the lack of sustainable, organizational, and legally provided concept of legal protection of the population.

Results of the analysis of implementation of each scenario of changes to the national economy as a result of influence of European integration processes are of interest both in the context of determining prospects of the domestic economy when switching from one

scenario to another, and in the view of providing economic security of domestic enterprises according to the results of identification of fairly actualized scenario.

Further research directions are based on possibilities to develop a strategic map of Ukraine's development scenarios in the context of European integration.

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# PRINCIPLES OF STATE FINANCIAL CONTROL OF UKRAINE IN THE CONDITIONS OF EUROPEAN INTEGRATION

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**Abstract.** *The purpose* of the study is an improvement of principles of state financial control of Ukraine taking into account European advanced experience. *The subject* of the research is a comparative analysis of financial control principles and principles of state financial control of Ukraine with the international principles of financial control, envisaged at the international level, and the establishment of the expediency of their implementation in the national legislation in connection with the terms of European integration. *The methodological* background of the research is the combination of theoretical and scientific methods: analysis, synthesis and comparison, theoretical and logical generalization. The theoretical approaches are analysed according to the determination of concept-category of terms: "principle of financial control," "principle of state financial control." Existed principles of financial control, principles of state financial control of Ukraine, leading principles of financial control, what determined in Lima Declarations of Guidance on Auditing Precepts, general principles of supreme bodies of financial control activity that are envisaged in Declaration about general principles of supreme bodies of financial control activity of states-participants of CIS are investigated. Carrying out the analysis of financial control principles, principles of state financial control of Ukraine, and international principles of financial control, we reached a conclusion that basic principles (principles of legality, independence, objectivity, impartiality, publicity, neutrality) are already normatively envisaged. There is the part of international principles (principle of competence, publicity, efficiency, well-proven, observance of professional ethics, violation prevention, obligatory of responsibility offensive for the accomplished violations of financial discipline) that doesn't have the normative consolidation in laws and regulations of Ukraine. International principles of financial control are partly marked in the scientific literature of Ukraine, but it not enough in order that they become leading ideas, the fundamental basis of the financial control system development of European standard in Ukraine. *Conclusions.* It is suggested to improve the statutory provision of state financial control: to manage further development of conceptual bases of the system of state financial control principles, their classification; in branch legislation, to specify principles of state financial control in accordance with their kinds; to complement the Law of Ukraine "On Basic Principles of State Financial Control Realization in Ukraine." The list of realization principles of state financial control in Ukraine that will become one of the meaningful steps on the way of European integration of Ukraine to the European Union is envisaged.

**Key words:** control, financial control, state financial control, principles of financial control, principles of state financial control.

**JEL Classification:** G28, G29

## 1. Introduction

The current economic relations development in Ukraine, the improvement of management processes requires scientific analysis of transformations, understanding and recognizing of the organizational

and economic mechanisms used by the state during its core functions.

Significant violations of budget legislation and inefficient use of budget resources by the state authorities and bodies of local self-government, shadow economy,

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macroeconomic instability, poor business climate, low productivity and international competitiveness, lack of investments are priority problems that hinder the country's economic growth.

To overcome these problems, the Government of Ukraine should follow a Single Concept in its work. The initial step in the system work of the Government was the development and approval of the Government's Priority Action Plan for 2016, aimed at ensuring an increase in the standard of citizens life and, as a result, the sustainable economic development of society (Order of the Cabinet of Ministers of Ukraine, 2016).

Subsequently, Government's Priority Action Plan for 2017 was approved. The reform of the public finance management system has been initiated, which will help to prevent a crisis in the future. Ukraine's Cabinet of Ministers approved a public administration reform strategy for 2016-2020 and the plan of its implementation. The strategy envisages short-term and long-term tasks. The concept determines the field for reforming public administration and the key principles of the reform. The concept has been approved by the European Union (EU). The EU is ready to provide assistance to Ukraine in its implementation.

The document touches only the issues of operation of central executive power branch and local public administrations in part of civil service. It does not touch local self-government agencies. The strategy foresees the necessity of its regular revision, taking into account the results of its implementation.

Improving the well-being of citizens has become the main goal of the Government. The minimum wage has been increased by 16.1 percent since January 2016. From January 1, 2017, the minimum wage has been increased twice.

In the Medium-Term perspective to implement priority to reform and the creation of an efficient and high-quality system of public financial control activities planned, including the:

- carrying out tasks, defined in the Strategy for system reforming of public finance management for 2017-2020 years, approved by the Regulation of the Cabinet of Ministers of Ukraine on February 8, 2017 No. 142 on the public financial control and achieving results on tasks implementation;
- approving and implementation by the SAS of the Concept of the state policy realization in the sphere of system reforming of public financial control till 2021, which is on the development stage now;
- development of the legal framework and methodological support of the public financial audit by harmonization with international standards (the Institute of Internal Auditors (IIA), the International Federation of Accountants (IFAC), INTOSAI) and methodology, and EU best practice of audit in the sphere of public finances;
- modernization and improvement of the efficiency and effectiveness of activities of public financial control

authorities, implementation of audit results and receiving of economic effect;

- introducing a mechanism of accountability of public authorities for the legality and effectiveness of their activities and decision making;
- clear division of functions and powers between the state financial control authorities;
- definition and normalization of a list and a mechanism of administrative services providing by the SAS for public and local authorities and economic agencies;
- improvement of information support of state financial control system by creating a common information and analytical base of the state financial control;
- strengthening of human resource capacity of state financial control authorities and an effective model of qualified personnel development and training in the sphere of the state financial control.

Achieving goals of the Medium-Term plan priorities for the Government until 2020 are the development of the system governance, which is able to launch systematic reforms in Ukraine with all democratic principles, the rule of law, protection of property rights and gender equality, inclusiveness and collaboration, is one of the base assumptions of success of Ukraine. The structure and the system of public administration work have to provide timely public services with the economical use of public resources and with the transparent and accountable way by citizens, saving of public services and welfare for people of ecological clean and the varied world around. The quality of public services indicates the level of respect of the State to the rights and dignity of every person.

The Government will ensure effective and transparent use of public finances and implements the budget planning for the medium term in the context of major spending agencies at the level of the state budget to improve the efficiency and quality of public services.

The Ukrainian Government continues to be committed to European values and takes the necessary steps to further ensure the integration of Ukraine into the European political, economic, and legal space.

Medium-Term planning of consistent and complex reforms, in particular, defined by the Action Program of the Cabinet of Ministers of Ukraine, the Strategy for Sustainable Development "Ukraine-2020", the Public Administration Reform Strategy for 2016-2020, the Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other hand, the Memorandum of Cooperation between Ukraine and the International Monetary Fund (IMF), the Coalition Agreement and the Legislative Reform Plan, is the basis of sustainable economic growth, the achievement of European standards of citizens' life.

Providing for the effective state financial control of public and local authorities' activity during the management

and usage of budget resources, the state financial control targeting increasing the level of efficient, legal, targeted, rational, resulted usage and saving financial resources of the State, fixed and other assets, achieving the growth of budget funds economy by its executors and recipients, eliminating violations, drawbacks and preventing them in the process of its activity, increasing of managers responsibilities of the public sector for effective activity.

The state can function and develop properly only with a well-organized system of control over the production, distribution, and redistribution of the social product and other spheres of public life in the state.

In order to organize in the state a system of state financial control of the European model, it is necessary to make all transformations, starting with the principles, the basic fundamental provisions that will be the main benchmark for such changes.

Therefore, the subject of our study will be a comparative analysis of the principles of financial control and principles of the state financial control of Ukraine with the international principles of financial control, enshrined at the international level, their implementation in national legislation in connection with European integration.

## 2. Analysis of recent research studies and publications

Today scientists are interested in the problem of principles of state financial control. There is a significant number of scientific works, in which the concept, content of the principles of financial control as a type of activity is examined. Also in the Ukrainian scientific literature, the international experience of forming models of state financial control and the possibility of implementing these models in Ukraine are actively studied. Among such scientists are N. Barabash, V. Baranovska, A. Butko, L. Gutsalenko, M. Nykonovych, L. Savchenko, O. Orlyuk, M. Tulupova, O. Vasylyk, Yu. Voloshyn, L. Voronova, and others.

But despite this, in the legal literature, there is no comprehensive study devoted to this issue. The discovery and coverage of the principles of branches, sub-sectors, and institutes of law are hampered by the weak general theoretical development of the problem, but it must be said that the general theory of law is not able to independently study the basic principles of law without relying on the generalization of branch legal sciences.

## 3. Presentation of the main material of the study

### 3.1. Theoretical and applied content of the financial control

At the present stage of development of a market economy, the control function of finance has become particularly relevant, due to a certain specificity of

this activity and allows actively influencing economic processes in the state.

An important part of the management system that guarantees quality and ensures an effective implementation of governmental activity is control.

The essence of the control is the implementation of purposeful influence on the objects of management, which provides for systematic supervision, monitoring their activities to detect deviations from the established norms, rules, requirements or tasks in the process of their implementation (Gutsalenko et al., 2017: 5-6).

Control as a type of relationship is the attitude of the subject to their own activities or the activities of other subjects in terms of a compliance with certain rules. Control may be state and public and be used in various structures, including nongovernmental ones.

Having considered the definition of control and its essence, let us turn to the definition of financial control since financial control is an integral part of the financial activity of the states. The state financial control has a special place in the system of the state control.

Financial control is a special sphere of state control related to the activities of financial institutions to detect violations of law, financial discipline and expediency in the formation, distribution, and use of state and municipal monetary funds (Voronova et al., 2009: 94).

Financial control is an element of the financial management system, a special sphere of cost control over the financial activities of all economic subjects (state, regions, enterprises, and organizations), compliance with financial and economic legislation, expediency costs, economic efficiency of financial and business operations (Vasylyk, 2000: 401).

Financial control is a complex and purposeful financial and legal activity of the financial control bodies or their subdivisions or representatives, as well as persons authorized to exercise control based on the provisions of the acts of the current legislation. It consists in establishing the actual state of affairs at the controlled object for its financial and economic activity and is aimed at ensuring legality, financial discipline, and rationality in the course of the formation, distribution, ownership, use, and alienation of assets for the purpose of effective social and economic development of all subjects of financial legal relations (Gutsalenko et al., 2017: 6).

Consequently, after considering these three definitions of financial control, we can conclude that during such a control the state interests are satisfied, which consist of the successful implementation of the state financial policy, the effective use of the financial resources of the state.

Financial control over its economic essence is a management function that includes a set of observations, inspections on the management object activity in order to assess the reasonableness and efficiency of decision-making and results of their implementation. In general, financial control is a universal phenomenon.

Its universality is its use in various spheres of social life, namely: scientific, political, social, economic, etc. The essence of financial control is disclosed through the relationship between the use and operation of finance. Financial control is applied there and when the finances are operating. Finance is a collection of forms and methods for the formation, distribution, and use of centralized and decentralized funds in order to fulfil functions and tasks of the state, enterprises, and people to ensure conditions for expanded reproduction, meeting the social and other needs of society (Vasylyk, 2000: 402).

The effectiveness of the work of executive authorities and local self-government in the state depends on the control over the implementation of laws, decisions, orders, and the proper organization of their implementation. Systemic and comprehensive control contributes to ensuring the scientific validity of decisions, regulations, and other statutory documents, their timely implementation. It is a prerequisite for the detection and elimination of defects in the objects of management activities and the reasons that give rise to them. Control disciplines employees of the management apparatus, makes it possible to objectively assess the level of their competence and compliance, promotes the spread of the positive practice of the work (Gutsalenko et al., 2017: 5).

Legal science and current legislation contain a number of fundamental principles for the implementation of financial control. The observance of these principles allows the financial control bodies to fully exercise their powers. We will start analysing the principles of financial control starting from generic principles that have become the foundation (basis) for implementing these principles in general.

State financial control is a kind of financial control carried out by the relevant state financial control bodies. It consists in establishing the actual state of affairs in observance of requirements of the current legislation at the controlled object, aimed at ensuring the legality, financial discipline, and rationality during the formation, distribution, possession, use, and alienation of assets owned by the state, as well as the use of funds that remaining in the subject of financial legal relations in connection with granted privileges for payments to the budgets, state extra-budgetary funds and loans received under the guarantees of the Cabinet of Ministers of Ukraine (Gutsalenko et al., 2017: 6).

The development of modern state financial control is based on a hierarchically structured system of principles. Principles of state financial control are the basic, fundamental ideas of regulation of financial and legal relations in the implementation of state financial control sphere and ensure the unity of the normative content of this section of financial law, on the one hand, they are the factors determining the directions of its internal development, and on the other hand, they are the tools to overcome various contradictions and collisions.

### 3.2. Principles of financial control in Ukraine

There are three main forms of financial control: preventive control, operational control, retrospective control. Operational control is performed during the financial and economic operations, retrospective control – respectively after the reporting period. But the most important one is preventive control, which is performed until financial transactions. The assessment of the validity of programs and financial forecasts, financial plans based on the analysis of macroeconomic indicators of the state economy are carried out. It is performed to prevent the violation of laws, rational use of financial resources.

According to the Law of Ukraine “On Basic Principles of Implementation of State Financial Control in Ukraine,” the main tasks of body of the state financial control are: implementation of the state financial control of use and safety of the state financial resources, non-current and other assets, correctness of determination of need for budgetary funds and capture of obligations, effective use of means and property, condition and reliability of financial accounting and the financial reporting in the ministries and other executive bodies, the state funds, funds of obligatory national social insurance, budgetary institutions and subjects of managing of public sector of economy, and also at the companies, in organizations and the organizations, which receive (received in the period which is checked) means from budgets of all levels, the state funds and funds of obligatory national social insurance or use (used in the period which is checked) the state-owned or municipal property (further - under control organizations), behind observance of the budget legislation, compliance with law about public procurements, activities of business entities irrespective of pattern of ownership, which are not carried by the legislation under control organizations, by a court decision, accepted in criminal proceedings.

State financial control is provided with a body of the state financial control through carrying out the state financial audit, check of public procurements, and inspection.

The procedure for carrying out by the body of the state financial control of the state financial audit, inspection, and checks of public procurements is established by the Cabinet of Ministers of Ukraine (Law of Ukraine ).

According to Article 3 of this Law of Ukraine, the state financial audit is a kind of the state financial control and consists in check and the analysis by body of the state financial control of actual state of cases of rather legal and effective use of the public or municipal funds and property, other assets of the state, correctness of conducting financial accounting and reliability of the financial reporting, functioning of internal control system. Results of the state financial audit and their assessment are stated in the report.

In the opinion of V. Baranovska, the main directions of state financial control are the social relations that

arise, change, and cease in the public financial activity sphere, namely:

- verification of performance of functions of accumulation, distribution, and use of financial resources by state authorities and local self-government in accordance with their competence;
- verification of fulfilment of financial obligations to the state and local self-government bodies, organizations, and citizens;
- checking the correct use of state and municipal enterprises, institutions, organizations of monetary resources, which are in economic management or operational management (budget and own funds, bank loans, extra-budgetary and other funds);
- verification of compliance with rules of financial transactions, calculations and storage of funds by enterprises, organizations, institutions;
- identification of internal reserves of production - opportunities for improving the profitability of the economy, the growth of labour productivity, more efficient use of material and money resources;
- elimination and prevention of violations of financial discipline. In case of their detection in the established procedure, the measures of action against organizations, officials, and citizens are used; the compensation for material damage to the state, organizations, citizens is provided (Baranovska, 2012: 65).

In the process of state financial control, the bodies that carry it out must be guided by the basic principles. In particular, the principles reflect the legality of social development, the needs of this society. This is their social conditionality, dependence on real-life conditions. The study of the system of state financial control principles, as well as their use in law enforcement practice, is a prerequisite for building an effective system of financial control.

The study of the principles of state financial control we begin with the fundamental category of "principles of law." This category is one of the main in the theory of law. Principles of law are also important for the study of branch legal sciences, including financial and legal.

First of all, in the context of this problem, we should pay attention to the general concept of the principle of law in order to formulate the concept of principles of state financial control.

The term "principle" is defined as the basic principles, original ideas characterized by universality, general significance, higher imperative, and reflect the essential provisions of theory, doctrine, science, systems of domestic and international law, political, state or public organization. These principles have a property of abstract reflection of the social activity laws, which determines their special role in the structure of many phenomena (Voloshyn, 2003: 110-111).

M. Tulupova determines the principle of law as an abstract expression of the meaning of some legal norms existing in the form of an idea and expressed in the form

of a rule of law, which allows the separation of legal norms from those that conflict with the law. So, we can determine the principles of the state financial control implementation (Tulupova, 2007: 49).

The principle of state financial control is the fundamental and guiding ideas expressed in the form of legal provisions that determine the content of the regulation of state financial control, in many cases, serve as the highest criterion for the legality of the behaviour of participants in legal relations in the field of public financial control, legal rules of state financial control.

The principles that are the basis of state financial control can be defined as theoretically substantiated and normatively fixed principles of the very beginning of the essence of state financial control. These principles are its main content, determine the general direction of legal regulation of the state and municipal entities in the state financial control sphere and direct activities to achieve its goals and objectives.

The principles of state financial control are not isolated from each other; they are integrated into the system.

As can be seen from the above (the formal certainty), we can identify: the principles enshrined directly in the rules of law (e.g. the principle of independence of control); the principles arising from the content of legal norms, but directly to them is not fixed (e.g. the principle of the unity of the purpose and objectives of the financial control) (Butynets, 2000: 97).

On the nature of legal relations falling within the scope of the principle, the financial control principles can be divided into legal ("regulatory", e.g. the implementation procedure of the financial control, namely: legality, transparency, independence, etc.), "economic" (an economic component in their content, e.g. the principle of budget efficiency, the principle of the financial importance of the object of control taking into account economic indicators in the control), and "organizational and methodical" (determine the organization and activities of the financial control subjects).

In addition, depending on the ways of external expression of the principles in those or other formal legal sources the principles can be enshrined in international legal acts and treaties, the Constitutions, legislation, regulations (Butko & Marchenko, 2013: 129-130).

State financial control as an integral part of the financial activity has the same principles of its implementation: legality, transparency, planning, as well as relevant specific principles: independence of control, objectivity, and competence, etc. (Butko & Marchenko, 2013: 130-134).

According to the sphere of action, the legal principles are divided into the principles that are inherent: in law in general (general law); in a group of related sectors (intersectoral); separate branches or institutes of law (Semenov, 1982: 28).

So, the principles of state financial control of Ukraine are classified according to the following criteria:

- the legislative consolidation - the legal and doctrinal principles;
- the nature of legal relations - legal, economic and organizational and methodical principles;
- depending on the ways of external expression, the principles may be enshrined in international legal acts and treaties, the Constitution, legislation, by-laws;
- in the sphere of action - general law, intersectoral, sectoral principles.

It is worth noting that in legal opinion, there are different approaches to the classification of the principles of law, their conjunction with those or other social phenomena but, as a rule, in one issue there is unity of opinions - legal principles are interpreted as “thought-starter”, “outgoing”, “governing” ideas underlying the law.

As a part of this study, we must consider the question: “What is the system of principles inherent in state financial control and their role in regulating relations in this area?”

Scientists make some attempts to formulate the system of financial control principles, but at present, there is no consistent approach to the definition of the system of financial control principles.

From the point of view of O. Orlyuk, the fundamental principles of financial control are:

- legality, objectivity, pooling of state, regional and private interests;
- distribution of control powers, in particular, sharing of powers of initiation and implementation of financial control between subjects;
- fullness of detail of the object by the control, which is achieved through continuous tracking or selective verification of certain segments of controlled objects;
- the authenticity of information that ensures its compliance with the actual financial resources, processes and results of the activity, which reflects this information;
- balance of control actions provides for the coherence of their internal and external orientation and ensures a balance of financial control;
- preventive control actions, aid in the timely implementation of controls to prevent significant deviations of the financial process from the norms;
- self-sufficiency of the control system, i.e. such elements of the control system, which ensures the efficiency of its operation and development;
- efficiency, i.e. adaptability of the control system to the financial activity of economic entities, which depends on the completeness of the implementation by the controlling entities of such basic requirements:
- control should be constant, regular, and systematic;
- to be timely in terms of implementation, qualitative and complete in relation to its objects;
- to be operating, effective, public and different;
- the principle of responsibility, i.e. the responsibility of control subjects for the effectiveness of the functioning

of the financial control system and economic entities for the effects of control actions (Orlyuk, 2010:149-150).

In the opinion of O. Vasylyk, the principles of financial control include:

- independence of financial control as an integral attribute of democracy and a mandatory element of financial resources management;
- legislative consolidation of the independence of financial control bodies;
- determination of the necessity of the preliminary control and control over actual results;
- internal and external control as an obligatory condition of financial control;
- transparency of controlling bodies with the obligatory requirement of observance of commercial and other secrets protected by law (Vasylyk, 2000: 343).

L. Savchenko offers such a list of principles of financial control: the principle of legality, planning principle, objectivity concept, independence principle, transparency principle, the principle of competency, operational principle. The principles of publicity and transparency principle are distinguished by the author. The transparency is the compulsory passing of the financial documents, conclusions about the activities of the relevant control bodies through the representative bodies, the principle of publicity is defined as the promulgation of results of the activities of financial control bodies to the public (Savchenko, 2002: 13).

Having considered the principles of financial control, let us examine the principles of state financial control. State financial control is a type of financial control, so they have common principles.

L. Gutsalenko and his co-authors examine such principles of state financial control: principles of management and principles of implementation.

Principles of management of state financial control are:

- delimitation of the place, role, tasks, and functions of the bodies of state financial control in accordance with the competence of the legislative and executive power according to the Constitution and legislation of Ukraine;
- functional, organizational, personal, and financial independence of state financial control bodies and their officials from controlled objects;
- coordination of activities of state financial control bodies by way of eliminating duplication in their work and ensuring a single system of state financial control at all levels of government.

The main principles of the implementation of state financial control are: law, liability, strategic orientation, impartiality, comprehensiveness, systematicity, planning, regularity (timeliness), concreteness, profitability, transparency (under observance of official, commercial and other secrets protected by law), efficiency (Gutsalenko et al., 2017: 9].

In view of the foregoing, we can draw a conclusion



that each element of state financial control has its own drawbacks and is far from being perfect. State financial control system exists as a combination of separated units and does not operate as a united system. State financial control system does not meet European requirements for a number of reasons, such as the prevalence of follow-up control over the previous and current. State financial control system is not based on thorough theoretical foundation. Most of the key concepts are even enshrined in law that hinders the development of such control and creates difficulties for further reforms. The current direction of Ukraine's development is aimed at strengthening the state's role in state financial management and reducing the overuse in the public sector. The system of state financial control, obviously, has a very strong structure, but the leading role is held by the State Financial Inspection of Ukraine, which controls the legitimacy, effectiveness, and proper use of public resources, and accuracy of accounting records and the reliability of financial reporting spending units.

### 3.3. Comparative analysis of the principles of financial control of Ukraine and the guidelines of financial control of the European Union

Having considered the principles of financial control and the principles of state financial control, we consider examining the financial control guidelines of the Lima Declaration of Guidelines on Auditing Precepts. Lima Declaration was the first INTOSAI document to comprehensively set out the importance of SAIs' independence. It reminded INTOSAI members that SAIs can only be objective and effective if they are independent from the audited entity and are protected from outside influence.

The International Organization of Supreme Audit Institutions (INTOSAI) is a professional organization providing an institutionalized forum for the SAIs from around the world to promote development and knowledge transfer, to discuss specific issues of mutual interest, to increase the added-value of the audits, to disseminate the latest developments in auditing and other applicable professional standards and best practices. INTOSAI recognizes that its strength lies in cooperation, experiences, special capacities and knowledge deriving from the cultural, social, economic, and governmental diversity of its global membership. At present, INTOSAI has 194 Full Members, 5 Associate Members and 1 Affiliate Member (The Lima Declaration, 1977 ).

Meeting in the United Arab Emirates in December 2016 at its Congress (XXII INCOSAI), the International Organisation of Supreme Audit Institutions (INTOSAI) agreed the Abu Dhabi Declaration. The XXII INCOSAI builds on INTOSAI's past achievements and initiatives, which aim at enabling SAIs to help their respective governments to improve performance, enhance transparency, ensure accountability and fight

corruption. The declaration sets out the key outcomes of the Congress and how they will guide INTOSAI in the years to come.

The Abu Dhabi Declaration was developed within the following context:

Firstly, INTOSAI's comprehensive strategic planning process, which resulted in a new strategic plan for 2017-2022, aiming to increase the contribution SAIs make to improving accountability and transparency in public management around the globe;

Secondly, INTOSAI's revision of the statutes to align them more closely with the current structure, strategy, and objectives in order to help it better meet the needs of its members and stakeholders;

Thirdly, the endorsement by the UN of the 17 Sustainable Development Goals (SDGs) at the heart of the 2030 Agenda for Sustainable Development, which are in forces the need and demand for effective public audit and scrutiny and the action already taken by INTOSAI entities relating to auditing the implementation of the SDGs;

Fourthly, the establishment by the Knowledge Sharing Committee of a Community Portal to facilitate the sharing of knowledge; and

Finally, the adoption by INTOSAI of the new framework for professional pronouncements as a part of the ongoing efforts to improve INTOSAI's standards and standard-setting process, as well as all the ISSAIs and other INTOSAI professional pronouncements endorsed to date.

Founding principles of Public Sector Auditing refer to the following:

- purpose and types of audits;
- independence of SAIs and its members;
- relationship to Parliament, government, and administration;
- powers of SAIs;
- audit methods, audit staff, international exchange of experiences;
- reporting;
- audit powers of SAIs (The Abu Dhabi Declaration, 2016 ).

The declaration contains a comprehensive list of all goals and issues relating to government auditing, while simultaneously remaining remarkably significant and concise, making it easy to use with its clear language ensuring that focus does not wander away from the main elements.

The chief aim is to call for independent government auditing. A Supreme Audit Institution, which cannot live up to this demand, does not come up to standard.

Rule of law and democracy are essential premises for really independent government auditing and are the pillars, on which the Declaration of Lima is founded.

The precepts contained in the Declaration are timeless and essential values, which have maintained their topicality since the years they were first adopted.

To sum up, the declaration points out basics for audits and audit institutions, which are necessary for achieving independent and objective results.

The success of the Lima Declaration is above all due to the fact that it contains a comprehensive list of all goals and issues relating to government auditing, while simultaneously remaining remarkably significant and concise, making it easy to use, with its clear language ensuring that focus does not wander away from the main elements.

The chief aim of the Lima Declaration is to call for independent government auditing. The Supreme Audit Institution, which cannot live up to this demand, does not come up to standard. It is not surprising, therefore, that the issue of the independence of Supreme Audit Institutions continues to be a theme repeatedly discussed within the INTOSAI community. However, the demands of the Lima Declaration are not satisfied by SAI just achieving independence; this independence is also required to be anchored in the legislation. For this, however, well-functioning institutions of legal security must exist, and these are only to be found in a democracy based on the rule of law. Rule of law and democracy are, therefore, essential premises for really independent government auditing and are the pillars, on which the Declaration of Lima is founded.

The traditional task of Supreme Audit Institutions is to audit the legality and regularity of financial management and of accounting.

In addition to this type of audit, which retains its significance, there is another equally important type of audit – performance audit, which is oriented towards examining the performance, economy, efficiency and effectiveness of public administration. Performance audit covers not only specific financial operations but the full range of government activity including both organisational and administrative systems.

The Supreme Audit Institution's audit objectives - legality, regularity, economy, efficiency and effectiveness of financial management - basically are of equal importance. However, it is for each Supreme Audit Institution to determine its priorities on a case-by-case basis (The Lima Declaration, 1977).

Considering the principles of state financial control some authors hanker that: "Appeal to experience the world community has developed the main principles of state financial control, the realization of which every modern civilized hanker. These principles are in the Lima Declaration (Supreme Audit Institutions): objectivity principle, independence principle, the principle of competency and principle of publicity" (Barabash & Nykonovych, 2015: 46).

The next document, which establishes the general principles of activities of the Supreme bodies of financial control, is the Declaration on the general principles of activities of the Supreme Audit Institutions of the

Member States of the Commonwealth of Independent States (Declaration, 2001).

According to the Declaration on the general principles of activities of the Supreme Audit Institutions of the Member States of the Commonwealth of Independent States, the activities of the supreme bodies of financial control are based on the following principles: principle of legality, independence principle, objectivity principle, principle of competency, operational principle, evidence-based approach, transparency principle, professional ethics principle.

It is worth noting that five principles of the Lima Declaration and five controlling principles of the Declaration on the general principles of activities of the Supreme Audit Institutions of the Member States of the Commonwealth of Independent States are the same principles, they are: principle of legality, independence principle, objectivity principle, principle of competency, transparency principle. All other principles are different.

The guidelines for financial control of the Lima Declaration (principle of publicity, principle of efficiency, principle of preventing violations, principle of compulsory liability for committing a violation of financial discipline) are not enshrined in the Declaration on the general principles of activities of the Supreme Audit Institutions of the Member States of the Commonwealth of Independent States. But in the Declaration on the general principles of activities of the Supreme Audit Institutions of the Member States of the Commonwealth of Independent States, there are several distinctive principles: operational principle, evidence-based approach, professional ethics principle.

Above analysis of these principles, we can examine and compare the Lima Declaration principles and the principles of Declaration on the general principles of activities of the Supreme Audit Institutions of the Member States of the Commonwealth of Independent States with the principles of financial control in Ukraine in general and also the principles of state financial control: principle of legality, independence principle, objectivity principle, principle of efficiency, evidence-based approach, principle of competency, principle of publicity, professional ethics principle, operational principle, transparency principle, principle of preventing violations, principle of compulsory liability for committing a violation of financial discipline.

So we have examined the Lima Declaration principles and the principles of Declaration on the general principles of activities of the Supreme Audit Institutions of the Member States of the Commonwealth of Independent States.

Let us start our comparative analysis of the principles that O. Orlyuk determined as the fundamental principles of financial control. Among these principles, only four international principles are in the author's list: the principle of legality, objectivity principle, the principle of efficiency, the principle of responsibility.

Among the principles of financial control, which were defined by V. Vasylyk, there are two international principles of financial control - independence principle and transparency principle.

L. Savchenko among the principles of financial control determines the following international principles: the principle of legality, objectivity principle, independence principle, the principle of efficiency, the principle of publicity, and transparency principle.

L. Gutsalenko and his co-authors determine such three principles of state financial control: principle of legality, sure thing principle, and transparency principle.

In view of the foregoing, we can conclude that the Lima Declaration principle of preventing violations and principle of efficiency, evidence-based approach, professional ethics principle, which are enshrined in the Declaration on the general principles of the activities of the Supreme Audit Institutions of the Member States of the Commonwealth of Independent States, are not among the principles of financial control determined by these scientists.

The competence of financial control bodies, e.g. the Accounting Chamber, the State Audit Service of Ukraine, the State Fiscal Service of Ukraine and others, is detection of violations of financial discipline, measures for the prevention of violations in the financial sphere, so the principles of their activities have to be coordinated with the Lima Declaration principles and the principles, which are enshrined in the Declaration on the general principles of the activities of the Supreme Audit Institutions of the Member States of the Commonwealth of Independent States.

It is worth examining in more detail the competence of financial control bodies. Article 3 of the Law of Ukraine "On Accounting Chamber" No. 576-VIII dated 02 July 2015 regulates the principles of the Accounting Chamber activities and the guarantees of its independence: the principles of legality, independence, objectivity, fairness, publicity, and political impartiality. The independence of the Accounting Chamber is provided by: 1) established by the Constitution of Ukraine and this Law order of appointment and dismissal of members of the Accounting Chamber; 2) determined by this Law and other laws of Ukraine guarantees of the Accounting Chamber activities; 3) special order organizational support of the Accounting Chamber activities established by law. The Accounting Chamber in the exercise of its authority is independent of any improper influence, pressure or interference. Unlawful interference with the exercise by the Accounting Chamber of powers granted by law is prohibited and shall entail liability established by the law. The Accounting Chamber uses in its work the basic principles of the International Organization of Supreme Audit Institutions (INTOSAI), the European Organization of Supreme Audit Institutions (EUROSAI), and International Standards of Supreme

Audit Institutions (ISSAI) to the extent that is not contrary to the Constitution and the laws of Ukraine (Law of Ukraine, 2015).

Having made a comparative analysis of the international financial control principles with the principles of financial control of Ukraine, which are directly enshrined in the national legislation, we have established that the Law of Ukraine "On Accounting Chamber", with the amendments and additions, establishes four main international principles (the principles of legality, independence, objectivity). As for the principles of fairness, publicity, they are not fixed at the international level, they are purely Ukrainian property.

An analysis of the Regulations "On State Audit Service of Ukraine" (the Resolution of the Cabinet of Ministers of Ukraine, 2016), "On State Fiscal Service of Ukraine" (the Resolution of the Cabinet of Ministers of Ukraine, 2016), and the Law of Ukraine "On Basic Principles of Implementation of State Financial Control in Ukraine" (with the amendments and additions) (the Law of Ukraine, 1993) made it possible to conclude that none of these laws and regulations directly consolidate principles of financial control.

#### 4. Conclusion

The analysis shows the need to improve a state financial control. A lot of problems should be solved but, according to the results of state financial control practice during the last years, it has lost its effectiveness. For improving the current state financial control system, the specialists have taken a series of statutory documents. The most important judicial issue is to provide the Accounting Chamber of Ukraine to represent the State in legal proceedings and to fulfil the preventive functions. In the developed countries, financial control is a part of the state regulation in order to detect deviations from the regulations and violations of the principles of legality and efficiency.

So, the subjects of state financial control include a lot of regulatory authorities. It should be noted that there is a significant intersection of their functions. The indicated problem has been realized by a majority of lawmakers, but yet not completely eliminated. At present, all subjects of state financial control have almost identical powers, which are purely external.

The objects of state financial control are public and municipal services. Nowadays state financial control methods used in the practice of regulatory authorities are totally agreed with the key purpose of control measures – identifying violations and punishment of persons committed them. The main drawback of current state financial control methods is their inability to find reserves of their activity and make provisions for preventing offenses. Therefore, it is necessary to review the existing methods and improve them according to current requirements.

The state financial control forms reflect the expression of a particular subject of state financial control. Nowadays the main form is a revision. The basis for state internal financial control, performed by SFI, along with different types of control is an inspection. Such a type of control over the activities of public and municipal sectors is aimed primarily at detecting violations and punishing responsible persons but not assessing the results, achieved in public finance management. The current need to perform the inspection is due to an extremely low level of financial discipline in the public sector, the lack of internal control system, and decentralized internal audit in the public sector.

The classification of state financial control is sufficiently completed but also has many disadvantages. This is especially true for follow-up control over the previous and the current one, which is rather ineffective according to the opinion of the international community.

In Ukraine, the Accounting Chamber performs the state financial control function in a part of the monitoring of using the State Budget of Ukraine and Government financial inspection of Ukraine within its powers defined by law.

An important sign of readiness to join the EU is to establish procedures for the compensation for loss of finance. But today, Ukrainian legislation does not provide an effective mechanism for the compensation

of lost budget funds and the responsibility of officials for violations of financial discipline. Experience in other countries shows that to deal with cases of abuse by tax officials of their rights, there is a widespread practice of recovery of costs and expenses from the tax authority. The results of state financial control and audit must be based on the application of common procedures and methods, and also on sufficient evidence, which enable a state inspector or a public accountant to express logical and competent opinions.

In view of the above, it is necessary:

- to further develop conceptual foundations of the system of principles of state financial control, their classification;
- in sectoral legislation, specify the principles of state financial control according to their types;
- to amend the Law of Ukraine "On Basic Principles of Implementation of State Financial Control in Ukraine" by the article, which provide a list of principles for the implementation of state financial control in Ukraine (legality, independence, objectivity, efficiency, accountability, competence, professional ethics, transparency, publicity, prevention of violation, obligatory liability for violations of financial discipline), which will become an important step towards the European integration of Ukraine into the European Union.

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# EVOLUTION AND MODERN TENDENCIES IN THE THEORY OF LEADERSHIP

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**Abstract.** Leadership as a social phenomenon accompanies mankind throughout its existence. In different historical epochs, attempts were made to study leadership qualities on the basis of a description of the personalities of great people. As a result, the idea of leadership quickly evolved as the accumulation of theoretical and empirical material, revealing new facets of this complex phenomenon. In foreign social sciences, the theory of leadership has developed in several directions and by now a number of complementary theories and concepts have been developed, which predetermines the need to describe their continuity and development. For this reason, the *purpose* of the paper is to analyse the basic theories and concepts of leadership, as a socio-psychological phenomenon, the most significant in the context of studying the formation of the leader as an organizational leader. *Methodology.* The methodological and informational basis of the investigation is scientific articles, materials of periodicals, resources of the Internet. To achieve the goal set, the following general scientific and special methods were used: morphological analysis, system and structural-logical analysis, formalization, analogy, comparison and integration, tabular method. *Results.* As a result of the research, a brief historical overview of approaches to the study of leadership was given; the logical continuity of the basic concepts and methods of research was considered; the main current trends in leadership research in recent years were revealed. *Practical implications.* In order to realize the leadership potential, it is necessary to know what determines leadership, on what it depends. Thus, the problem of studying the phenomenon of leadership in a modern organization is relevant; the considered theories of leadership can be applied by managers depending on the level of economic development of the organization. *Value/originality.* The authors identified current trends in the theory of leadership and possibilities of their further development.

**Key words:** management, leadership, theories of leadership, leadership style, transformational leadership, transactional leadership, behavioural approach, situational approach, charisma, emotional intelligence.

**JEL Classification:** B20, M12

## 1. Introduction

Leadership is a special type of attitude towards a person, based on the recognition of his abilities to manage and those human qualities that are so necessary for the modern leader. Leadership is built on the voluntary recognition of a person's ability to understand the interests of other people and to manage them in accordance with these interests.

In the past, leadership was seen as a set of innate traits or as features of a style of behaviour. Most definitions of leadership include three components: influence,

group, and purpose. Firstly, leaders are people who influence the behaviour of others. Secondly, leadership is usually investigated in the context of groups, especially working groups. Third, the leadership study focuses on the group goal, which must be achieved. Thus, the following definition of leadership can be given: it is a process, in which a person influences other members of a group to achieve the goals of a group or organization. The true leader, capable of leading people with him, is one who acquires universal recognition among people.

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The history of leadership research dates back to ancient times. Scientists of antiquity and ancient China tried to systematize and describe the qualities inherent in the leader, unfortunately, not mastering modern scientific methodology. However, over the past centuries, the situation has changed dramatically; the scientific approach has taken the lead. More and more theories appeared, corresponding to the paradigm prevailing at one time or another. At first, it was a personal approach, from where the theory of leadership features emerged, then behaviourism took over the dominant position and then a behavioural approach emerged in leadership psychology. Further, authentic theories of leadership were created on the one hand, and attempts were made to integrate opposing approaches on the other.

Each of these approaches has scientific leadership concepts that explain this phenomenon. Let us consider the most popular of them.

## 2. Evolution of the theory of features

**The great man theory.** This group of concepts is a pre-scientific, philosophical doctrine of leadership. Various philosophers (Lao-Tzu, Confucius, Homer, Aristotle, Plato, Niccolò Machiavelli) tried to design an image of an ideal governor on the basis of notional conclusions (Oganyan, 2006). They did not use the scientific method and, obviously, they did not apply the approved psychodiagnostic techniques. In this regard, the understanding of the same feature could differ from one author to another, and lists of leadership features often contradicted each other. It is important that leadership was considered only at the level of large groups. The basic postulate of "The Great Man" theory was that it is impossible to become a leader, they can only be born.

Time passed, scientific methods of researching the personality appeared. However, this postulate remained in force. The founder of the scientific approach was F. Galton, who believed that the leading role in human behaviour, including the leader, is played by hereditary factors. The development of this idea could be seen in the works of sociologists, social psychologists and philosophers (F.A. Woods, J.G. Tarde, F. Nietzsche). A. Wiggam argued that the reproduction of leaders depends on the level of fertility among the ruling classes (Wiggam, 1931). Finally, S. Klubeck and B. Bass discovered that people who are not inclined to leadership by nature can hardly be made leaders, except to try to influence them with psychotherapy (Klubeck, 1954).

**The trait theory of leadership.** Soon serious concepts of personal traits and, respectively, the questionnaires, which allowed defining them, began to appear. Here, first of all, it is necessary to mark out R. Cattell who in 1954 have compared leaders to other members of the group; the first were ahead of the last on eight merits of the personality: moral maturity (C); domination (E);

integrity of character (G); social courage (N); insight (N); independence of harmful inclinations (O); will power (Q3); lack of excessive experiences (Q4) (Daft, 2006).

Thus, the era of allocation of leadership skills where each researcher studied the leader's figure from a position of own concept of personal traits and own questionnaire has come. Among the most modern, the concept of personal qualities "The Big Five" by Warren Norman is considered to be the most recognized.

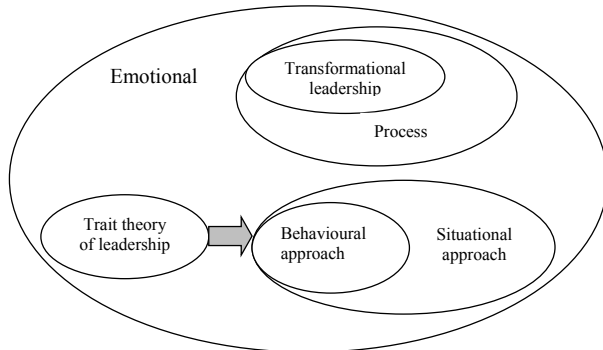
The great man theory has not reached a dead end. It got a new birth in the **theory of charismatic leadership**. Representatives of the theory of charisma insisted on one, but integral quality, which makes a person a leader – charisma. *Charisma* according to Max Weber is the quality bestowed by God. He put charismatic power in opposition to traditional and rational power. An important difference between the theory of charisma and the trait theory is the difference in the origin of leadership power. In Weber's concept, charismatic power is a magical quality bestowed from above. However, already in this concept, one can see hints of scientific understanding. So, M. Weber insisted that in order for the followers to recognize the leader's qualities in a leader, he must clearly argue his demands, prove his own skills, and demonstrate that subordination to him leads to certain results (Friedland, 1964).

**Transformational leadership.** Transformational leadership is a modern embodiment of the theory of charisma. The term "transformational leadership" has been introduced by J.V. Downton (1973) for the first time. However, this concept has already received the development at James MacGregor Burns. He understands transformational leadership as a process, in which the leader and the follower, interacting definitely, lift each other to the higher level of motivation and personal/moral development. Leaders appeal to the highest ideals and values and also accept and realize these values in practice (Bensman, Givant, 1975).

Bernard Bass, Burns's follower, investigated leadership in the context of how a transformational leader influences followers. Transformational leadership includes four main components: charisma and idealized influence; inspiring motivation; intellectual stimulation; individual approach (Avolio, Bass, 1988). Various emotions and feelings are inherent in the behaviour of the leader. In particular, for the inspiring motivation process, enthusiasm, optimism, and excitement are inherent; for idealized influence – determination, confidence and pride; for intellectual stimulation – hostility, challenge, and anger; for an individual approach – sympathy, care, and love (Connolly, 2002).

**The theory of emotional intelligence and primary leadership.** The important role of emotions in the process of transformational leadership made scientists pay attention to the concept of emotional intelligence (Fig. 1). A clear awareness of his mental processes

and, in particular, the emotional state, is required from the leader. The theory of emotional intelligence by J.D. Mayer and P. Salovey, in the aftermath developed by D. Goleman and R. Boyatzis, most clearly describes the figure of the leader in this vein.



**Fig. 1. The theory of emotional leadership as a synthesis of different approaches (Goleman, 2012)**

The emotional brain (the limbic system) is responsible, both for the demonstration of our emotions and for our memory. When memorizing, the hippocampus connects this or that sensory information with the emotional state, and when similar sensory information is subsequently presented, the emotional reaction is already recorded. On these processes, for example, human intuition and the phenomenon of bad apprehension are based. However, emotional intelligence is more than an emotional brain. So, D. Goleman singles out the following components of emotional intelligence: knowledge of oneself and one's emotions; the ability to control oneself and one's

feelings; the ability to understand the feelings and desires of others; the ability to control the feelings and desires of others. These qualities indicate the need to use the complete work of the brain and its logical part, even more so. Leaders either spontaneously experience the emotions that they show to their followers, or they easily create and demonstrate the appropriate emotions. In other words, leaders control their feelings. Followers react positively to positive emotions; there is an increase in sympathy for the leader (Brotheridge, 2006). The influence of the emotions of transformational leaders on the emotions and affective reactions of followers can be explained by emotional contamination (Newcombe, Ashkanasy, 2002).

**3. Evolution of the behavioural trend in leadership researches**

*Leadership style theories.* Behavioural theories of leadership appeared simultaneously with the occupation by behaviourism of a leading position in scientific psychology. The basic “stimulus-response” behaviourism formula also found an application in the theory of leadership. It was assumed that we can get the desired behaviour if we correctly select the stimulus that this behaviour can cause. The idea arose that there is a certain behavioural style that will make it possible to achieve the greatest results. The most popular researches in this vein were made by Kurt Lewin and Ralph White. They investigated the influence of three styles of leadership (liberal, authoritative, democratic) on the performance of the group (Table 1). It turned out that

**Table 1  
Classification of leadership styles by K. Lewin (supplemented by the authors)**

Interaction Parameters	Leadership styles		
	Authoritative	Democratic	Liberal
Methods of decision-making	Resolves all issues individually	Consults with the subordinates before making a decision	Waits for the directions from above or decisions of the meeting
Ways of bringing solutions to the performer	Orders, controls, commands	Offers, argues, affects	Asks, persuades
Allocation of responsibility	Takes or passes to subordinates	Allocates responsibility, delegates authorities	Tries to shift off any responsibility
Attitude to the initiative	Completely suppresses	Encourages, uses in the interests of the matter	Gives to subordinates
Attitude to the recruitment	Does not accept or gets rid of skilled workers	Selects business, competent workers	Is not in charge of selection
Style of communication	Keeps distance, is not communicative	Is friendly, enjoys communication	Comes into contact with subordinates only on their initiative
Nature of relations with the subordinates	Hard, dictated by the mood	Smooth manner of communication, constant self-control	Gentle, flexible
Attitude to the discipline	An adherent of formal discipline, strict schedule	A supporter of a reasonable discipline, has differentiated attitude to people	Does not require respect for formal discipline, patient to contraventions
Choice of the method of influence on subordinates	Regards punishment as the main method of stimulation, rarely encourages the elected	Uses various methods of encouragement and punishment	Uses reward more often



the authoritative style led to the greatest productivity but the relations in the group and the creativity of its participants suffered. With the democratic style, the opposite situation was observed. Liberal style showed the worst results in all parameters. The classification of K. Lewin became the basis for the creation of many new models of leadership. However, they all came down to finding intermediate options (for example, authoritative-liberal, authoritative-democratic leadership styles).

Later, based on this concept, Robert Blake and Jane Mouton proposed their “Managerial Grid” (Fig. 2) (Blake, Mouton, 1992). In their model, they claim that there is the most effective style that combines both the orientation to the result and the orientation to the relationship. This style was called team leadership.

It is worth saying that the ideal style of leadership was not found. Different styles of leadership turned out to be effective in different situations, as K. Lewin himself said.

**Motivational theories.** Motivational theory by R. Howe, B. Base understands leadership as an attempt to change the behaviour of members of the group through a change in their motivation. Abraham Maslow claimed that leadership arises in the process of transforming the desires of people into motives that depend on the environment. This idea was concretized by J. Lipman-Blumen in the concept of connective leadership, according to which the modern leader should be able

to establish connections between his motives and goals, as well as the goals and motivations of other people. Hence the emergence of many humanistic theories that considered the conflict between the motivations of the individual and the goals of the social structure, into which he enters. It is necessary to build an organization in such a way that it does not suppress the individual and, at the same time, is effective.

**Transactional leadership.** Transactional leadership was born from behavioural theories of exchange. They, in turn, are based on the theory of operant conditioning by B.F. Skinner and assume that any interaction of people is an exchange where everyone bears the benefits and costs. The first transactional theorist to talk about leadership was Peter Blau. He pointed out that leadership shows in a situation of nonequilibrium exchange. In the case when the individual has nothing to repay, he provides himself with a generalized loan. If this option is implemented purposefully, we are talking about the phenomenon of leadership. However, the theory of transactional leadership was developed in detail by E. Hollander. He understands leadership as an exchange between a leader and followers. The leader provides followers with benefits in the form of: organizing actions; clarification of the situation; coordination of efforts; attention. Followers also reward the leader with: recognition; respect; the adoption of influence (Hollander, 2009).

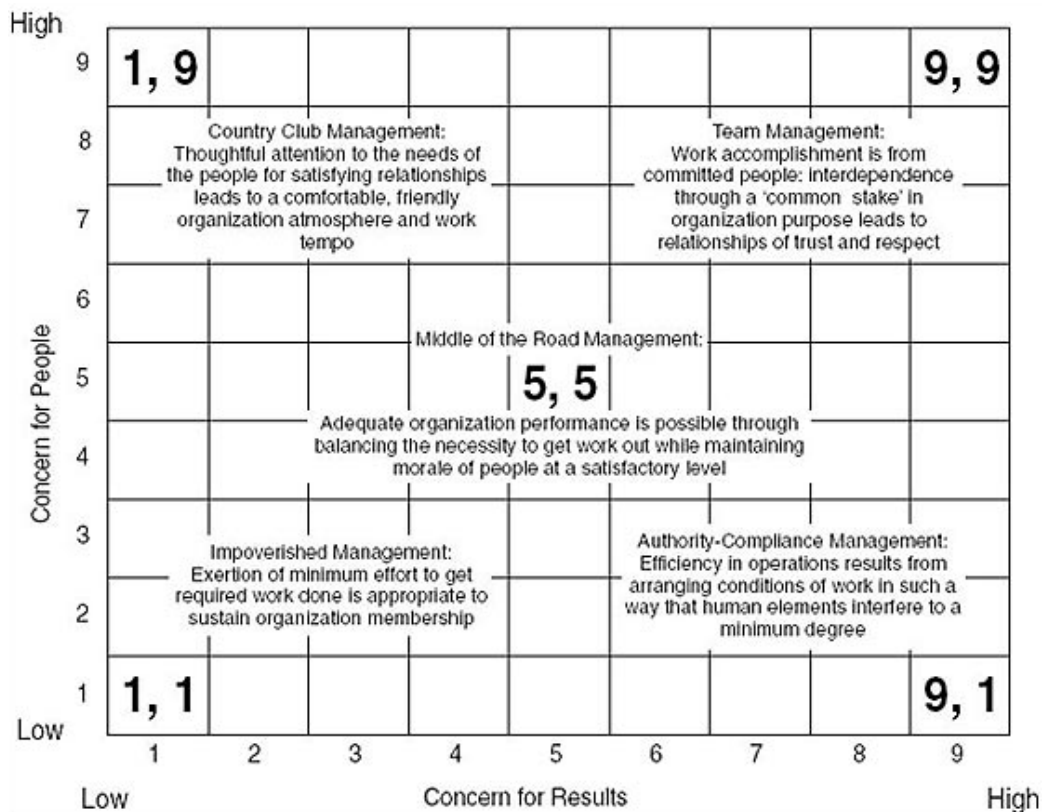


Fig. 2. Blake–Mouton Managerial Grid

#### 4. Evolution of the situational approach in leadership

**Situational theories.** These theories deny the personality in the course of leadership and direct all attention to a situation. So, Herbert Spencer specifies that it is not the person who changes time, but time creates great people (Spencer, 1841). Also, the theory of situational leadership by R. Stogdill notes that the same person can become a leader in one situation and cannot in another. The theory of “leadership substitutes” by S. Kerr and J. Jermier assumes that presence of the leader isn’t a necessary condition of productivity of group as the absence of the leader can be compensated by parameters of the situation (Pochebut, Chiker, 2000).

**Personal and situational theories.** Here at the same time both psychological traits of the leader and a condition, in which there is a leadership process, are considered. So, according to K. Keyes, leadership is a result of three factors: personal traits; features of the group and its members; group problem. A.S. Kaze

also says that leadership is generated by three factors: personal qualities of the leader, group, and situation. And, for example, the main idea of the concept of “the distributed leadership” consists that in a group it is not obligatory to have one leader. At each stage of implementation of the project by the interim leader, there is a carrier of the competence, which is the most demanded at present.

**Situational-behavioural theories.** This direction is a combination of a situational and behavioural approach. Here, the leadership behavioural styles that are effective in a given situation are determined. The first supporters of this direction in 1958 were Tannenbaum and Schmidt, who pointed out that the leadership style (authoritative or democratic) can be effective depending on three variables: the characteristics of the leader, the characteristics of the group, and situational factors (Fig. 3) (Tannenbaum, 1961). However, the most popular theory was Fred Fiedler’s theory, who distinguished three situational variables: relations, task structure and powers (Fig. 4). Efficiency is achieved

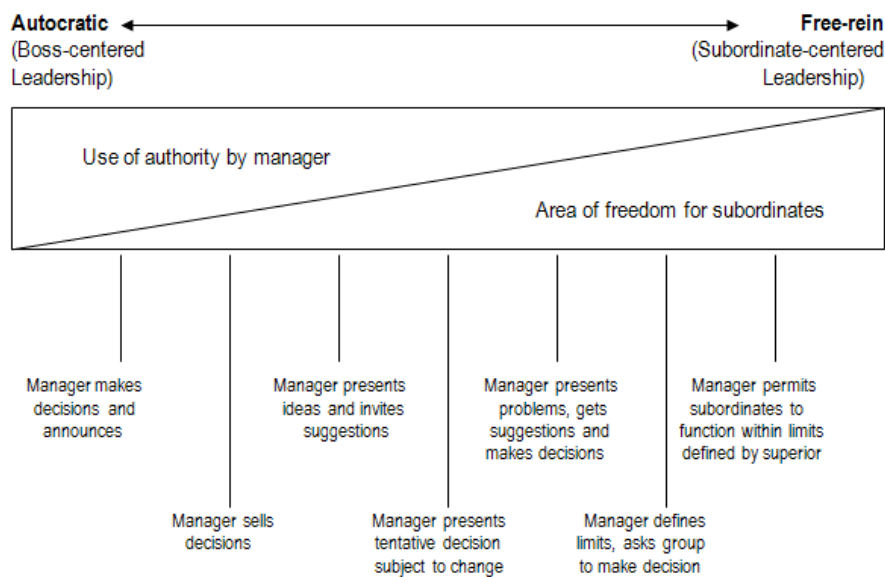


Fig. 3. The Tannenbaum–Schmidt Leadership Continuum

		Leadership Situations							
Leader-Member Relations		Good	Good	Good	Good	Poor	Poor	Poor	Poor
Task Structure		High	High	Low	Low	High	High	Low	Low
Position Power		Strong	Weak	Strong	Weak	Strong	Weak	Strong	Weak
Favorableness of Situation		Most Favorable			Moderate Favorable			Least Favorable	
Appropriate Leader Behavior		Task-Oriented			Relationship-Oriented			Task-Oriented	

Fig. 4. Fiedler’s Contingency Model

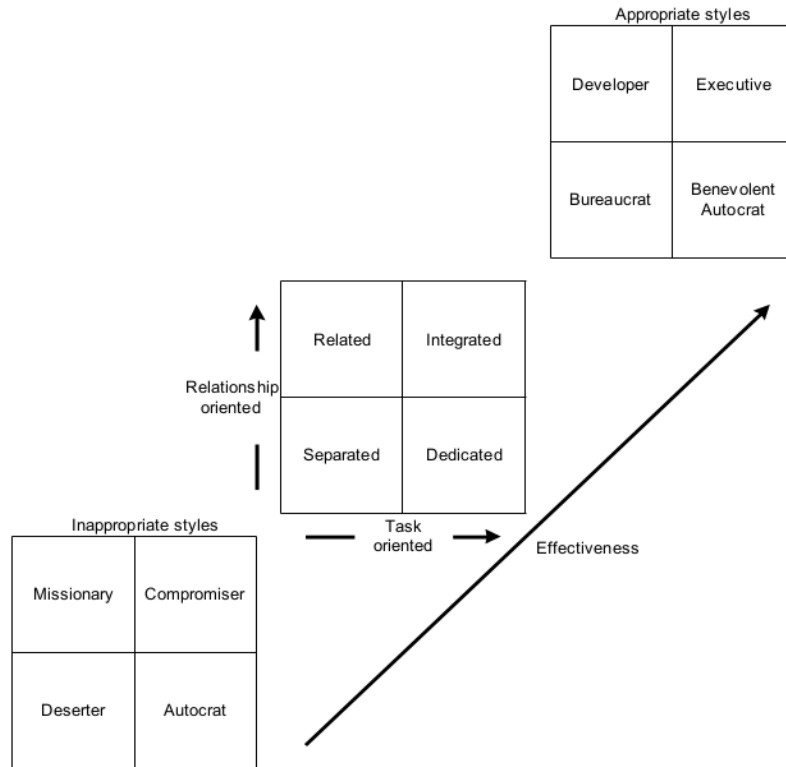


Fig. 5. The Three-Dimensional Model by W. Reddin

if, in the least and most favourable situations leaders implement a work-oriented style, and in the neutral situations – a relationship-oriented style (Fiedler, 1967). Gradually, the number of variables increased and W. Reddin proposed a three-dimensional model, in which there were 12 cells and whose third dimension was efficiency, that is, the manager’s ability to achieve the goal set (Fig. 5) (Reddin, 1970).

**5. Modern trends in the development of the theory of leadership**

The elements of each of the described above leadership theories are still used today. However, the transition to a new paradigm led to the emergence of fresh ideas. Understanding of the world as a “dynamic, ever-changing, risky and complex” creates new concepts of leadership. From this perspective, creating conditions for change is a key aspect of leadership (Maxwell, 2006). It should be noted that, in previous theories, little attention has been paid to this issue.

At the beginning of the XXI century, special meaning is given to the ways of introducing changes that allow adapting to environmental conditions. To adapt to a chaotic world, leaders create learning organizations, in which each employee is involved in the process of identifying and solving problems so that the organization can grow and develop. Instead of leading and controlling, leaders create the image of the future

and form a corporate culture that is conducive to the implementation of a forward-looking concept. At the same time, the hierarchical structure is destroyed and the organization becomes a community of people with the same goals and interests.

**6. Conclusions**

Tracing the logic of the development of the leadership theories, it can be noted that they all started from one-factor approaches, that initially one factor was considered as the determinant of the leadership: personal qualities, behavioural style, situational characteristics. Understanding the shortcomings of a one-way approach, leadership models began to be combined, two-factor concepts emerged: personal-situational, behavioural-situational, personality-behavioural theories. However, this was not enough. The final stage in the study of leadership was the systematic approach, which included many factors. For example, the theory of emotional intelligence takes into account the personality traits of the individual, and his behaviour, and the situation in which it is realized.

Thus, it is possible to make a conclusion that a leader who wants to work as efficiently as possible, cannot afford to apply just one style of leadership throughout his career. The leader must rather learn to use all styles, methods, and types of influence that are most appropriate for a particular situation.

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## DEVELOPMENT OF A MODEL OF DIGITAL RESEARCH UNIVERSITIES

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**Abstract.** *The aim of the article* is studying modern trends in digital development and developing a universal model of digital research universities. *The methodology* of the research is based on the use of methods: analysis and comparison for the study of scientific thought in the field of the introduction of digital technologies in the activities of research universities of systematization in the process of singling out the spheres of use of digital technologies in the activities of research universities; graphics for developing a model of digital research universities. *The research results* are manifested in the generalized development of global scientific thought for the period of 2011–2018. On the use of digital technologies in research universities in the United States, Britain, Germany, Canada, Australia, New Zealand, Ireland, Italy, South Africa, Brazil, Ireland, Finland, India. The results identify the current trends in global scientific research on the introduction of digital technologies concerning issues: the effectiveness of the formation of students' own curriculum; digitization of scientific information; the emergence and development of digital scholarships in scientific libraries; studying the correlation between the number of downloaded articles from the digital space and the number of new articles being written; a reappraisal of the revolutionary role of digital technologies in the social sciences; the rationale for American scientists to create a new model that provides access to the academic platform for a global society; intensification of the exchange of digital data; analysis and comparison of advantages and disadvantages of digital storages; search for new components of research tools based on the study of digital methods; the global development of digital technologies and the enhancement of the effectiveness of digital research cooperation; the widespread use of the Internet and other digital resources on the activities of research universities to improve the quality and semantic consistency of metadata, allowing to identify the digital preservation of research material. The proposed author's definition of "digital research university" harmonized the scientific categorical apparatus in accordance with modern trends in the development of digital technologies in research universities. *The practical implications* of introducing this category in widespread use will be reflected in the rethinking of the role of research universities and the search for new forms of introducing digital technologies. The difference between the proposed category and the term "digital university", already used in scientific consumption, is the wider coverage of the characteristics of research activities of research universities using digital technologies. The systematization of the use of digital technologies in research universities has made it possible to identify ten main areas: automation of the management systems of research universities digitizing literary sources in scientific libraries; automation of the educational process; online teaching; conducting final control; repository of diploma and doctoral thesis; student, teaching and research social networks; implementation of joint research online in digital networks; exchange of scientific data. Identified spheres form a system of digital means for the educational and scientific activities of research universities. Their characteristics allow highlighting the effects that arise in the process of introducing digital technologies in research universities. A three-level model of digital research universities has been developed. It combines nine basic elements: electronic portfolio; digital depository; digital training of teachers and researchers; an online platform for teaching; R&D market; research framing; virtual social networks; digital research networks; evaluation of research quality. The proposed three levels of the model reveal the basic role of its elements for the digital development of research universities and provide: the necessary internal infrastructure; maximizing the effects of using digital technologies; international subjectivization of research universities. The author's definition of each element of the developed model is provided, disclosed their digital purpose, and enriched the categorical apparatus. *The practical significance* of the developed model is ensuring that the maximum is obtained from the use by the research universities of the digital technologies of the present, and waiting for humanity in a strategic future.

**Key words:** model of digital research universities, areas of use of digital technologies, modern trends in digital research, research universities.

**JEL Classification:** F02, M15, C59, B22

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## 1. Introduction

Traditional forms of research universities are already working at the limit of their technological capabilities. This can be traced on an equal basis, both in educational and research activities. Internet technologies and the ever-increasing opportunities for the digitization of knowledge make it possible to effectively study not within the walls of universities. Knowledge transfer technologies have received new digital forms, and now anyone can get a university education from online sources. Of course, the high role of the professor at the university will not be replaced by robotics and the need for live communication, consultations, and discussions will remain relevant. Truth is born in the process of reflection, collective thinking, and creative atmosphere. These conditions are provided by classical research universities. But we should not exclude the appearance of such machines that will replace these supercomplex human relations and bring human processes of learning, thinking, and scientific search closer to them, and even surpass them.

Considering this novelty of the research topic, the modern trends in the transition to the digital space of all managerial processes are modernized and are relevant in view of the important research task – to increase the efficiency of research universities in the digitalization era.

*The aim of the research* is studying the current trends in digital development and the development of a universal model of digital research universities. To achieve the aim in the work, the following tasks are set:

- to analyse literary sources in order to identify current scientific trends in the use of digital technologies by research universities;
- granting of the author's definition of the economic category "digital research university";
- to systematize and characterize the use of digital technologies in research universities;
- to develop and characterize the model of digital research universities that will correspond to the technologies and processes that humanity expects in the strategic future.

To solve the tasks and achieve the research aim, the following scientific methods are used: analysis, systematization, comparison, graphic.

## 2. Literature review

The conceptual study (Liu, Wang & Cheng, 2011) shows how in the framework of global higher education world-class universities are considered as elite research universities. They play an important role in the development of human resources and the creation of new scientific information in the context of a knowledge-based economy. In this study (Lynch & Carleton, 2012), the reasonably important thesis is that the future of scientific libraries will be shaped by the wider development of research universities in the

fields of digital creation, exchange, dissemination, and translation of knowledge. The book is published in Great Britain by authoritative scientists (Goodfellow & Lea, 2013). The authors describe the category "digital university"; study the issue of digital literacy in universities; the value of digital texts; the practice of academic literacy around Twitter; lead effective practices for the dissemination of literacy, e-learning in a digital university; characterized digital cognitive literacy; investigate how digital literary knowledge affects the scientists and students' behaviour; propose new approaches to the creation of digital content and cooperation. In work (Jagdish, Kruti & Ajit 2013) the effect of granting to 50th Indian universities of electronic access to national and international scientific journals from the consortium of digital libraries is investigated. A strong positive correlation is found between the number of articles downloaded by these 50 universities from available digital resources and research publications that were published after receiving this access. Research (Dutton, 2013) aims to help translate the diversity of perspectives that digitalization of the social sciences can bring. The further dissemination of digital research makes it increasingly important to strengthen the role of social sciences in interdisciplinary studies at the global level.

Using digital tools and techniques in archaeological research (Agbe-Davies, Galle, Hauser, & Neiman, 2014), digital technology has revolutionized the rethinking of digital archaeological data. The authors conclude that digital technology was an underrated resource for practice and learning.

The study is devoted to the development of American research universities, constantly dominating the world rankings (Crow & Dabars, 2015). The authors justify the need to create a new model that provides access to the academic platform to a wide range of representatives of society. The issue of the exchange of digital research data is considered in the work (Bishoff & Johnston, 2015). It is established that this practice is becoming more common, taking into account the requirements of publishers of journals, global scientific associations, and public expectations about the creation of more interdisciplinary research environments. The development of digital technologies in Germany is shown in the work (Roberta, Tim & Silke, 2015). Authors are invited to review three projects focused on the use of digital tools implemented by an interdisciplinary team of scientists based on the Goethe Universität Frankfurt. This study analyses, compares, and demonstrates the shortcomings of digital storage in six Arab universities: Alexandria University, Damascus University, Khartoum University, King Saud University, Petrol and Minerals University and Nayef University of the security sciences. This work (Shin & Lee, 2015) focuses on researching universities as a part of Korea's national research system. Digital support for the economic development of the

country is due to the innovative development of Korean research universities.

The study argues that digital methods are increasingly becoming key components of research tools (Sparks, Collins, & Kearns, 2016). There are three special issues that are crucial for researchers working with digital methodologies: the ethical consequences of procedural violations, institutional responses in a neo-liberal university and the well-being of researchers. The authors insist that researchers continue to move the boundaries through digital research, but suggest that this should be done in a weighted way, given the immanent potential of digital disturbances. The possibilities of digital technologies are deeply analysed in the study (Hargittai, & Sandvig, 2016). The field of digital technologies offers both new research methods and new objects of study. Since the digital environment is constantly evolving, researchers sometimes have to improvise, change their plans, and adapt.

Research (Canhoto, Quinton, Jackson, & Dibb, 2016) analyses the process of digital research collaboration between research universities, industry, and scientists in the context of implementing digital research projects. The authors proposed five practical principles for the successful development of joint research projects in the context of university cooperation in the UK. This work (Tsatsou, 2016) shows a qualitative study of the use of digital tools, resources, and services by researchers in the UK. The author shows the use of digital research tools at the design stage of research to collect data and disseminate the results. Also, the complexity and multiplicity of digital tools, resources and services used in research are assessed. The paper concludes that there are certain commonalities and differences in the practice of researchers with digital technologies, and this practice largely depends on the experience of researchers in conjunction with the relevant disciplinary traditions and etiquette.

Research (Grimaldi, Cavagnero, & Gallina, 2016) focuses on the perception of postmodern generations of information retrieval in the digital space. The survey was conducted among 151 students of the first year of teaching at the Faculty of Education of Turin University (2014–15). The activity on the Internet and the perception of the economic value that respondents attribute to the information they find on the Internet every day are analysed. In this study (Barana, Bogino, Fioravera, Marchisio, Rabellino, 2016), the digital project "Orient@mente", developed by the University of Turin from the 2014/2015 academic year, is analysed. The concept of the project is supporting students in the formation of their own curriculum at the university. Students' feedback shows a high appreciation for these innovative teaching methods and digital devices for studying mathematics and other disciplines. In the future, the University of Turin is interested in expanding similar technologies with a focus on other courses.

The issue of open education with access to social networks is explored in the work (Fan & Liu, 2016). It shows how universities, through an open access to knowledge, promote the development of many academic values through greater openness to society. Using the example of a study of start-ups, the scale of the study of the digital economy in Poland is shown (Skala, 2016). The study presents the first survey in Polish companies related to the digital economy.

The study (Primary Research, 2016) provides detailed data on how faculties evaluate the efforts of their university for reporting, the publication of research results and other activities in the digital environment. The survey data is based on a survey of more than 500 scientists from more than 50 leading research universities in the US, Canada, Britain, Australia, New Zealand, and Ireland. In work (Koopman, & de Jager, 2016), the features of storing and managing digital data on the example of institutions in South Africa have been explored. It turned out that, although some researchers were already engaged in digital archival data in storage facilities, neither researchers nor universities carried out systematic management of research data.

This book (Stensaker, Bilbow, Breslow, & Van Der Vaart, 2017) highlights various approaches and concrete examples of how world-class research universities from around the world work to improve teaching and learning. Broad university initiatives and approaches in the field of introducing digital technologies are shown. The study (Firima Zona, Ridwan, & Uli Agustina, 2017) examines in detail the impact of widespread use of the Internet and other digital resources on reading habits and gave practical recommendations for improving the abilities of readers in the digital age. In work (Hladik, 2017), the growing use of digital technologies in scientific work and communication in a university environment is explored. A particular attention is paid to the concept of the code of knowledge as a literary technology and the role of digital technologies in the humanities.

Digital technologies of an online class are investigated in work (Boria Sax, 2017). It is revealed that the electronic portfolio of educational material, the student communities are more interested, can continue to develop and expand independently even after the end of the training period. A classification of digital funds is carried out, using both statistical significance and the effects of differences among 902 universities in 54 countries (Leydesdorff, Bornmann, & Mingers, 2017). The authors focus mainly on Great Britain, Germany, and Brazil. Considered (LeBard, Brynn Hibbert, & Quinnell, 2017), how new digital technologies affect the cultivation of university science. The authors introduce the concept of the electronic laboratory notebook computer (ELN), which is used in the research environment, and describe how they implemented it as a tool to provide students with a basic research experience.

Research (Fierro, Cardona Arbelaez & Gavilanez, 2017) reveals new horizons of international education in the digital age, has undergone significant changes. Digital platforms have greatly facilitated students' access to academic information. The importance of digital marketing and its components in international education for improving business practices is grounded.

Research (Cox, 2017) shows new scientific needs, global events, and shifts, require a wider range of interaction of librarians with researchers and contradict the previous organizational structures. The paper shows the special circumstances at the National University of Ireland Galway, which formed a system for stimulating the work of the library staff. These include: the emergence of digital scholarships, the convenient technology of the research building, investing in digital archives and updating the digital strategy. Finland's experience in implementing information systems and harmonizing obsolete data models has been studied in the work (Remes, Alonen, Maltusch, Hällström & Westman, 2017). It is established that the more investing in open science and research, the more it becomes necessary that the metadata that allows identifying the digital preservation of research material be qualitative and semantically consistent.

In work (Yan, & Zhang, 2018), the scientific reputation of ResearchGate is analysed as one of the largest active academic sites of social networks in the world. This study collects RG user data from 61 US research universities at different levels of research, classified by Carnegie Institutes of Higher Education, to examine the impact of institutional differences on RG's reputation. The results confirm that RG is a scientific-oriented scientific social networking site, closely and realistically reflects the level of research activities of institutions. With the increase in the level of research activity of the university, its affiliated

RG users tend to have larger RG scores, more publications and citations, as well as more views and followers, while the average number of readings of their publications and words is usually lower.

### 3. Results

#### Definition

Based on the research conducted by the authoritative scientists in the field of digital content of research universities, it is established that the term "digital university" was widely accepted and characterized (Goodfellow & Lea, 2013, p. 2). The main emphasis is placed on the fact that, in the face of broad technological and structural changes, it became necessary to combine various forms of social practice around learning and technology.

Along with this, scientific activity has not found its full expression in this category. Considering this, there is a need to introduce the economic category "digital research university" into scientific circulation, which will fully allow expressing the purposes and activities of these institutions. So, let us describe and characterize the author's definition.

*Digital research university* is a research and educational institution that carries out its activity on the basis of automation of educational and research processes and provides a complete digital cycle for the creation, codification, archiving, storage, exchange, retrieval, and broadcasting of scientific and educational information that was created as a result of research activities.

#### Spheres of use of digital technologies in research universities

Based on the above definition of a digital research university, let's systematize the use of digital technologies in research universities, Table 1.

Table 1

**Areas of use of digital technologies in research universities**

№	Areas	Effects
1	Automation of control systems of research universities	Optimization and efficiency improvement: <ul style="list-style-type: none"> <li>- accounting and attestation of personnel;</li> <li>- financial management and reporting;</li> <li>- control over fixed assets;</li> <li>- accounting for applicants, students, and graduates;</li> <li>- security systems of the university.</li> </ul>
2	Digitization of literary sources in scientific libraries	<ul style="list-style-type: none"> <li>- improving the efficiency of searching for necessary literature;</li> <li>- providing the ability to view the sources of an unlimited number of users;</li> <li>- preservation (archiving) of valuable copies in electronic form.</li> </ul>
3	Automation of educational process	<ul style="list-style-type: none"> <li>- opportunity for students to form their own curriculum independently;</li> <li>- convenience in scheduling classes and consultations;</li> <li>- comfort of the evaluation process and the confidentiality of the presentation of the awarded points.</li> </ul>
4	Online Teaching	<ul style="list-style-type: none"> <li>- expansion of the audience of listeners, both in the middle of university networks and providing wide access in the global environment;</li> <li>- wide possibilities of attraction to the educational process of auxiliary methodical materials and developments;</li> <li>- possibility of introducing paid courses for all those interested in the external environment, the account of listeners.</li> </ul>



End of Table 1

6	Conducting the final control (testing, interview, compilation of intermediate control works, etc.)	<ul style="list-style-type: none"> <li>– increase the flexibility of the educational process;</li> <li>– automation of work verification and evaluation of results;</li> <li>– standardized tasks, equal conditions for students;</li> <li>– optimization of working hours of research university staff.</li> </ul>
7	Diploma and doctoral thesis repository	<ul style="list-style-type: none"> <li>– automatic verification of academic virtue;</li> <li>– systematization of scientific research directions;</li> <li>– the possibility of providing global online access to scientists from other universities or academic institutions.</li> </ul>
8	Student, teaching and research social networks	<ul style="list-style-type: none"> <li>– operational communication;</li> <li>– search for partners for educational and scientific interests;</li> <li>– formation of joint teams and teams.</li> </ul>
9	Carrying out joint research online in digital networks	<ul style="list-style-type: none"> <li>– optimization of time for interpersonal communication;</li> <li>– joint writing and editing of scientific texts;</li> <li>– operative analysis and discussion of the results of laboratory tests and experiments;</li> <li>– setting up professional software.</li> </ul>
10	Exchange of scientific data	<ul style="list-style-type: none"> <li>– online seminars, conferences, webinars;</li> <li>– online publication of scientific research results;</li> <li>– general bases of statistical and scientific information.</li> </ul>

Source: developed by the author

**Model of digital research universities**

Let’s develop a model of digital research universities that will correspond to technologies and processes that are relevant today and are waiting for humanity in a strategic future.

A three-level model is developed, Fig. 1, which clearly illustrates processes and infrastructure units, uses digital technologies in research universities, and is focused on providing not only modern needs but also hypothetical needs arising in the strategic future. Let us characterize the components of this three-level model.

1. *E-portfolio* is a set of digitized educational and research materials of scientific and pedagogical staff of research universities, virtually displays the full set of tools and methods used in the training and research activities of employees.

2. *Digital depository* is the basis of digitized educational and scientific literature that is contained in virtual

archives of scientific libraries of research universities and databases.

3. *Digital training of teachers and researchers* is a process of development that provides for the systematic upgrading of the scientific and pedagogical staff of research universities for the free use of digital technologies in educational and scientific activities.

Characterized elements represent the first level of the model reflecting the necessary internal infrastructure and processes in research universities to enable the introduction of digital technologies.

4. *Online teaching platforms* is the availability of own and use of public platforms that serve as a means of digital communication between teachers of academic courses and training programs and students and volunteers.

5. *R&D market* is an infrastructure that provides effective communication between performers of

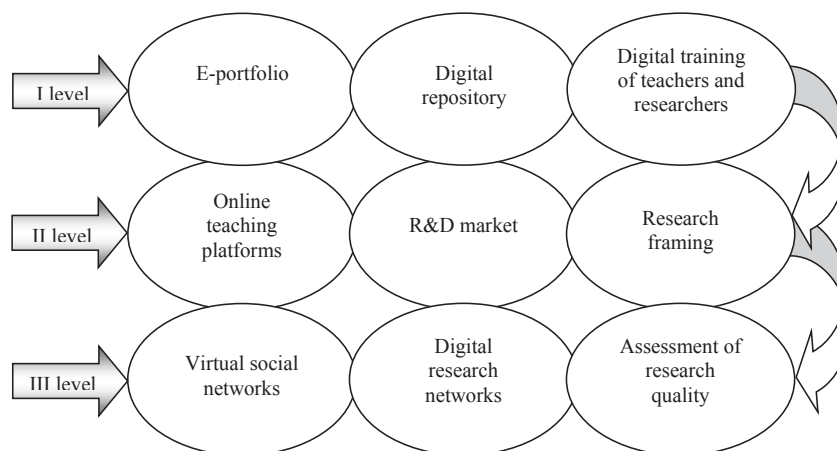


Fig. 1. Model of digital research universities

Source: developed by the author

scientific, research, theoretical and experimental research works and customers, buyers, and investors.

6. *Research framing* is the process of mental classification by scientists of clusters of digital research information and ideas in the modern discourse of digital technologies, helps scientists to perceive development trends and use new digital technologies.

Elements that form the basis of the second level of the model contribute to maximizing the benefits and effects from the use of digital technologies in the educational and scientific activities of research universities and provide the process of rethinking and setting new tasks for digital modernization.

7. *Virtual social networks* is a digital infrastructure that provides an instant communication process between teachers and scientists with the purpose of exchanging ideas and forming communities that realize joint thoughts.

8. *Digital research networks* are territorial, interstate, and intercontinental scientific research associations in the digital space, ensuring the exchange of experimental data and results of laboratory research and implementation of joint scientific projects.

9. *Assessment of research quality* is a system that provides assessments of the global significance of scientific research results using the tools of digital space.

The given elements of the third level of the model contribute to the international subjectivization of research universities and the development of science through global research activities in joint transboundary networks and consortia.

The overall balance of the developed model is ensured by the close interaction of its elements. The digital space gives unlimited possibilities of the flexibility of these elements and maximization of effects from their use by research universities. The model is universal and developed for the implementation by research universities, both elite world class, and those that seek to obtain such a status in a global environment.

#### 4. Conclusions

Having studied the development of scientific thought for the period of 2011–2018 regarding digital technologies, it has been established by the example of the research universities of the USA, Great Britain, Germany, Canada, Australia, New Zealand, Ireland, Italy, South Africa, Brazil, Ireland, Finland, India, that the current trends in digital research of scientists are:

- the effectiveness of students forming their own curriculum in research universities;
- digitalization of the archiving of scientific information in research universities;
- emergence and development of digital scholarships in research libraries of research universities;
- rationale for the need to identify elite research universities;

- study of the correlation between the number of articles downloaded from the digital space and the number of new articles written in research universities;

- reassessment of the revolutionary role of digital technologies in the rethinking of digital archaeological data is being studied by research universities;

- justification by American scientists of the need to create a new model that provides access to the academic platform for a wide range of representatives of the global society;

- issue of intensification of the exchange of digital data between research universities and the role of scientific social networks in this;

- analysis and comparison of advantages and disadvantages of digital storages in research universities;

- search for new components of research tools based on the study of digital methods;

- effective ways of developing digital technologies in research universities should be based on a balanced approach and risk analysis;

- expanding and enhancing the effectiveness of digital research cooperation between research universities in the world;

- impact of widespread use of the Internet and other digital resources on the activities of research universities;

- improving the quality and semantic consistency of metadata, allowing to identify the digital preservation of research material.

In fact, the above-mentioned areas of digital development in research universities are a priority in the scientific research of scientists from all over the world.

The proposed author's definition of the economic category "digital research university" harmonizes the scientific categorical apparatus in accordance with modern trends in the development of digital technologies in research universities. Its difference from the term "digital university", already used in scientific consumption, consists in a wider coverage of the characteristics of scientific activity of research universities using digital technologies.

The systematization of the use of digital technologies in research universities has made it possible to identify ten main areas: automation of the management systems of research universities digitizing literary sources in scientific libraries; automation of the educational process; online teaching; conducting final control; repository of diploma and doctoral thesis; student, teaching and research social networks; implementation of joint research online in digital networks; exchange of scientific data. It is established that these spheres form a system of digital means for the educational and scientific activities of research universities. Their characteristics allowed us to highlight the effects that arise in the process of introducing digital technologies in research universities.

The developed model of digital research universities has united nine basic elements: electronic portfolio; digital

depository; digital training of teachers and researchers; an online platform for teaching; R&D market; research framing; virtual social networks; digital research networks; evaluation of research quality. This model is presented in a three-level form. The proposed three levels reveal the main role of the model elements for the digital development of research universities and provide:

- necessary internal infrastructure and processes to enable the introduction of digital technologies;
- maximizing the benefits and effects of using digital technologies in the educational and research activities of research universities and providing a process of rethinking and posing new tasks of digital modernization;

– international subjectivization of research universities and the development of science through global research activities in joint transboundary networks.

The characteristics of the elements of the developed model, in fact, allow providing the author's definitions of each of them, disclose their digital purposes, and enrich the categorical apparatus. The practical significance of the developed model is designed to provide the maximum from the use of digital technologies present and waiting for humanity in a strategic future. It is precisely the appraisal of existing and identification of new directions for the digital development of research universities that will be devoted to our further scientific research in this direction.

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# THE ANTITRUST TREATMENT OF ELECTRICITY MARKET OF UKRAINE: CONUNDRUM WITH THE CONCEPT OF COLLECTIVE DOMINANCE AND EU EXPERIENCE

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**Abstract.** The main *purpose* of the article is to provide comparison research of collective dominance doctrine and practice in the EU and the enforcement practice in Ukraine. *Methodology.* The paper focused on the compliance of AMCU's analysis of national electricity market in Ukraine with the European law enforcement practice that arises from the international legal obligations of Ukraine to use in its practice the EU competition rules according to Article 18 of the Treaty establishing the Energy Community and taking into account the criteria of interpretation in accordance with the EU case law. Article 255 of the Association Agreement between Ukraine and the EU that clearly provides the principle of transparency, non-discrimination, and neutrality in compliance with the procedures of the procedural justice and the right of defence also indicates a special actuality of the carried-out research in this field. The main *practical impact* of such research is to implement not only substantial norms of the EU Competition law but its enforcement practice & to introduce it within the practice of AMCU. *Value/originality.* The paper examines a dominance doctrine, market power definition, economic strength, and collective dominance practice in the EU enforcement practice. A special attention was paid to enforcement practice in the electricity market. Due to the fact that the investigation of Ukrainian electricity market was provided for the first time in Ukraine, there is no practice yet in this issue. This causes the necessity of wide comparative approach in the principles of collective dominance in the electricity market in Ukraine. *Results.* The paper finds that the AMCU's approach to electricity market regulation in Ukraine confirms the necessity to reform the system of the governmental regulation in the wholesale electricity market and in the market of services for electricity transmission, necessity for the change of the system for tariff and pricing policy formation on the part of the National Energy and Utilities Regulatory Commission of Ukraine and the Ministry of Energy and Coal-Mining Industry of Ukraine for developing the competition in electricity market and the need to follow the approaches and criteria of the EU competition law with regard to determination of the dominance in the market, which is stipulated by the international legal obligations of Ukraine arising from Articles 18 and 94 of the Treaty establishing the Energy Community and Art. 255 of the EU-Ukraine Association Agreement.

**Key words:** competition; collective dominance; EU; Ukraine; Anti-Monopoly Committee of Ukraine; wholesale electricity market.

**JEL Classification:** K21, K23

## 1. Introduction

Current wholesale electricity market of Ukraine is, first of all, a unified, well-ordered centralized system of relationships between undertakings on the purchase and sale of electricity. The main legal and organisational principles regulating the general conditions of current wholesale electricity market of Ukraine functioning are provided for in the Constitution of Ukraine, the Law of Ukraine "On Electricity Industry" (as amended), the Judgment of Constitutional Court of Ukraine dated February 12, 2002 № 3-пн/2002 (the electricity industry

case), the regulatory acts of the President of Ukraine, the Cabinet of Ministers of Ukraine, the National Energy and Utilities Regulatory Commission of Ukraine (hereinafter referred to as the NEURC). The Wholesale Electricity Market (WEM), which is a well-ordered system for the electricity purchase and sale transactions, has already been functioning in Ukraine for over fifteen years. At that, this market is under strict centralised governmental control and regulation. The governmental regulation of the energy market is carried out by the National Energy and Utilities Regulatory Commission

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of Ukraine (NEURC), basic responsibilities of which are: licensing and regulating the activities of natural monopoly companies; promotion of the development of competition in spheres of electricity and heat energy production and supply; adopting the pricing and tariff policy, protecting the consumer's rights, implementing the electricity usage regulations.

Ukraine is a member of the Energy Community and has to fulfil the obligations concerning the implementation of the *acquis*, particularly in the electricity industry. In particular, Art. 18 of the Treaty establishing the Energy Community provides for the adherence of competition rules in this market (detailed in Appendix III and actually being a reproduction of the competition rules of the EU now contained in Art. 101, 102, 106, and 107 TFEU).

Thus, the EU competition principles became the part of the Ukrainian legislation, which is explicitly stipulated in the international treaty, which was agreed to by the Verkhovna Rada of Ukraine by the ratification of the Treaty establishing the Energy Community. The basis of legal regulation within the Energy Community for Ukraine is the EU law, which should be implemented in the law of Ukraine in accordance with the obligations under the international law stemming from obtaining full-fledged membership in the Energy Community since February 1, 2011.

Due to the EU exclusive competence of legal regulation of competition (Art. 3 TFEU); national competition authorities and national courts have to coordinate their law enforcement practice and apply Art. 101-109 of TFEU and Regulation No. 1/2003 in a unified manner.

However, not only the national legislation of the member states but also that of the countries launching a free-trade area with the EU must comply with the EU principles of competition (Smyrnova, 2015). However, the standard practice of implementing the competition rules and unified rules of interpretation of the EU competition rules are inherent not only for the Member States but also for the countries to have entered into association agreements with special provisions on competition within free-trade areas and as a part of the sectoral cooperation of the EU, in particular, the participant countries of the Energy Community. It is expressly emphasized by Art. 94 of the Treaty establishing the Energy Community.

The EU-Ukraine Association Agreement (AA) also provides for ensuring an effective competitive environment within the established free-trade area (Art. 253-267) and reproduces the regulations of the EU law and contains provisions strictly referring to the regulations. So, EU common rules concerning the internal energy market apply to Ukraine. At the same time, the Association Agreement determines the compliance between its provisions and the provisions of the Treaty establishing Energy Community, giving

priority to the rules of the latter in case of conflict between them. Accordingly, the regulations of the Association Agreement cannot contravene the EU law, which is used in compliance with the provisions of this Agreement.

Upon implementing the provisions of the Association Agreement regarding the cooperation of the parties in the energy industry, the parties assume the obligation to give a priority to the legal or other acts complying with the Treaty establishing Energy Community and the effective EU law in this field. The compliance assessment should take into account all the decisions approved under the Art. 91 of the Treaty establishing Energy Community (Art. 278 of the EU-Ukraine AA).

In this way, it should be mentioned that not only the legislative and law enforcement practice of European institutions but also the practice of the EU Court should be implemented in the work of the national authorities of Ukraine (Smyrnova, 2014) since it is the court judgments where the unified law enforcement practice of the EU is reflected.

Furthermore, according to p. 3, Art. 255 of the EU-Ukraine Association Agreement, parties have taken obligations to use their competition law in a transparent, timely, and non-discriminatory manner. The transparency principle by nature reflects clarity, obviousness and comprehensibility without doubt or ambiguousness. There is no arguing that transparency is one of the fundamental principles of trade regulation (Berezovska, 2015).

Furthermore, one of the fundamental principles of competition rules' implementation is its non-discriminatory manner with preserving the principle of procedural fairness and right of defence, which is also clearly stipulated in paragraph 3, Article 255 of the Association Agreement.

Thus, it can be stated based on the above mentioned that the competition in the electricity market in Ukraine should develop in observance of the EU competition law, which is provided for in Art. 18 of the Treaty establishing the Energy Community, and with the rules of interpretation being used, which comes from the EU judicial practice (that is, the case law).

So, it seems necessary to determine the level of observance of the European law enforcement practice in the practice of the Ukrainian competition authority and the observance of the international obligations to be committed to the principle of transparency, non-discrimination, and procedural fairness provided for in Art. 255 of the Association Agreement.

The Anti-Monopoly Committee of Ukraine (AMCU) on 24 December finished the special investigation of the market & on 1 June 2016 presented a Report on the investigations provided during August-December 2015 into this sector of the economy (wholesale electricity market) that was the first in-depth analysis of this market (Report). Under this Report, AMCU

stated on the dominant position of Energorynok SE as a sole purchaser and collective dominance of three undertakings on the basis of summing their shares. The main aim of the article is to analyse in a comparative manner the concepts of obstacles & criteria on assessment of relevant market, dominance and the concept of collective dominance in the EU.

## 2. Market model and effects-based analysis and the concept of dominance

In the EU, the market definition is important for all spheres of competition law (Art. 101, as well as 102 of TFEU and the Merger Regulation application), but the approach to market definition differs depending on the behaviour type where the relevant market is to be defined (Case T-62/98, Volkswagen AG v. Commission). The Commission Notice on relevant market (1997), as it was specified in the case Amman & Sohne, serves as a tool to increase the transparency of the activities of the EU Commission and strengthen the consistency of its decision-making (Case T-446/05 Amman & Sohne GmbH & Co KG v Commission).

AMCU inattentively analysed the relevant market and its Report contains data concerning the electricity sold in the WEM, data concerning the generating capacities of the WEM and detailed data on the volume of the coal market. At the same time, there is no justification for the inclusion of the coal market into the analysis of nationwide electricity market. There are no key findings on generation, wholesale, first-time sale (first level of supply) and retail. These data do not allow for determining the product boundaries of the nationwide electricity market. There are only ascertaining conclusions about the separation of the generation market, the wholesale electricity market, and the electricity transmission service market. The influence of the wholesale electricity market on the generation market and their mutual dependence are not studied, and no conclusions are given in this regard. At the same time, despite AMCU states the existence of the retail market and the formation of final demand for electricity there, it has not provided the assessment of the influence of the retail market on the formation of volumes and prices on electricity as a product in the electricity generation and wholesale electricity markets. In the absence of a liberalised electricity market in Ukraine and the peculiarities of price and tariff formation for this product type on a non-competitive basis, particularly due to the governmental regulation (fixation) by NEURC of the tariff policy, the AMCU should justify the product boundaries of the market more elaborately.

Moreover, we can stress that the definition of relevant product market cannot be based solely on econometric calculations. Other elements, namely the physical characteristics of the product or the sphere

of its application, have to be taken into account. The following factors are considered in the determination of the product market boundaries: the prices of products; the physical characteristics of products and services; the purpose of products and services; consumers' preferences. In accordance with the EU practice, the Commission uses economic instruments based on quantitative indicators to elaborate its analysis of determining the market boundaries. They include price correction analysis (case Arsenal/DSP), critical analysis of loss (case INEOS/Kerling) and demand evaluation (cases Unilever/Sara Lee, Kraft/Cadbury).

The concept of the dominant position itself is not defined in the TFEU. The definition given by the EU Court in the United Brands case is constantly quoted in the majority of EU Commission decisions and Court judgments concerning the implementation of Art. 102 of TFEU. The EU Court has defined that it is "a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by giving it the power to behave to an appreciable extent independently of its competitors and ultimately of its consumers" (Case 27/76 United Brands).

The definition of the dominant position according to the EU law was given by the EU Court in the Continental Can case: undertaking holds the dominant position when it has a power to behave independently, which lets them act without regard on their competitors, customers, and sellers. It is situation when they, due to their market share or their market share together with ownership of technological knowledge, raw material resources or capital, have the power to set prices or control the production or distribution of a significant portion of the relevant product (Case 6/72 Europeemballage Corp and Continental Can Company Inc. v. Commission).

Later the EU Court has confirmed and extended this definition in the Hoffman – La Roche case: "An undertaking, which has a very large market share and holds it for some time..., – is by virtue of that share in a position of strength, which makes it an unavoidable trading partner and which, already because of this secures for it, at the very least during relatively long periods, that freedom of action which is the special feature of a dominant position" (Case 85/76 Hoffmann-La Roche & Co. v. Commission).

The concept of dominance consists of three basic mutually related elements: (a) there must be a position of economic strength on a market which (b) enables the undertaking(s) in question to prevent effective competition being maintained on that market by (c) affording it the power to behave independently to an appreciable extent.

Firstly, dominance exists in relation to a market; it cannot exist in the abstract. It also implies that an undertaking either on its own or together with other

undertakings must hold a leading position in that market compared to its rivals either independently or jointly with other enterprises. The second and third elements concern the link between the position of economic strength held by the undertaking concerned and the competitive process, i.e. the way in which the undertaking and other players act and interact on the market.

Both practice and doctrine prove that the size of the market share is not defined in the definition of dominance. This aspect differs significantly from the formalized legislative approach of Art. 12 of the Law of Ukraine "On Protection of Economic Competition", where the analysis of the existence of market power is weakly defined narrowed to the right of undertakings to prove that they are subjected to competition. Ability to act independently from one's competitors, customers and consumers is the significant distinctive feature of this concept. Besides, both the EU Commission and EU Court, while defining the dominant position, pay a special attention to how effectively the enterprise blocks the competitors entering the market, what is its market share, what is its economic potential and access to the market.

Accordingly, while studying the electricity market and the features of the dominant position, the AMCU should have studied and justified the market power of undertakings, the undertakings' opportunities to act independently from their competitors, consumers, suppliers, and customers, the opportunity of these undertakings to prevent effective competition and to establish and maintain prices above the competitive level.

The fact of the dominant position in the market is proven by detecting the relative share of the monopolist by establishing the fact of existing monopolist's contractual relations with potential competitors (rivals); a special system of relations with customers and suppliers not complying with the principles of fair competition in the relevant market. On determining the dominance in the market, the financial potential of a monopolist, the lack of competitors, the existence of potential dependence of third parties on the monopolist are taken into account. Among other factors taken into account on the definition of the dominant position are the following: the proportion of shares of the enterprise and its closest competitors, the technological advantage of the enterprise over its competitors, the existence of a highly developed sales system and the lack of potential competitors. However, while studying all of these factors, their relation to the above elements of the dominant position must be considered (market power, competition prevention etc.); i.e. not only certain features or factors should be highlighted but also the examination whether they actually result in a market power of the undertaking must be carried out.

Procedurally, the abuse of dominant position examination is usually performed by the EU

Commission and then can be reviewed by the EU Court. According to Art. 102 of TFEU, one more issue has to be considered: if an enterprise occupies the dominant position, how significant is its market share? Some part of the market may only be controlled in terms of supplies of a certain type of products or services. This is why it is important to determine the product market. As was established in the *Continental Can* case, the definition of the market is crucial for the assessment of dominant position, as "the relevant market is of essential significance, for the possibilities of competition can only be judged in relation to those characteristics of the products in question by virtue of which those products are particularly apt to satisfy an inelastic need and are only to a limited extent interchangeable with other products" (Case 6/72 *Europeemballage Corp and Continental Can Company Inc. v. Commission*). That is extremely significant that the ECJ has annulled the Commission decision in this case due to the lack of arguments and evidence regarding the definition of the relevant market. The ECJ also supports the approach according to which "... the separation of the market object allows for establishing the space within which certain competition conditions are functioning and a predictable dominant enterprise is operating" (Case C-7/97 *Oscar Bronner GmbH & CoKG v. Mediaprint*).

Unlike the Ukrainian law, there are no certain mathematical criteria of dominance definition fixed in the EU. Many criteria, on the basis of which the decision is made, are considered in each specific case. However, the market share of the monopolist has to be rather large, usually over 50% (Sufirin, 2014; Blanco, 2012; Monti 2006).

At the same time, according to the European practice, the existence of a large enterprise in the market does not mean that it occupies the dominant position at all. An enterprise gains the dominant position if it can act in the market of the specified product independently from its competitors. In other words, an enterprise occupies the dominant position if it has market power. The market share possessed by the enterprise serves as the first indicator for the consideration of the market dominance issue. If the enterprise possesses a relatively small market share, its position, naturally, cannot be dominant. In this regard, the Commission establishes roughly that the size of the share under 40% is unlikely to be an indicator of market dominance (DG Competition discussion paper on the application of Article 82 of the Treaty to exclusionary abuses, 2005).

Barriers to market accessing are another important factor that allows defining the existence of dominance. Sorrowfully the AMCU, on defining the barriers to market access, did not apply the existing experience of the European Commission and the EU Court regarding the definition and assessment of market barriers and their influence on competition and market power of market participants; in particular, the influence of



electricity import on competition was not taken into account, and the existence of economic barriers for market entry and their influence on the market power were not justified economically. The existence of such barriers actually, factors leading to their appearance, the influence of these barriers on competition level in the market and the activity of the market participants, their leading to appearance or absence of market power were not analysed.

While analysing the position of single customer (SE Energorynok) in the nationwide electricity market, legislative features of pricing by NEURC with authority to control over the pricing in electricity market, and the authorities of the Ministry of Energy and Coal-Mining Industry of Ukraine (hereinafter referred to as Ministry of Energy and Coal) and the restrictions containing in the law of Ukraine regarding the freedom to act and independence in decision-making of SE Energorynok should be considered.

Under such legislative conditions, it is better to say that the monopsony of SE Energorynok in the electricity market is of a limited nature provided by the existing market model and the regulatory legal acts governing the relations in this market. In this way, the Committee should not declare the monopoly of SE Energorynok based only on the fact that it occupies a 100% share of the market, and the functions and role of SE Energorynok not only as the “unified customer” but also as an element of the institutional monopoly of the state represented by the authorities defining the conditions of product turnover in this market should be studied. Such an approach will comply with the main principles of defining the dominant position in the EU law, according to which the market share is not defined, and other factors defining the position of the undertaking in the market should be studied as well.

### 3. Judicial interpretation of collective dominance concept in the EU

The EU law theory and practice define the following three conditions, which give grounds to state the existence of collective dominance present:

- 1) each entity of collective dominance shall be able to obtain at low cost the information on the behaviour of other entities of collective dominance;
- 2) members of collective dominance shall have an influence on the undertaking, which: in case of any agreement between them – restricts competition, and in case of coordinated actions – deviates from the general policy at the given market;
- 3) the expected reaction of competitors, both existing and potential, shall not have any noticeable effect on expected results of coordinated actions (general policy of collective dominance of members in the target market).

Moreover, as further analysis of the EU judicial practice shows, the necessary conditions of collective

dominance are also relations between the members of such dominance, joint policy on the price increase, etc., which allows them to act as a “single” economic unit in relations with customers.

Art. 102 of TFEU refers to the abuse of collective dominance condition by one or more undertakings. The EU Court of Justice (Cases C-395/96 P and C-396/96 P of *Compagnie Maritime Belge Transports, Compagnie Maritime Belge and Dafa-Lines v. Commission*) established two stages necessary for collective dominance: establishing the fact of collective entity existence, and proving that the undertaking has a dominant position in the market. Collective dominance can be performed by two or more undertakings that are legally independent of each other, provided that they are a collective undertaking from an economic point of view or act together as one in a particular market. It is necessary to establish economic relations or factors that may contribute to such relations. Economic assessment and, in particular, evaluation of the relevant market structure is of significant importance. Apparently, this judgment extended the concept of collective dominant position by taking into account potential opportunities that have not yet appeared quite clearly, however, it is another demonstration of a tendency to substitute formal legal criteria for an economic approach. Therefore, this case has settled such necessary element of collective dominant position as legal and economic relations between the members of collective dominance confirming that these undertakings can act as a single “collective” undertaking, adopt a joint policy, and perform the collective market behaviour, particularly, in respect of prices.

In case of collective dominance, the approach of the EU Commission to the definition of interrelationships in the group, which was applied in the case of *France v Commission* (Cases C-68/94 and C-30/95), was also supported in subsequent cases, in particular, the case of *Gencor* (Case T-102/96), in which the EU Court of Justice has found that “the relationship of interdependence existing between the parties” creates potential coordination between them in sense of forming collective dominance. In case of *Airtours* (Case T-342/99), the EU Court of Justice established that the collective dominance exists, where each member of the collective dominant entity applies the conscious joint policy in the market on a long-term basis in order to sell without entering into any agreement or act jointly in the meaning provided for in Art. 101 of TFEU. This test was applied by the Commission and the EU Court under conditions of high liberalisation of the market with established transparent competitive market conditions and under conditions of information exchange, as well as the inability of sellers and consumers to influence the market.

All of the abovementioned cases reflect the behavioural approach of the EU Commission on

defining the collective dominance (Petit, 2013; Monti, 2001). The European competition law doctrine, which is the basis for positions of the EU Commission and the EU Court, states that structural analysis of the market is not sufficient for collective dominance analysis. A behavioural component, in this case, shall be the critical factor (Joilet, 1970). Other scientists stated that the EU Commission shall prove the fact of coordinated (parallel) behaviour of the participants while justifying the fact of collective dominance, otherwise, national competition authorities shall refrain from the collective dominance regime (Mezzanotte, 2010).

In cases of collective dominance, not only the amount of quantitative indicators of the corresponding market shares is calculated. Market share is not the only or critical factor in the search for a dominant or collective dominant position (Alison and Sufrin, 2014). Bright example is the judgment of the EU Court in case of French Republic and Société commerciale des potasses et de l'azote (SCPA) and Entreprise minière et chimique (EMC) v Commission, where it was proved that the market shares of two independent enterprises in amount of approximately 60% cannot conclusively mean the existence of a collective dominant position (Cases C-68/94 and C-30/95). In case of Airtours (Case T-342/99), the EU Court developed a three-limbed structural test for determining collective market dominance. Firstly, each firm knew how other members were behaving (they could monitor the market to see if they were adopting possible policy changes); secondly, there should be evidence of tacit coordination, which is stable and is observed for a long time (i.e., there was no incentive to depart from the common policy on the market); and thirdly, the foreseeable reactions of competitors (actual and potential), as well as consumers and clients would not jeopardise the results expected from the generally accepted policy.

However, in its judgment in the case of Impala (Case T-464/04), the EU Court not only confirmed the existence of these three criteria for identifying collective dominance but also clearly stated the need to attach evidence to these criteria and characteristics of the market. Definition of such criteria is a result of considering collective dominance in previous cases. Thus, in particular, in the case of TACA (Commission Decision of 16 September 1998, IV/35/134) the Commission analysed the relationship between enterprises in terms of their coordination of actions for the analysis of collective dominance. Later in the same case, the EU Court clearly stated that in order to prove collective dominance in the market, there must be proofs of the "factors of economic correlation between the enterprises" (Cases T-191/98, T-212 – T-214/98 Atlantic Container Line AB and Others v Commission).

Moreover, these criteria have been repeatedly used by the EU Court in various cases for collective dominance. At the same time, the European practice also notes

that such necessary element as coordination of actions of participants (collusive effect) within the collective dominance may take various forms, such as forms of direct coordination of a pricing policy.

Currently, in the energy domain, both European doctrine (Scholz, Purps, 2011) and European court practice are common in compliance with such criteria as the enterprises in this group shall be connected in such a way that they adopt the same behaviour in the market. The mentioned above confirm that the fact of collective dominance can be proved only on the basis of parallel cooperation. Moreover, the European Court took this position in one of its last judgments in case of Laurent Piau (Case T 193/02). During the analysis of the doctrine and national laws of the EU member-states, it is also possible to assert that there is a synchronisation of approaches between the European Court and national competitive agencies. Consequently, the most widespread evidence of collective dominance is the evidence of the close parallel behaviour.

However, while applying Article 12 of the Law of Ukraine "On Protection of Economic Competition," the AMCU ignored the legislation requirements that the dominance position of an undertaking in a market should be determined using the criteria applied to determine such dominance position under the EU Law, in particular, in the practice of law enforcement and judicial practice in the EU.

It is essential to note that the behavioural aspect of any collective dominance also appears from the analysis of provisions content of Articles 1, 12 of the Law of Ukraine "On Protection of Economic Competition" and of Methodology provisions concerning the determination of the monopoly (dominating) position of undertakings. In particular, paragraph 5 of Art. 12 of the Law of Ukraine "On Protection of Economic Competition" is a special qualifying provision characterising such a situation on market when, in contrast to the individual dominance of a separate undertaking, the ability to determine or fundamentally influence the conditions of goods turnover in the market belongs to an undertaking not independently but jointly with other undertakings – in other words, to aggregate undertakings as a collective entity.

Provision of Article 12 also indicates the fact that the aggregate part, namely formed jointly (but not cumulative, i.e. the part obtained arithmetically), of undertakings is a structure coefficient, on the basis of which any determination of dominating position shall be based. It means that exactly the taken together undertakings – so-called "an entity of collective dominance" – possess this market (monopoly) power and this power is present exactly thanks to their common (joint) behaviour. The object for analysis, in this case, is "entity of the collective dominance" and its market power as a collective entity that acts, versus other participants of the market and at that exactly due

to such an integration a collective entity (i.e. thanks to the aggregated market power of all members of the collective entities that is demonstrated in a specified coordination and similarity, parallelism of competitive behaviour among them) has a possibility to obtain any uncompetitive advantages, determine conditions of goods turnover or block, limit the competition, in particular, increase the prices, which would be impossible individually for each separate undertaking that is a part of collective dominating entity.

#### 4. Conclusions

According to European experts (Chauve & others, 2009), the electric energy sector in whole is characterised by its uniformity (homogeneity) with a low elasticity of demand, which deprives the customers of usual instruments to regulate prices and supplies. In respect of the supply, it is also characterised by significant discrepancies between expenses for the implementation of different manufacturing technologies that are not reflected in the price formation of the supplier.

During 2003–2004, The EU Commission carried out the study of electricity market in the EU (according to the data of six member-states – Germany, France, Netherlands, Belgium, Spain, and Great Britain (excluding North Ireland) and a public well-grounded detailed analysis of this market was presented with involving of leading expert centres of Europe. However, during the study of the electricity market in Ukraine, the AMCU has not considered the experience of carrying out such studies in the EU since the principles, data retrieval, description of the principles and approaches used by the European experts are absent in studies of the AMCU. It can be conditioned by the short timing of performing the study, usually such studies in the EU are carried out for several years, and in case the investigations of an antimonopoly body shall be prepared within a shorter period, a well-grounded study of competition carried out by the regulatory authorities in the field of the electricity industry and the expert community precedes it. But it does not cancel the groundlessness and the hasty conclusions of the AMCU that in fact conflict with the concept of “collective dominance” in the EU law.

In the European practice, there are single cases connected with the competition rules in the electricity market. Most of them have relation to the concentration and state aid procedures. However, some of them also concerned abuse of the dominant position. In this connection, it is essential to refer to the analysis of case E.ON (2008).

So, taking into account an approximate parallelism with the report of AMCU, it is essential to appeal one more time to the analysis and to the well-grounded study of the national electricity market that was not carried out in fact. Besides, in the existing model of

WEM (wholesale electricity market) of Ukraine, the AMCU cannot be confined only to import and electricity generation market (wholesale market) as in case E.ON, but it shall carry out a study of all the elements of the wholesale electricity market in Ukraine taking into account interdependence and influence of all its elements on each another.

Considering the fact that the national electricity market of Ukraine is set at the legislative level, separation of its single components shall be carried out in the process of studying their interdependence and analysis of the market power that does not belong to the manufacturers of electricity as a result of significant government regulation of this sector of the economy. At the same time, AMCU has not yet studied this aspect in relation to SE Energorynok (state enterprise) that not only integrates the functions of the unified wholesale buyer and supplier but acts as a system formative element of market functioning being the disposer of payments system, spending unit of WEM, the settlements centre, main operator of the electricity commercial accounting system in the regimented limits of AWEMPs between the members of the wholesale electricity market of Ukraine and appendices to them.

The national electricity market is in fact an aggregate of commodity markets reflecting the relationships, which arise from the functioning of the united energy system of Ukraine and are economically structured according to the AWEMP into the WEM system that is characterised by the state of institutional monopoly depriving the participants of the market power as a result of governmental control and the conditions of the goods turnover in the market are specified by the public authorities. The “single buyer” market model is combined with government regulation represented by State Enterprise “Energorynok” and the National Energy and Utilities Regulatory Commission of Ukraine (NEURC) leads to the conclusion about actual absence of the market power of electricity producers and consequently the absence of a level of independence required for determining the dominance position according to the EU Law.

According to the European practice, it is possible to conclude that the AMCU report and conclusions on the collective dominance do not cover the analysis of conditions, under presence of which there are grounds for determination of the collective dominance, in particular: i) conditions under which every undertaking, which is a part of collective dominance, shall have a possibility to easily obtain information concerning the behaviour of other undertakings in the market; ii) conditions under which the collective dominance participants shall have the possibility to influence the undertaking, which: in case of agreement between them – can restrict the competition and in case of coordinated activities – avoids the common policy in this market; iii) conditions under which the expected reaction of competitors both

acting and potential shall not significantly influence the expected result of agreed actions (the common policy implemented by collective dominance participants in the targeted market); iv) conditions under which economic, legal, and structural links providing an opportunity to implement the joint policy in particular, concerning the prices are present between the collective dominance participants; v) conditions under which the collective dominance participants possess the market power, i.e. can act independently from buyers, customers, and competitors. It is obvious that the sufficient link or connection between the undertakings should be the core concept of the case analysis.

According to the words of Dr. J. Lubkin, Head of Unit of unit B1 of the European Commission's Competition Directorate-General, in charge of Antitrust in the field of Energy and Environment (2015), the most important factor for analysing the competition in the electricity market are particular features of the market structure and high barriers for market entry together with particular "unique" price-making mechanism in electricity markets. Accordingly, one of the essential elements of the collective dominance is the influence of its participants on the price. Consequently, according to the EU law, if participants of collective dominance do not have a possibility to influence the price there will be no collective dominance even without consideration of issues of dependences between such participants. In this connection, the AMCU should reflect this aspect of EU law enforcement practice in its Report.

On the basis of abovementioned, it is possible to conclude that the liberalization of electricity market that was started in the EU in the middle of 90th of the XX century was carried out through the relevant stages of supranational and national legislative regulation. The latest examples of the law enforcement practice in the field of compliance with the competition rules in the EU show that they became a basis for a new approach that was reflected in the adoption of the third package

for the electricity market liberalization. So, the practice and the approaches of the European Commission were and remain targeted at the market liberalization, decrease of the regulatory influence and development of competitive relationships.

Due to the fact that the national electricity market of Ukraine is strictly determined in the legislation, any allotment of its separate elements shall be carried out together with the research of their dependences and analysis of the market power of all participants that take part in this market relations and, first of all, of public regulatory authorities. So, the statement about the collective dominance without proving the existence of coordinated policy and parallelism is superficial taking into account the fact that the parties are in the limited legislative field in respect of electricity demand and supply pricing, the policy in respect to which is formed unilaterally by the NEURC.

The need to change the structural state regulation of the wholesale electricity market and to change the legislative fixing of pricing and control over the pricing become the main factors for changing the energy market regulation.

Consequently, the AMCU's approach to electricity market regulation in Ukraine confirms the necessity to reform the system of the governmental regulation in the wholesale electricity market and in the market of services for electricity transmission, necessity for change of the system for tariff and pricing policy formation on the part of the National Energy and Utilities Regulatory Commission of Ukraine and the Ministry of Energy and Coal-Mining Industry of Ukraine for developing the competition in electricity market and the need to follow the approaches and criteria of the EU competition law with regard to determination of the dominance in the market, which is stipulated by the international legal obligations of Ukraine arising from Articles 18 and 94 of the Treaty establishing the Energy Community and Art. 255 of the EU-Ukraine Association Agreement.

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# GROUNDS FOR LIMITING PROPERTY RIGHTS IN THE APPLICATION OF TEMPORARY SEIZURE OF PROPERTY IN CRIMINAL PROCEEDINGS

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**Abstract.** The *purpose* of the paper is to investigate reasons for the restriction of property rights in the application of temporary seizure of property in criminal proceedings and to determine promising directions for further research on the issues. The issue of measures to ensure criminal proceedings and observance of human and civil rights and freedoms was investigated by a number of domestic scientists, but the degree of investigation of grounds for restricting property rights in the application of temporary seizure of property in criminal proceedings in the context of amendments made to the CPC of Ukraine in recent years remains insufficient. That is why the study of the grounds for limiting property rights in the application of temporary seizure of property in criminal proceedings is now of particular urgency. *Methodology.* Methodological basis of the research is a set of philosophical, general scientific, special scientific methods. The method of logical-semantic analysis is used to clarify the meaning of multi-valued concepts, the application of the method of system analysis allowed investigating the place of the institute of property rights in legal literature and legislation of Ukraine. The method of grouping and the system and structural approach are used for classifying the distribution, ascertaining the internal structure, and analysing the interconnections between elements of the concept of ownership and the category of property rights restriction. *Results.* The paper examines the factual and formal legal grounds for limiting the ownership of a suspect, accused, and other persons in the application of temporary seizure of property in a criminal proceeding. The conclusion is drawn on the need to clarify the factual grounds for the temporary seizure of property for cases where such a seizure is carried out by a person who has carried out legal detention in the manner prescribed by Articles 207, 208 of the CPC of Ukraine and is not an investigator, prosecutor, or other authorized official. *Practical implications.* Proposals regarding the resolution of individual legal conflicts in the current CPC of Ukraine are provided.

**Key words:** right of property, temporary seizure of property, restriction of individual rights, criminal proceedings.

**JEL Classification:** J00, K00, K11

## 1. Introduction

In modern conditions, the right of property is not only the basis of property independence of participants in public relations, which is a prerequisite for a market economy. At present, the inviolability of property rights has become, without exaggeration, one of the fundamentals of a modern democratic society and a rule of law. On this issue, one should agree with A.S. Nersesian, who observes: "Only citizens with property can claim to be the stable basis of the functioning of

any society, and the illegal deprivation of property on the part of the state means its legal arbitrariness and inherent in the main authoritarian and totalitarian regimes" (Nersesian, 2015).

In these circumstances, mechanisms become important that allow ensuring a balance between private and public interests in criminal proceedings and creating preconditions for the persons who own the property to exercise their powers in relation to their property and, at the same time, to achieve the objectives of the

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criminal proceedings, which, as N.S. Morhun notes, in many cases, can only be carried out subject to the restriction or even deprivation of property rights during the investigation of criminal offenses (Morhun, 2015).

Therefore, the issue arises as to the grounds for limiting ownership in the application of temporary seizure of property in criminal proceedings.

The issue of measures to ensure criminal proceedings and respect for human and civil rights and freedoms was investigated by a number of domestic scholars such as Yu.P. Alenin, Yu.M. Hroshevyi, V.S. Zelenetskyi, O.P. Kuchynska, L.M. Loboiko, Yu.M. Miroshnychenko, O.R. Mykhailenko, N.S. Morhun, A.S. Nersesian, S.M. Smokov, and others.

However, the degree of investigation of grounds for restricting property rights in the application of temporary seizure of property in criminal proceedings in the context of changes made to the CPC of Ukraine in recent years is still insufficient.

#### *Problem statement.*

The main tasks solved by this article are as follows.

1. To investigate the grounds for limiting property rights in the application of temporary seizure of property in a criminal proceeding.

2. To identify promising directions for further research on the issues studied.

## **2. Definition of the concept of property rights and the concept of inviolability of property rights**

Institute of property rights in the objective sense is complex (multidisciplinary), that is, that unites the rules of various branches of law, in particular, constitutional, civil, administrative, criminal. The said institution covers a set of rules that establish the general principles of property belonging to certain persons, and regulate and protect the belonging of material goods to specific individuals (Novoselova, 2001).

According to V.V. Aliamkin, the inviolability of property rights is a fundamental principle of guarantees of the protection of property rights and economic human rights, which is realized through the relevant material and procedural rules of the current legislation of Ukraine at the presumption level. This constitutional rule at the presumption level must be carried out unconditionally and provide both all the branches of law and the activities of state bodies, in particular, the judiciary. Any encroachment on property right is definitely unlawful if it is committed without the knowledge of the state and has no appropriate act of law enforcement (Aliamkin, 2011).

O.V. Dzera argues that the right to property is a statutory right, which establishes the absolute affiliation of property to a person (owner) and defines its rights and obligations with respect to this property (Dzera, 1996).

In the objective sense, the right of private property to citizens is a set of legal rules that establish and protect the citizens' ownership of property of the consumer and financial and productive purpose and provide owners with the right to own, use, and dispose of this property at their own discretion, to use it with any purpose, unless otherwise provided by law. Legal right of ownership is formed as a combination of the three most important powers – the right of ownership, the right to use, the right to dispose (Dzera, Kuznetsova, Pidopryhora, 2000).

The concept of inviolability of property rights as a basis for criminal proceedings is determined by N.S. Morhun as the original idea of the criminal process of a statutory nature, which consists in directing the content and form of criminal proceedings to protect the person from unlawful interference in its ability to own, use or dispose of its own property within the limits established by law at its own discretion (Morhun, 2015).

## **3. The content of category of restriction on the right of ownership**

Regarding the content of the category of property rights restriction in the legal literature, there is currently no single position.

So, O.P. Kuchynska, T.I. Fulei, R.V. Barannik consider that restriction on the right of ownership is to remove certain powers from its content (Kuchynska, Fulei, Barannik, 2013). Instead, N.S. Morhun supports the position, by which the power to be restrained is not removed from the contents of the property right. The proprietor may exercise a limited subjective right only to the extent possible within the constraints. In the opinion of N.S. Morhun, restriction of property rights is a deterrent that prevents the owner from realizing his own private interest contrary to public interests. This restriction is imposed only on the basis of the law and does not remove the powers from the subjective right of ownership, but only blocks, in whole or in part, the possibility of its implementation (Morhun, 2015). O.V. Rozghon considers the restriction of the right of property as external influence on the subjective right of ownership of a particular person, embodied in the relevant legal relationship with his or her participation, involves compressing, reducing the ability of the owner to exercise his powers and consists in specific orders to the owner to take certain actions or refrain from certain actions (Rozghon, 2005).

Thus, the restriction on the right of ownership does not preclude the exercise of powers of the owner but allows it in the presence of certain conditions that must be observed. Restriction induces the owner to tolerate certain actions of third parties in the field of his legal domination or to refrain from certain actions (Aliamkin, 2011).

In view of the foregoing, for the purposes of this study, under the restriction of property rights in the application of temporary seizure of property in criminal proceedings, we propose to understand objectively existing

circumstances of a temporary nature that by depriving a suspect, accused, and other persons of the possibility of exercising certain powers in relation to their property, limit the freedom to carry out actions with their property and consist of specific orders to the owner to take certain actions or refrain from certain actions.

In this case, the general features of the restriction on the right of property in the application of the temporary seizure of property will be as follows:

- a) it is some oppression of the fullness of property rights;
- b) necessarily formally defined, that is, enshrined in laws and regulations, moreover, solely at the level of law and the Fundamental Law;
- c) is established given the public interests, namely, for the purpose of legal protection of rights and legitimate interests of other persons (Soloviov, 2011).

#### **4. Grounds of restriction on the right of ownership in criminal proceedings**

In relation to the issue of grounds of restriction on the right of ownership in criminal proceedings, it should be noted that, according to p. 2 of Article 223 of CPC of Ukraine (Holos Ukrainy, 2012), grounds for carrying out an investigative (search) activity are the availability of sufficient information indicating the possibility of reaching its goal.

In a criminal proceeding, grounds for carrying out an investigative (search) activity are conditions, upon which its conduct is possible, and these conditions are divided into factual and formal legal (Sheyfer, 1981). Using such a classification, in addition to theoretical needs, ensures a more faithful understanding and application of the law as related to conducting investigative (search) activity in practice, as well as the implementation of prosecutorial supervision, departmental and judicial control. As both factual and legal grounds for carrying out an investigative (search) activity can be subject to prosecutorial supervision, departmental and judicial control. Both legal and factual grounds can be subject to appeal, act as an independent subject of lawfulness and justification for conducting investigative (search) activity (Rudenko, 2015).

With the application of this approach in the study of the subject of this scientific work, the factual and formal legal grounds for limiting ownership in the application of temporary seizure of property in a criminal proceeding are subject to a priority analysis.

#### **5. Factual grounds of restriction on the right of ownership in the application of temporary seizure of property in criminal proceedings**

Factual grounds of restriction on the right of a person in the course of proceedings are a set of data sufficient to make a decision under the law as to the need to restrict

certain rights of a person in such actions (Litvinova, 2017). Also quite common in the scientific literature is the definition of factual grounds for procedural action as sufficient data for the assumption that from the sources specified in the law information can be obtained that is the purpose of a certain procedural action (Shepitko, 2005). That is, the reasonableness of a certain procedural action is directly linked to the existence of the appropriate grounds for the conduct of such an action.

Legislation of Ukraine determines three grounds for temporary seizure of property: 1) legal detention of a person; 2) search; 3) examination. In turn, detention is divided into two groups: detention by any person ("ordinary citizen") and detention by an authorized person (Nersesian, 2015).

So, p. 2 of Article 207 of CPC of Ukraine (Holos Ukrainy, 2012) grants every person the right to conduct legal detention in the following cases: 1) committing or attempting to commit a criminal offense; 2) immediately after the commission of a criminal offense or the continuous prosecution of a person suspected of committing a crime. At the same time, according to p. 3 of Article 207 of the CPC of Ukraine (Holos Ukrainy, 2012), such a citizen has the duty to immediately deliver the detained person to an authorized official, or to immediately inform the authorized official of the detention and location of the person suspected of committing a criminal offense. In this case, the obligation to perform a temporary seizure of property is also assigned to this person.

Moreover, as A.S. Nersesian mentions, such a duty, in fact, gives the citizen the rights of an authorized official without giving him special training or real authoritative powers (Nersesian, 2015).

In the case when the person who carried out the detention notifies an authorized official of the fact of detention and is waiting for the departure of such an official at the place of commission of a criminal offense, this circumstance is not very significant. However, this situation is quite different in the case when a citizen who has stopped a pocket theft, or a street robbery or supermarket security that stopped a theft in the trading room, deliver the suspect to the investigation authorities or the prosecutor's office on their own. A.S. Nersesian quite rightly notes that in such cases, universal morality dictates to individuals the duty to return the stolen property to the legal owner, and the CPC of Ukraine – to carry out the temporary seizure of property. Obviously, failure to comply with the CPC rules, in this case, can at least be theoretically recognized as an offense, although it will be essential in the understanding of the criminal-procedural law – the issue is open and controversial (Nersesian, 2015).

The fact should also be noted that such a citizen, in accordance with p. 3 of Article 207 of the CPC of Ukraine (Holos Ukrainy, 2012) has a duty to immediately



deliver the detained person to an authorized official, or immediately inform the authorized official of the detention and location of the person suspected of committing a criminal offense. In this case, the responsibility for fixing the temporal seizure of property is also assigned to a person, which imposes on him procedurally significant duties, which not only go beyond his competence and training but also can lead to the destruction or damage of traces of a criminal offense.

The issue of temporary seizure of property during a search or examination also deserves a particular attention. The procedural purpose of the search, in accordance with Article 234 of the CPC of Ukraine (Holos Ukrainy, 2012), is the detection and recording of information about the circumstances of a criminal offense, the search for a criminal offense or property that was obtained as a result of its commission, as well as the location of wanted persons. The examination, in turn, is carried out with the aim of identifying and fixing information about the circumstances of the commission of a criminal offense.

Instead, the main purpose of the temporary seizure of property is:

- regarding the subject of a criminal offense – its return to the legal owner, and if this item is related to the illicit traffic – confiscation and destruction;
- in respect of funds or other property that was intended (used) to persuade a person to commit a criminal offense, to finance and/or provide material support for a criminal offense or reward for its commission, as well as for property (funds) obtained as a result of a criminal offense and/or revenues from them, as well as property in which they have been completely or partially converted – ensuring the interests of the state in the confiscation of property, as well as the victim (civil plaintiff) in the event of reimbursement of damage caused by a criminal offense.

So, according to A.S. Nersesian, only one group of things or documents included in the temporarily seized property can perform a unique evidentiary function – found, manufactured, adapted or used as a means or tool for committing a criminal offense and (or) retained its traces (Nersesian, 2015).

It is also necessary to agree with the position of N.S. Morhun that the courts in practice often come to the conclusion that only the seized items and documents included in the list, on which the court was directly granted permission to find them, as well as the property arrested according to the rules of Article 98 of the CPC of Ukraine, can be recognized as evidence (Holos Ukrainy, 2012). At the same time, there is no provision in the current CPC for a temporarily seized property without the imposition of arrest by a court in accordance with rules of p. 5 of Article 171 of the CPC of Ukraine to be recognized as material evidence (Morhun, 2015).

Summing up the above, *there is now a need to elaborate the factual grounds for the temporary seizure of property*

*for cases where such seizure is carried out by a person who has carried out legal detention in the manner prescribed by Articles 207, 208 of the CPC of Ukraine (Holos Ukrainy, 2012) and is not an investigator, prosecutor, or another authorized official.* We believe that for this category of persons, it is expedient to limit the list of things that may be temporarily withdrawn, taking into account the absence of special training of such persons. Then the relevant list should include: 1) things, documents, money, etc. used as means or tools for committing a criminal offense or who have kept its traces; 2) things, documents, money, etc., used to persuade a person to commit a criminal offense or reward for its commission; 3) things, documents, money, etc., which are the subject of a criminal offense, including those connected with their illicit circulation; 4) things, documents, money, etc., obtained as a result of a criminal offense.

## **6. Formal legal grounds of restriction on the right of ownership in the application of temporary seizure of property in criminal proceedings**

In the general case, legal grounds are considered to be the set of conditions provided for in the criminal-procedural law that give an investigator the right to perform a certain investigative action (Kovalenko, 2008). A.P. Chernenko understands legal grounds as the relevant legal provisions foreseeing the circumstances with which these provisions come into force. These circumstances are the factual grounds, in the opinion of the said author (Chernenko, 2004). As legal grounds for the application of relevant enforcement measures, M.A. Pohoretskyi proposes to consider a number of conditions under the criminal procedural law that allow the authorized subject of criminal process to make a decision on their application (Pohoretskyi, 2007).

Regarding this issue, the opinion of O.M. Kalachova deserves attention; when classifying grounds of measures to ensure criminal proceedings, she uses terms “factual” and “formal” since factual grounds are always based on factual data, and formal – on a normal procedural form of giving a procedural status to a person as provided for in the legislation (Kalachova, 2008).

Under the legal ground of deprivation or restriction on the right of ownership in criminal proceedings, N.S. Morhun proposes to understand as a procedural document that gives an investigator, a prosecutor the right to perform a procedural action, during or after the results of which expropriation or restriction on the right of ownership is possible. For the most of procedural actions, which conduct is related to the expropriation or restriction on the right of ownership, according to N.S. Morhun, the decision of the investigating judge is such a legal ground (Morhun, 2015).

Given the above, for the purpose of this research, we propose to use the concept “formal legal grounds of

restriction on the right of ownership in the application of temporary seizure of property in criminal proceedings” that we propose to understand as the relevant legal provisions foreseeing the circumstances with which these restrictions on the right of ownership in the application of temporary seizure of property in criminal proceedings come into force.

General conditions for conducting procedural actions and taking decisions aimed at deprivation or restriction on the right of ownership are:

- a) the possibility of making a decision only by a court;
- b) reasoning of this decision;
- c) the adoption of a decision in accordance with the procedure provided for by the CPC of Ukraine.

The requirement for the adoption of a decision only by a court is that resolving the issue of restricting or depriving property right at the stage of pre-trial investigation can be carried out only by an investigating judge or a judge determined in accordance with Article 247 of the CPC of Ukraine (Holos Ukrainy, 2012).

The requirement to make a procedural act motivated obliges the court, justifying a court decision, to indicate the arguments that it used (took into account) for making the final conclusion. The statutory obligation to comply with the order of decision requires a court to decide on a case-by-case basis in strict conformity with the CPC rules governing the particular case of restriction or deprivation of property rights (Bandurka, Blazhivskiy, Burdol (etc.), 2012).

It should be noted that not all restrictions on property rights require a court decision in criminal proceedings. The given case is provided in accordance with p. 2 of Article 16 of the CPC of Ukraine (Holos Ukrainy, 2012), according to which the temporary seizure of property without a court decision is allowed. However, this restriction is possible only on the grounds and in the manner prescribed by the CPC of Ukraine.

Investigating the issue of formal legal grounds for restricting property rights in the application of temporary seizure of property in criminal proceedings should, first of all, be based on the fact that the general grounds for the temporary seizure of property are enshrined in Article 167 of the CPC of Ukraine (Holos Ukrainy, 2012).

According to the said article, temporary seizure of property is the actual deprivation of a suspect or persons owned by the property specified in paragraph 2 of this article, of the ability to own, use, and dispose of certain property before the decision on the issue of the seizure of property or its return. Temporarily seized may be property in the form of things, documents, money, etc., for which there are good reasons to believe that they are:

- 1) found, manufactured, adapted or used as a means or tool for committing a criminal offense and (or) retained its traces;
- 2) intended (used) to persuade a person to commit a criminal offense, to finance and/or provide financial

support for a criminal offense or reward for its commission;

3) the subject of a criminal offense, including those associated with their illicit traffic;

4) obtained as a result of a criminal offense and/or revenues from them, as well as property in which they have been completely or partially converted.

This issue deserves a particular attention due to the fact that some scholars do not consider temporarily seized things, for which the investigating judge gave permission during the search (Myroshnychenko, 2013). Things and documents seized on the basis of the decision of the investigating judge, made on the basis of results of consideration of the petition of the investigator in accordance with Chapter 15 of the CPC of Ukraine are also not considered as such (Holos Ukrainy, 2012). Thus, the amendment to Part 2 of Article 168 of the CPC of Ukraine (Holos Ukrainy, 2012), paragraph 2 and 3, created a legal conflict, which consists in the fact that when a court decision specifies certain property to be seized (in this case, electronic information systems or their parts, mobile terminals of communication systems), then such property cannot be considered temporarily seized. In order to solve this collision, A.E. Rudenko proposes to amend paragraph 2 of Part 2 of Article 168 of the CPC of Ukraine (Holos Ukrainy, 2012) as to provide that the temporary seizure of electronic information systems or their parts, mobile terminals of communication systems for the study of physical properties that are important for criminal proceedings is forbidden. It is proposed to seize such items only if they are included in the list, for which the explicit permission to search in the decision on the search permit is given (Rudenko, 2015).

Summarizing the above, formal legal grounds for the restriction on the right of ownership in the application of temporary seizure of property in criminal proceedings are the requirements of Article 167 of the CPC of Ukraine (Holos Ukrainy, 2012). In the case of the temporary seizure of electronic information systems or their parts, mobile terminals of communication systems for the study of physical properties that are important for criminal proceedings, such a reason is a court order, in which they are expressly indicated.

## 7. Conclusions

According to the results of the investigation of the factual and formal legal grounds for the restriction on the right of ownership in the application of temporary seizure of property in criminal proceedings, we can draw the following conclusions.

1. There is a need to clarify the factual grounds for the temporary seizure of property for cases where such seizure is carried out by a person who has carried out legal detention in the manner prescribed by Articles 207, 208 of the CPC of Ukraine (Holos Ukrainy, 2012) and

is not an investigator, prosecutor, or other authorized official. For this category of persons, it is expedient to limit the list of things that may be temporarily seized, taking into account the absence of special training of such persons.

2. There is a need to resolve the legal conflict created after the addition of Part 2 of Article 168 of the CPC of

Ukraine (Holos Ukrainy, 2012) by paragraphs 2 and 3.

Taking into account the above, we consider the scientific search for solutions to the above-mentioned range of problems as one of the promising directions for further study of issues of restriction on the right of ownership of a suspect, accused, and other persons in criminal proceedings.

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## ENTERPRISES DEVELOPMENT: MANAGEMENT MODEL

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**Abstract.** *The paper's purpose* is to provide recommendations for the effective managing the companies' development taking into account the sectoral key elements' transformation. *Methodology.* The enterprise profits' econometric simulation is conducted to determine the most significant factors influencing their development. According to the model testing result, their multicollinearity was revealed. To get rid of the multicollinearity phenomenon from the profit models, isolated regressors are excluded, namely, return on assets, material returns, return on equity. To obtain qualitative models with a small error of model parameters estimation and, accordingly, high reliability of the conclusion about the interrelation between the factors of the model and the resulting feature, factors in the income model that are not closely interconnected, that is, not multicollinear, are included. Determination coefficients  $R^2$  and F-criterion were calculated for model quality checking. The modern printing enterprises of Ukraine key elements, connected with integration into the global information space, are analysed. *Results.* The interrelation between a company's development and earning capacity is identified in the study. The profit importance as the main source for enterprise financing is substantiated. Factors that have the greatest impact on the enterprises' development are labour productivity, financial autonomy, working capital turnover, and the character of their influence is most adequately reflected by the power model. Peculiarities of the enterprises' activity include increased competition at the inter-branch level, poorly developed industrial relations, and the own sources of financing activities shortage. *Practical implications.* Based on information on the most significant developmental impact factors, directions for perspective enterprises development for their competitiveness increase are proposed: diversification based on the activity expansion, the enterprises' organizational structure change, investment development. The actuality of diversification's activity for profit increase due to new markets development is determined. It was found that corporations are the most acceptable organizational form for the enterprise. The urgency of investment development for printing companies is proved connected with the production modernization's necessity, ensuring the manufacture of competitive products. *Value/originality.* To ensure the effective enterprises' development based on development concept, a model for managing the printing companies' development is worked out. The model for managing the companies' development is prepared based on the concept that takes into account the peculiarities of enterprise activity and priority directions of their development, improves the directions for enterprises adaptation understanding in the competitiveness growth conditions.

**Key words:** earning capacity, profit, development, investment development, concept, management model.

**JEL Classification:** E22, L11, M11, O20

### 1. Introduction

In modern conditions, an aim prerequisite for enterprises functioning is their development, associated with different approaches to its essence. At the heart of the development process is considered the state of the economic system; various types of changes that determine development; diversity of inter-linkages between the factors of all the enterprise's environments. The enterprise as an object of management gets functions that influence its development, including strategic ones,

and is a constant search for development and economic growth directions associated with economic changes. Enterprises development is first qualitative changes in its activities and conditions (Hvostina, 2015). Earning capacity of the enterprise is determined by the social and economic earning capacity level, requires a work's motivation, a work's management, a working conditions creation, an enterprise infrastructure development, environmental preservation. All this is important both for product quality and its competitiveness. According

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to many scientists, social, economic, and environmental development (Bhattacharya *et al.*, 2015; Klapper *et al.*, 2016; Satterthwaite, 1997) are integrated into sustainable development concept. Environmental factors, in turn, impact economic growth, and the demographic situation, birth rate (Varvarigos *et al.*, 2017).

The authors focus on the study of factors affecting the enterprises' development, justifying the business development ways, prove the state support urgency for small and medium enterprises.

Enterprises development is influenced by internal and external factors. The authors substantiated the state policy's importance for the small and medium enterprises development, suggested the actual state policy directions: the financial instruments implementation, information about promising markets dissemination, topical technologies, ways to save costs for the business entity (Taiwo *et al.*, 2012). The state offers a differentiation of support programs for small and medium businesses, distinguishes between the Program for lending to small family businesses, programs for attracting graduates to business, micro-lending programs for the unemployed to start their business, long-term loans (5-10 years) to small and medium enterprises at a very low interest rate (Oni, 2012). Eversole (2004) argues the micro-enterprises role fight poverty, and self-sufficiency of these enterprises owners to improve their conditions. The clusters creation is important for small and medium-sized enterprises development, but this process is complicated over the lack of cluster sizes to compete globally, the lack of resources, an insufficient infrastructure, and the lack of training for cluster managers (Lopriore, 2009). Conditions for the effective Governance in associations are accountability, transparency, consistency, and participation (Nwankwo *et al.*, 2012).

Thus, to a deeper insight in small business enterprises development processes, Butler (2006, p. 221) substantiates the typical phases of business development: the initial start-up phase of a new business, the relative stability, the growth and the development, and the need to use different business models for each of these stages. Butler (2006, p. 223) proves the gradual delegation of authority topicality, the transition from concentration to operational activity to strategic thinking, the constant acquisition of relevant knowledge and skills that will contribute to long-term growth and the business sustainability; also provides a recommendation for enterprise managers to apply those management principles proper to the business size.

In the paper (Asian Productivity Organization, 2007), according to the competitive impact on development, such indicators as effective business models and strategies allowing to enter new markets, aspirations for leadership, an investment activity, and an innovation, are identified. Promising areas for small and medium-sized businesses development are defined by a partnership

with large companies, entrepreneurship. The work (Durowoju, 2014) also justifies the entrepreneurship's priority, since it can provide long-term competitive advantages. A generalization is made that companies should create entrepreneurial networks for coaching, mentoring in their work (Asian Productivity Organization, 2007). Thus, the researchers are the adherents of the competition concept as a partnership, allowing achieving global benefits for the market.

Development is associated with changes that offer some opportunities for economic growth and create operational risks. Companies that implement breakthrough innovations are at the highest risk, as opposed to evolutionary innovations, as they create new markets (Goutam *et al.*, 2015). The competition growth impacts on development, therefore, there is a need for continuous management's improvement by product quality upgrading, the production costs cutting and the business risks reduction. Every effective enterprise should offer an innovative product and develop a business model (Teece, 2010).

The latest technologies adoption ensures the better-quality products production, production operability, productivity gain, and resource intensity reduction. In (Sacala, 2014) justified the modern information technology application in enterprise management, identified the actual principles for constructing the enterprise architecture – the ability to adapt to changes, build an efficient resource management system, use the Internet possibilities to integrate into the global market space. The current trend in information technology's development is applications. Authors (Unhelkar *et al.*, 2010) argue the relevance of applications that integrate or isolate basic functions relevant to consumers, contact groups, business management, such as mobile broadcast, information, transaction, operation, and collaboration for enterprise development, namely, meeting new consumer needs, operational activities effective implementation, raising the competitiveness level. Surugiu (2012) justifies the integrated information system usage importance due to such advantages as an accelerating data processing, a speeding-up data in real time, an optimizing the control of business costs distributed on cost centre.

The amount of investment affects the qualitative and quantitative increase of economic value added, invents innovation activity. In (Ricupero *et al.*, 2001), the sufficient financing for effective actions significance and the competitiveness achievement in global markets has been proven. Limited access factors to credit resources are substantiated. The progressive experience of the European Union countries in overcoming the barriers in getting loans was established through the creation by small and medium-sized enterprises of Mutual Guarantee Society, funded by its participants and provides financial guarantees to enterprises at their request to banks for getting credit funds. Funds

providing financial guarantees are successfully operating in France, Italy, Spain, and Germany.

The financing enterprise development issue is also explored by Luiz (2000) and proves that growth in production a beneficially influences the credibility of debtors; the orders inflow can be furnished through the participation in tenders for state procurements, the sales networks development, implementation of technical and organizational decisions aimed at increasing in labour productivity (Luiz, 2000).

Thus, speeding-up scientific-and-technological progress, changing market conditions, the need to find sources of investment resources and directions for their efficient use raises theoretical and practical interest in the enterprises' development. In the development management process, it is necessary to strain after balanced improvement of all enterprise subsystems.

Increasingly relevant in present-day conditions of domestic economy's development becomes the development management for printing companies, due to their importance to society to meet its information needs and to ensure access to quality printing products, and several features, such as the predominantly small-scale business, affiliation with publishing activities, a high level of printing equipment cost, material content, import dependence.

With the urgency of the enterprises' development problem to ensure their earning capacity and competitiveness, the authors put and executed the following **research objectives**:

- 1) current trends in the printing companies in Ukraine development are described;
- 2) the interrelation between development and earning capacity of the enterprise is substantiated;
- 3) ways of increasing the enterprise earning capacity development are determined;
- 4) the management model for enterprises development to ensure their competitiveness in the market in present-day conditions is worked out.

## **2. Influence of development on increasing the printing enterprises earning capacity activity**

The printing industry enterprises activity is commercial, enterprises are aimed at a profit, and their specialization in the works execution to order all economic branches, in particular, the replication of periodical and non-periodicals, promotional materials, packaging, labels, blanks, etc., forms a significant potential for development. Publishing products (books, newspapers, magazines) accompanying people in learning, work, recreation, development, forming its outlook, the level of culture, patriotism, depth and breadth of knowledge, education, competence, thus, the level of self-awareness and the nation's intellectual potential are formed and developed, affects the human welfare of the population, as a consequence, the

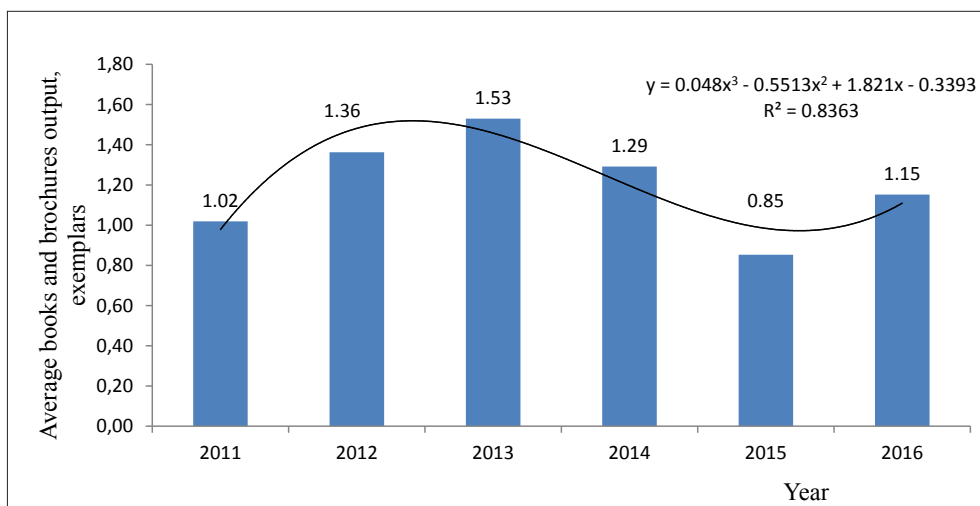
country's reputation. And in conditions of preservation, multiplication and productive use of the nation's intelligence, an effective socio-economic development of the country takes place and its contribution to world progress is ensured.

Other types of printing products, for which the information function is determinant as well, are also important. Thus, the attended printed matter provides the commodity producers with necessary information about the product; packaging is a necessary element in supply logistics, stationery, despite the electronic media's expansion, are irreplaceable in creating a corporate culture and style; markings provide effective, relevant navigation, promotional materials serve as information in specific places and time, and so on. Such products variety ensures the printing industry's integration with all spheres of production and human activity.

The printing industry is a part of publishing and printing complex since its activities are impossible without the information products or editions manufacture. Thus, the printing products market is a part of the information market, which in present-day conditions is characterized by the communications complication in the information space, the products distribution and sales forms diversification, increased market volumes and increased differentiation, transformations in the culture of information consumption, which requires effective strategizing of publishing and printing enterprises development. The printed publishing products manufacturers, integrated into the media market, compete not only with traditional producers of information – radio and television but also with manufacturers, operating on Internet platforms – these are social networks, Internet TV, mass media, presented on the Internet, electronic, audio editions, blogosphere, mobile applications, Telegram channels, online educational courses and more.

The publishing market's structure is closely linked to the economic development level, the education and culture level, on which the level of demand depends and, therefore, the economic status, investment opportunities of publishing and printing enterprises. Increase in demand for information products in non-legible form raise the investment attractiveness of their manufacturers level and leads to a partial capital outflow from manufacturers of traditional printing products, in these conditions, both the publishing and printing companies' innovation development and the need for state support grows are important. Granting tax exemptions, increasing the state orders volume, public investment in scientific and technical support will promote an effective reproductive policy in the industry, and thus attainment the European standards level of development.

We have analysed the books and brochures output dynamics in Ukraine to determine the production floor trends for 2011–2015 (Figure 1).



**Fig. 1. Dynamics of average books and brochures output per one resident of Ukraine (exemplars) for 2011–2016**

Source: Statistical information of the State Statistics Service of Ukraine, built by the author using the MS Excel package

In 2014–2015, compared with 2013, the tendency was shown to reduce the average books and brochures output and for 2011–2016 this index did not exceed 2 copies, which does not contribute to the full society development. During the analysis, the average circulation did not exceed 2.6 thousand exemplars, and the smallest its value was in 2015 – 1.82 thousand copies. Small circulations stimulate printing companies to implement technologies and equipment, alternatives to offset printing, which ensures the earning capacity of small production output. It creates conditions for microenterprises' development, guided by small circulations, and for industry's cooperation development since not all entities are capable of performing a complete technological cycle. As the analysis showed, the share of small enterprises in 2015 was 96%, which determines the peculiarities of the printing industry, namely, the competition high level, the shortage of resources for development.

The earning capacity of development is influenced by enterprises' innovative activity. Based on a certain share of innovative products in the printing industry from 2011 to 2016, the maximum value of the innovative products' share was 2.01% in 2012; the minimum is 0.55% in 2015. This is due to the insufficient financing

of enterprises. During this period, in the total volume of printing products, the newspapers' share decreased from 7 to 4%, as the number of newspaper producers decreased by 30%.

To ensure earning capacity of publishing activities, a well-established system of interaction between partners is required, which, as the analysis showed, changes in the current period, complemented by the progressive communication tool advancement – the Internet, which affects the earning capacity printing companies' development. In the unfavourable market conditions context, it is necessary to look for ways to preserve the volumes of production and sales, increase the volume of profit as the main source of development.

To determine the internal factors' influence on the enterprises of the sector activity, we have constructed the net profit econometric models for six printing enterprises (Table 1). The enterprises are chosen according to the following criteria: the enterprises' size, the products' range, the completeness of the production cycle – pre-print, printing, and post-printing stages, experience in the market.

Factors in the model are the labour productivity ( $x_1$ ), the financial autonomy coefficient ( $x_2$ ), the working capital turnover ( $x_3$ ). The obtained power models of

Table 1

**Net profit econometric models for enterprises**

Enterprise	Net profit econometric model
LLC "BVI-Print"	$y^* = 0.169 x_1^{1.27} x_2^{-0.789} x_3^{0.614}$ ; $R^2 = 0.9510$ ; $F \text{ true} = 181.108$
LLC "Vistka"	$y^* = 13.057 x_1^{-0.387} x_2^{0.794} x_3^{2.569}$ ; $R^2 = 0.834$ ; $F \text{ true} = 46.945$
LLC "Macros"	$y^* = 70.869 x_1^{0.472} x_2^{-0.21} x_3^{0.031}$ ; $R^2 = 0.773$ ; $F \text{ true} = 31.901$
LLC "Mega-Poligraph"	$y^* = 14.67 x_1^{0.989} x_2^{-0.334} x_3^{0.057}$ ; $R^2 = 0.914$ ; $F \text{ true} = 98.787$
LLC "Avanpost and Partners"	$y^* = 11.187 x_1^{1.008} x_2^{-0.092} x_3^{0.115}$ ; $R^2 = 0.906$ ; $F \text{ true} = 90.394$
LLC "Univest Marketing"	$y^* = 5.872 x_1^{1.242} x_2^{-0.025} x_3^{0.711}$ ; $R^2 = 0.9169$ ; $F \text{ true} = 102.955$

Source: Self-developed

net profit manage the economic content of the Cobb-Douglas production function, where the indicator of labour resources (L) and capital (K) are used as independent variables. To adapt the Cobb-Douglas function to the functioning of domestic enterprises conditions, we propose to express the labour resources category as an indicator of labour productivity, while the capital category is an indicator of its structure (financial autonomy coefficient) and the efficiency of capital use indicator (working capital turnover).

Based on the obtained power models of net profit comparison with the Cobb-Douglas production function, it is determined that they are similar in economic terms.

To a greater extent, the profit of LLC "BVI-Print" is influenced by labour productivity, which is determined based on the elasticity coefficient, whose value is 1.27, with the increase in labour productivity by 1%, the growth rate of net profit is equal to 1.27%, and the smallest impact of labour productivity on profit at LLC "Vistka" is 0.378. For all investigated enterprises, in addition to LLC "Vistka", the negative value of the elasticity coefficient for the indicator of autonomy is defined, with the share of equity capital increase in returns of profit decreases. The elasticity coefficients, determined for the working capital turnover factor, in all enterprises is positive, prevails on the level of elasticity of LLC "Vistka" – 2.569, a less noticeable effect of working capital turnover on profit at LLC "Macros" – 0.031.

Taking into account the priority of increasing labour productivity to increase the profit of enterprises, the urgent tasks are an expansion of printing enterprises markets both at the expense of orders' physical growth and more qualitative satisfaction of consumers' needs, and also updating of the enterprises' technical equipment. These measures are necessary not only to increase the cash revenues volume of enterprises but also to avoid financial losses.

### 3. Directions to increase the earning capacity of enterprises development

Substantiation of the earning capacity directions of enterprises development depends on their current state, promising sales markets, industry practices, strategic orientation of enterprises, state policy in the industry, the relevance of a new cooperation forms development. The authors of the article defined such promising directions of development for printing enterprises:

- the enterprises' activity diversification;
- the enterprises' organizational structure change based on their corporatization;
- investment development.

The need for comprehensive customer satisfaction, the search for new, more profitable sales markets, and the scientific and technological progress implementation are

justified by the diversification expediency of enterprises activity based on its expansion.

When choosing the enterprise's diversification, the expected earning capacity and its duration must be considered. Diversification allows solving several tasks for the enterprise, namely, profits increase, operational risks reduction, the increase of capacity utilization, intellectual potential of enterprise, efficient use of investment resources. Diversified enterprises are characterized by a lower level of profit volatility (Pandya *et al.*, 1998).

The management of diversification process organization requires the solution several tasks, namely:

- management organizational structure achievement compliance with tasks to be solved with an allowance for activity expansion;
- possibilities of optimization of diversification processes estimation at the enterprise by the rational allocation of functions, implementation of outsourcing and outstaffing practice in practice;
- effective motivation system application.

Improvement of management organization is occurring due to the program-target organizational structures of management implementation, quality management systems, which promotes the quality improvement, products competitiveness, a rise in profitability.

The employees' functions expansion requires an appropriate remuneration, which should be taken into account by motivation system. Therefore, to build an effective motivation system, it is necessary to set fringe benefit expanding functions in the conditions of diversification, to provide high-quality communications by informing employees about the system of incentives and charges. Bloom *et al.* (2010) to progressive incentive systems refers the employees' participation in profits distribution.

To increase the earning capacity of enterprises activity, we offer a better organization form, such as corporatization, based on their activity's diversification and their own investment sources. In present-day conditions, participants in the publishing and printing complex are inefficiently productively interacting, thus not fully exploiting the potential of economic growth. Publishers, without paying due cognizance to the study of demand, prefer the rights purchase to translate world bestsellers, which check the growth of the domestic copyright environment. To save money, publishers organize product sales on their own, and it is expedient to delegate it to wholesale booksellers, which will help to reach a promising sales chain – network supermarkets. Printing enterprises cooperate insufficiently with publishers at the technical publications preparation stage, which adversely influences product quality, cost, and price. Book trade organizations pay insufficient attention to the stock management, do not interact with publishers for the purpose of studying the demand for



book products. Corporatization will aid in improving the publishing and printing enterprises interaction, thus, better satisfying the consumers' needs, as an increased competitiveness consequence, earning capacity of development.

The need for business consolidation is due to two factors: the lack of own financial resources for large-scale production and technology projects and the limited target markets capacity (Kobernyk, 2012). The main motives for the corporations' creation are the search for ways to increase the earning capacity of business operation, promising investment's directions, market's expansion. Based on certain motives, the structure of potential participants is substantiated, it is expedient to attract those partners who will strengthen or expand the competitive advantages of the association and will provide an economic earning capacity. It is advisable for printing enterprises to form associations with publishers with highly qualified personnel, commercially successful publishing projects, a significant market share, publishers which apply innovative technologies, provide high-quality products, and focus on consumer inquiries. Bookselling establishments, preferably network or wholesale with a broad sales geography and a payment discipline high level may be involved in corporations, which will help reduce sales costs and speed up a capital turnover.

Determining the goal, setting tasks for corporations is based on the results of the external and internal environment analysis, allowing showing the competitive advantages of enterprises, the possibility of their implementation, and sizing the prospects for further market development. The purpose of corporations is justified based on current and future conditions of

development and is defined as the profit's growth, the preservation or gain of market share, the new markets' creation.

Companies taking part in the corporations will maintain their legal independence, required since the peculiarities of publishing and printing companies, which have their own material and technical base and market. Integrating the participants of the corporation involves observing such fundamental propositions as common economic rules, real investments, joint creation, and resources application.

The uniform rules in corporations, first, need to be established about the price and services payment provided by the participants.

The association has additional opportunities for setting discounts on prices since placing orders on one production facility contributes to a reduction in fixed costs, and a price discount is determined in proportion to the amount of expenses saved.

The enterprises' unification within the corporation into a single online platform with further centralized orders distribution taking into account the specialization, technical capabilities, and the enterprises logistics level, allows to meet demand effectively and optimize costs, thus to volume own investment sources.

In the enterprises' context unification, conditions to improve the products quality arise. Development of the quality management system is a task of strategic management level, and the formal implementation of quality standards does not guarantee the earning capacity of the quality management system (Zajarskas *et al.*, 2010). The products quality is determined by the components, parameters, subjects of quality assurance (Figure 2).



Fig. 2. The essence of publishing products quality components

Source: Self-developed

An important role in the demand's generation and publishing products consumption culture belongs to the quality assurance subject. These are customers (authors) or publishers, who must provide relevant content and a quality presentation of textual and graphical information. Quality also depends on the technical parameters projected by publishers and embodied by printing companies in the edition size, taking into account product quality standards. Final purchasing decision is taken by consumers with a glance to the quality publications parameters, provided by the ordering customers (authors), publishers, printing enterprises, and the booksellers' service level, respectively, consumers take into account general parameters and individual perceptions of quality.

When creating an enterprises' association, it is advisable to centralize the quality management function, which will encourage maintaining the common high standards of work and craft a positive image of the corporation. In the corporation, to avoid functions duplication, it is expedient for publishing-members of associations to delegate to printing companies the power to choose printing materials suppliers, to determine the rational stock size, which will save on specific costs.

Another aspect of improving the earning capacity of enterprise development is investment development. As analysis shows, investment development depends on several factors, with the directions of activation of investment activity are determined. These factors include the funding ratio of own sources, the cost of debt, the enterprises' development state, the material and technical base level.

Measures aimed at intensifying investment activity identified innovation as investment, product quality improvement, enterprises investment attractiveness upgrade, development of organizational forms of fixed assets use (lease, financial leasing, etc.), amortization usage for functional purposes, rational formation and funding sources use.

The investment development of enterprises planning requires determination of investments sources return, the main of which are amortizations, net profit, financial expenses. Considering that the loan rate, leasing rate are compensated at the expense of the enterprise, the principal bank loan payment is carried out at the expense of net profit, and the leasing agreement provides for an additional source for compensation – amortization, so leasing increases the earning capacity of investment, as it contributes to reducing payback, compared with a bank loan.

#### **4. Management model for enterprises development**

Management for enterprises development requires appropriate levels of information, resource, and organizational support. At the information support

level of management for development, an analysis of the enterprise's state and the external environment is carried out. The functions of information provision include the necessity determination for changes, setting goals and tasks of management for development. At the second level, for rational resource provision, applications are being developed and implemented to improve the earning capacity of delivery and consumption processes. The third level – organizational support – involves an organizational structure's construction and, on its basis, management functions, taking into account such system development of labour motivation, which will contribute to achieving the goal of management for enterprises development. According to Shchekovych *et al.* (2013), in the process of management for development, monetary, non-monetary, social goals are achieved.

The earning capacity of management for enterprises development depends on the prospects of activities that are associated with the strategic directions establishment for their development. At the heart of modelling process of management for development is the concept of printing enterprises development. Concept formulation of enterprise development involves their activities goal determination and the tasks for achieving it, substantiating directions of effective enterprises development.

In unstable market conditions, as analysis shows, the printing enterprises' priority tasks are stabilization of production output and profit, the market share preservation, the product quality level, and the personnel turnover reduction. The clear strategic priorities of enterprises definition contribute to their effective development.

We have defined the main provisions of the printing enterprises development concept:

- European integration processes and increasing the use of existing production capacities based on meeting the needs of the domestic market and enhancing foreign economic activity;
- production and certification organization under international quality standards;
- modern information technologies introduction for accelerating the orders receiving process and production cycle;
- raising the enterprises' innovation activity level based on production modernization;
- production tides between publishing and printing enterprises expansion, and connections within a broader structure to increase the earning capacity of activity;
- increasing the ecology in present-day conditions value, which stimulates environmentally safe materials, reducing of waste production;
- personnel deficiency of adequate qualification level reduction, which is explained by the rapid change of technologies in the enterprises' economic activity.

Taking into account the current state of printing enterprises development, it is necessary to reorient

the tasks of management for development we have identified during the study, namely:

- increasing the competitiveness of printing products, comparing with substitute goods, above all, by the price index, explained by the tendency to increase the share of information distributed in electronic form;
- strengthening of the domestic resource base, first, to supply consumable materials and equipment, relevant since the high level of import dependence of printing industry;
- balancing the industry by the scale of enterprises and the level of mechanization and automation under the current market's needs, since the technical and technological potential level of many enterprises is not progressive, and there is also a reserve to reduce the product cost by economies semi-fixed costs;
- increasing the level of the infrastructure of printing development, publishing market and the earning capacity of promotion of printing and publishing products to foreign markets, since a potential for increasing the printing production competitiveness by improving state support systems, public procurement, financing, logistics, integration in the scientific and technical sphere etc.;
- increasing the products consumption culture, necessary to reduce irretrievable waste in the printing products circulation, first, packaging, and reducing environmental pollution with synthetic materials.

Effective implementation of certain tasks for management for printing enterprises development is possible under the following conditions: state support and publishing, printing industry regulations, the publishing and printing industries integration; protection of the domestic market of printing products by the proper competitiveness level of domestic production; taking into account strategic competitive advantages, goods and services that provide maximum profit to the enterprise, thus, the specialization development and co-operation, and minimization or phase-out of products unprofitable types; enterprises innovation activity stimulation; continuous education as a trend towards improving the education quality.

The conceptual management model for development is proposed. The model is based on the example of printing enterprises (Figure 3). At the core of the elaboration is the goal to improve the earning capacity of enterprises activity in present-day conditions of rapid changes at macro and micro levels, and elements identified such as diversification processes, change the organizational structure of enterprises, the whole chain customer-producer-consumer creation and the real investments use.

Diversification processes are aimed at developing new markets, distribution of risks between separate areas of activity, higher use of existing production capacities. It is determined that the diversification implementation requires an integrated approach, namely, the

assortment's expansion, new technologies introduction, changes in management.

The diversification type depends on the conditions and objectives of enterprises activity. In the printing industry, it is expedient to diversify in horizontal and mixed directions. Horizontal diversification will allow developing the promising products, services, is actually in the conditions of changing the printing products market structure. The mixed diversification, which will help control the chain of the publishing and printing complex, is of great importance: order-supply-production-sales, which will save enterprise costs. In the medium and large enterprises of the printing industry, which have sufficient resources for the new business development that is technologically not related to the main production, conglomerate diversification is possible.

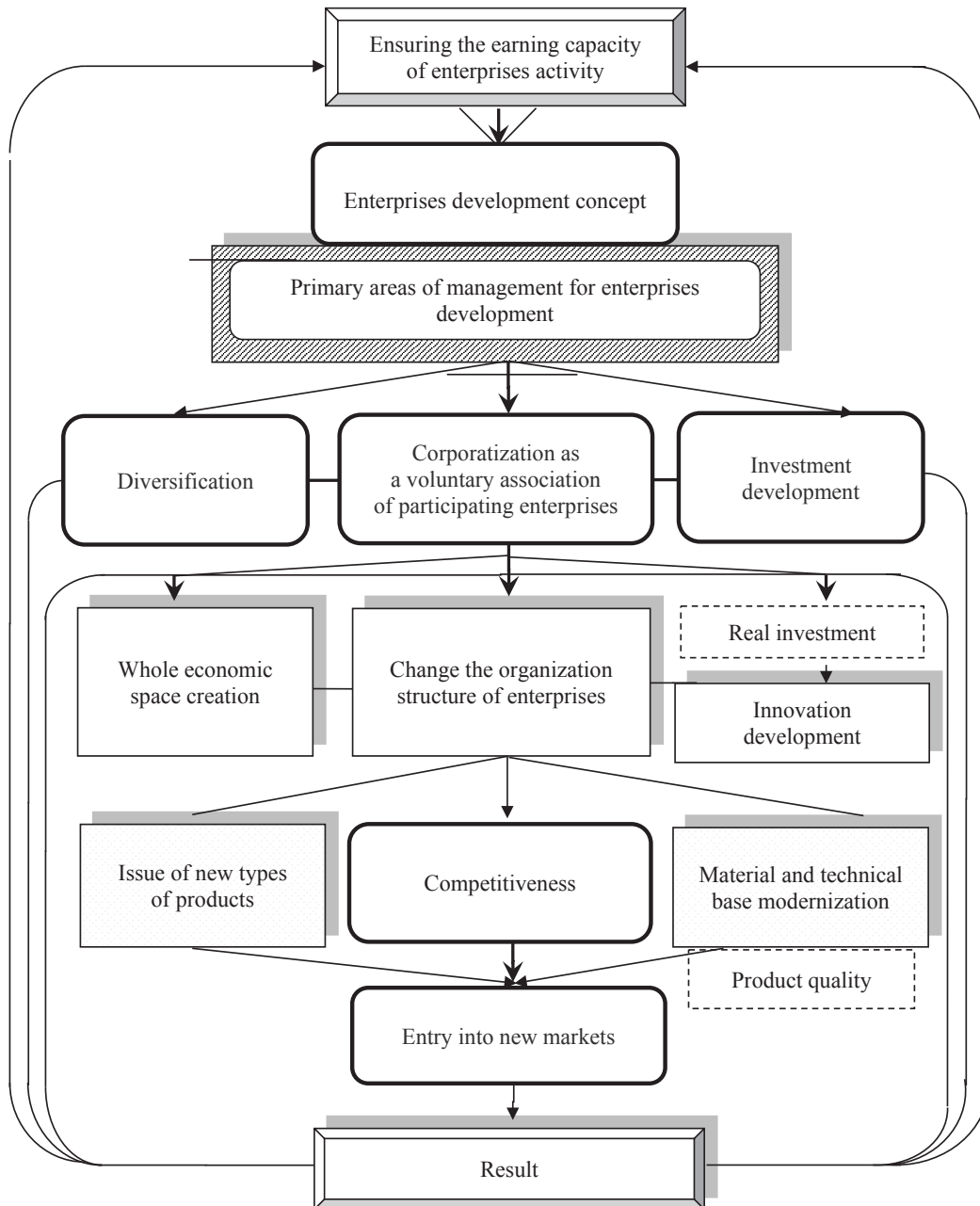
The second direction proposed by the authors is the corporatization of enterprises. It is determined that the enterprises that will form a corporation will not lose their legal independence.

The general principles, on which the companies' cooperation within the corporation will be organized, are substantiated, the criteria for participants' selection are determined. The business associations' creation aims to increase the competitive stability of enterprises through the production scale. The permanent participants' collaboration will provide a phased solution of tasks of higher production capacity use of printing industry, increasing their activity profitability, and for publishers – searching an effective production base for publishing products replication.

In present-day conditions of integration and globalization processes, a rational distribution of limited investment resources is needed, therefore, the authors proposed a direction – investment development of enterprises. Priority should be given to such key areas as technical and technological modernization to ensure the high-quality production and low cost of products, personalized orders, the market expansion for non-corporative consumers; the advanced technologies introduction, in particular, digital printing, to achieve the economic earning capacity of production of small print runs, is an equivalent of current market trends – reducing the products circulation; technical support for printing on difficult surfaces to enter new markets.

Production that is compliant with international quality standards will increase the competitiveness of enterprises and industry, growth in incomes and profits of enterprises allowing increasing financing for production modernization, which will meet the ever-changing consumers' needs, thus reaching new strategic markets and gaining growth the capital return level through real investment in innovative development.

The profit is the main indicator, which characterizes the earning capacity of the enterprise activity and



**Fig. 3. Conceptual management model for enterprises development**

Source: Self-developed

is the main source of development. To determine the prospects of investment development, we have calculated the forecast of the printing enterprises profit based on econometric models. The predicted value of profit decreases. As enterprises do not have enough own sources for financing development and are characterized by a high risk of functioning in conditions of a high level of competition, the objectivity importance in choosing the best investment projects according to technical, economic criteria, etc., increases, thus, on the correct assessment of the investment project at the planning stage, the success of its implementation depends.

We have substantiated the criteria for assessing the earning capacity of investments for enterprises. In determining the economic feasibility of using credit investment resources, an indispensable prerequisite is the higher value of investment return, calculated with profit, without deducting the price of the loan payment, compared with the price of the loan. Sufficient prerequisite is to exceed the return on investment, calculated with a net profit, over the proportion of loan repayment per unit of the investment period. This condition should be taken into account when calculating the market value of enterprises, in particular, by the

method of economic value added (EVA). Accordingly, the earning capacity assessment of investment is based on absolute indicators such as profit, economic result, net present value, and relative indicators, in particular, investment return, which takes into account the sources of investment return.

The economic earning capacity accounting of the proposed management model for enterprise development performed on the printing enterprise example is typical for the industry because of its small business scale; promotional products profile, which will save on the sale of a new product by offering it to existing customers; is a promising outlook for joining the corporation. For implementing the horizontal diversification strategy, the volume of investments is 400 thousand UAH. The enterprise has a shortage of own financing sources; therefore, is foreseen to conclude a leasing agreement at a price of 16% per year. The payment to the lesser of the principal of the loan is due to the depreciation cost and 60% of net profit. The cash flow is discounted, the upper limit of the discount rate, recommended for the economic conditions of Ukraine, is adopted and is 20% per year. The net present value is calculated:

$$NPV = 84.6 + \frac{86.5}{(1+0.05)} + \frac{88.5}{(1+0.05)^2} + \frac{90.5}{(1+0.05)^3} + \frac{119.1}{(1+0.05)^4} + \frac{121.7}{(1+0.05)^5} - 400 = 118.8 \text{ thousand UAH.}$$

The project payback period is 1.5 years. For the first year of the project, 240 thousand UAH will be reimbursed, for the next six months – 160 thousand UAH. It is also necessary to pay lease price, charged on the balance of the debt, its total amount for 1.5 years is 59.5 thousand UAH. Based on the calculations performed on the printing enterprise example, it is determined that implementing the proposed development directions will ensure an increase in net income of the company by 1410 thousand UAH or 22.3%, a net profit of 270.2 thousand UAH, 33.7%, comparing to the level of the base year, the expenses' profitability will increase by 0.4 percentage points.

The all tasks fulfilment related to the management for printing enterprises development will promote to:

- ensuring the products high competitiveness in the domestic and foreign markets, high productivity and rhythmic production; investment activity intensification;
- corporate culture and the level of labour-management enhancement;
- the enterprises' social image making;
- rational use of resources;
- providing information security of the country.

## 5. Conclusions

The internal and external environments instability causes constant management of changes in enterprises,

the effectiveness of which depends on the resources availability, their use efficiency, the achieved state of development. The effective development of enterprises policy is determined by the peculiarities of enterprises development, including the product quality level, demand volume, activity scale, integration processes, investment attractiveness level, etc. Over 90% of enterprises are small scale, this limits their financing possibilities from their own and attracted sources, reduces the level of operational stability. Printing enterprises carry out orders for corporate and individual customers, and enterprise development requires a client-oriented approach based on meeting the consumers' needs in terms of production and supply efficiency and ensuring product quality.

The analysis of the state and trends of printing enterprises' development showed that the perspective directions of enterprises development are: diversification based on activity expansion, change in the enterprises' organizational structure, investment development. Creation of corporations will be based on an integrated structure for effective achievement of goals and solving common tasks. Creation of corporations, modern methods of work introduction will reduce the production time and receipt of products in the market will help increase its competitiveness, which requires consideration of the life cycle of goods, which in present-day terms is short and depends primarily on demand offer for goods. Increasing the earning capacity of printing enterprises requires their investment development, in which innovation is the main form of investment, and investment development is directed primarily at modernizing the material and technical base of enterprises.

The printing enterprises development concept, which defines the goals, tasks, and directions of small and medium business enterprises development, is proposed. For the successful implementation of the concept, organizational changes to the development management process are required.

Based on of the concept, a model management for enterprise development is proposed, which takes into account the directions of effective management and the peculiarities of the printing industry enterprises and the need for constant and complex adaptation to the external and internal environmental conditions, and is aimed at increasing the earning capacity of activity. The model predicts the commodity producers' corporations creation based on uniform economic rules for all enterprises of the industry.

Additional expenses directed at a complex of directions on management improvement realization for enterprise development amount to 400 thousand UAH. Their expediency is evidenced by the lower estimated payback period of investments – 1.5 years, compared to the normative – 5 years, and the positive net present value of 118.8 thousand UAH.

The enterprises of the industry effective activity will allow realizing all conceptual directions of development, and this will promote working conditions improvement, stimulation of labour, productivity increase, competitiveness of production increase.

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# URGENT ISSUES OF ORGANIZATION OF AUDIT ACTIVITY IN UKRAINE AND DIRECTIONS FOR THEIR SOLUTIONS

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**Abstract.** In conditions of economic uncertainty and competition, the importance of objective economic control increases both from owners and supervisors. Reliable financial reporting provides the possibility of making conscious economic decisions, warns of operations associated with increased risk. The opinion of the auditor increases the trust in the financial activity of the company and the general loyalty to business by the stakeholders – owners, investors, potential customers, suppliers, authorities. Therefore, the issue of the exclusion of the corruption component between the audit firm and the client company during the organization and conduct of the audit is a topical issue in many countries of the world, including Ukraine. The *purpose* of the paper is to substantiate the theoretical principles and practical recommendations for the organization of audit activity and overcoming corruption in the economic sphere in Ukraine. *Methodology.* The methodological basis of research is general scientific and special methods of knowledge. To determine the current state of audit in Ukraine, quantitative changes in the dynamics of audit firms and certified auditors, applied methods of synthesis, comparison, grouping. For isolating problems that arise in the market of audit services, methods of specificity and abstraction are used. The method of analysis was the basis for determining the main factors of corruption in the audit sector and its impact on the dynamics of Ukraine's economic development. The dialectical method, synthesis, and abstraction have been used to formulate proposals for improving the order, in which services are provided in the audit field. A tabular method was used to reflect the systematic results of the consolidation and grouping of indexes of corruption perception index in Ukraine in 2013–2017. The graphical method was used to visually reproduce the dynamics of the change in the perceptions of corruption in Ukraine, the USA and Poland in 2013–2017, and the changes in the number of audit firms and certified auditors in Ukraine in 2012–2016. *Results.* The results of the study substantiated the need to improve the legislative and regulatory framework that regulates audit activity. The main factors that negatively influence the audit activity and contribute to the development of corruption in Ukraine are identified. The proposals on improvement of the situation in the market of audit services, as well as increase of efficiency of auditors' activity are given. *Practical implications.* The pragmatic value of the research results is the possibility of their use for developing strategic measures to improve the audit activity in Ukraine, bringing the quality of domestic audit closer to the level of audit in EU countries. *Value/originality.* It is proposed to implement a set of legislative and regulatory changes to improve the organization and implementation of audit practices in Ukraine to minimize the corruption component in order to ensure the transparency of the audit process.

**Key words:** audit, audit activity, control, corruption, economy.

**JEL Classification:** M42, L84, O44

## 1. Introduction

Corruption constrains economic development, weakens democratic institutions and the principles of law, violates public order, and destroys public confidence, thereby contributing to the rampancy of the organized crime and other negative phenomena. The annual volume of bribes in the world economy is estimated at one trillion US dollars. The world

economy loses another 2.6 trillion US dollars due to corrupt activities. Those funds represent more than five percent of the global gross domestic product (GDP). According to the United Nations Development Program, in the developing countries, corruption-related losses exceed 10 times the official development assistance (State Audit Service of Ukraine, 2017).

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At present, the size of the shadow economy in Ukraine exceeds 33% of the official GDP (Ministry of Economic Development and Trade of Ukraine, 2017). Analysing the situation, one can come to the conclusion that corruption in Ukraine affects all the state bodies, including those that are called to fight it: courts, prosecutors, other law enforcement agencies, etc.

A significant problem of the modern economy as regards to the legal field is the identification of trends in the development of the independent external audit. After the most high-profile corruption scandals involving leading audit firms over the last 10 years, the issue of bringing to justice the auditors who mistakenly or deliberately delivered positive audit opinions where that should not have been done has become relevantly poignant. That being the case, the main protective argument of the management of audit firms is that at the time of rendering its services, a respective firm positioned itself as an audit one (by its nature and qualification), while in the event of liability under the audit contract that firm presented itself as a consulting one ostensibly providing only consultancy services.

The financial crisis has revealed weak points in various sectors of the economy. In particular, audit scholars and practitioners have not yet given a reasoned answer to the following question: Why is there in the statistics of bankrupt business entities a substantial share of companies that enjoyed a positive audit opinion of their performance? The answer to that question and suggestions how to deal with such a problem are presented in the current study.

The main objective of the study conducted was to substantiate the theoretical principles and practical recommendations for organizing the audit activity and overcoming corruption in the economic sphere of Ukraine.

A relevant scientific research involves the following tasks: an analysis of the current state of external audit and the facts of corruption schemes in the economy sectors; the identification of the main issues affecting the quality of audits and being the result of fraud on the part of the management of companies; formulating suggestions for the improvement of the audit activity organization to prevent corruption schemes from coming into being.

The scientific novelty of this study is the identification of the main factors of the negative impact of corruption on the economy and the substantiation of proposals to improve the quality and efficiency of the audit activity in Ukraine.

## 2. The current state of corruption in Ukraine

The state and efficiency of the economic environment in Ukraine are determined by a number of positive and negative trends. The level of corruption and the shadow economy in Ukraine is one of the factors that have a direct negative impact on the efficient functioning of the

economic and social sphere, on the level of investment attractiveness of Ukraine and its competitiveness as an entity of international relations.

In order to understand the degree of impact of the level of corruption and the efficiency of anticorruption policies in Ukraine, let us analyse the dynamics of change in the Corruption Perceptions Index in Ukraine over five years (Table 1, Figure 1).

Table 1

### Corruption Perceptions Index in Ukraine

Indices	Value by years				
	2013	2014	2015	2016	2017
Corruption Perceptions Index	25	26	27	29	30

Source: compiled by the authors on the basis of a generalization of data of the international organization "Transparency International" for the period from 2013 until 2017

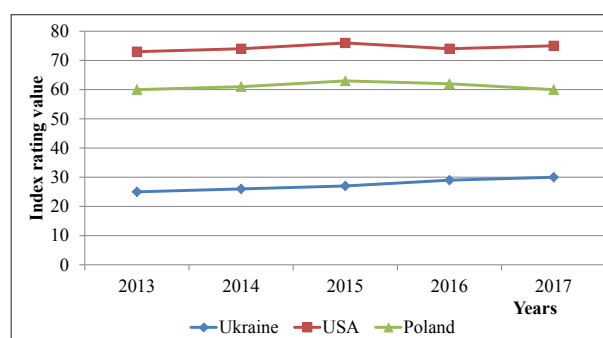


Fig. 1. Dynamics of change in the Corruption Perceptions Index in Ukraine, the USA, and Poland from 2013 until 2017

Source: compiled by the authors on the basis of a generalization of data of the international organization "Transparency International" for the period from 2013 until 2017

When analysing the data obtained, it can be concluded that the level of perception of corruption and combating it in Ukraine over the five years has been at a fairly low level, with a slight upward trend.

The existence of a "developed corruption network" in Ukraine at the level of small, medium, and large businesses can be explained by the relevant factors, the most important of which is the fact that the large businesses are owned by the so-called oligarchic clans that are interested in the submission and disclosure of "their own reliable" information about the financial and property situation of the companies under their control. According to the estimates by the NGO "Institute of Social and Economic Transformation", due to the introduction of various corruption schemes, Ukraine's budgetary shortfall stands at more than 180 billion UAH per year (Institute of Social and Economic Transformation, 2017).

That figure looks quite impressive in the context of the hybrid war, which Ukraine has been forced to wage for more than three years now. After all, those funds, even in



spite of the low institutional capacity of the State bodies, could contribute to strengthening the country's defence capability, restoring its infrastructure potential, and improving the level of public education and healthcare.

### 3. Negative experience of audit companies' activities in Ukraine

One of the ways for reducing corruption in the private sector and in the field of financial services is to organize and ensure efficient audit work. Independent audit as an individual economic phenomenon has already existed in Ukraine for almost 25 years. During that period, an independent audit has proved to be an objective tool for controlling the activities of companies belonging to the private sector. Still, it is impossible to deny the existence of facts of corruption in the activities of audit firms.

A vivid example of that phenomenon was the incident involving a famous audit firm, a member of the Big Four, i.e. PricewaterhouseCoopers, which became the most high-profile development in the audit industry in 2017: the National Bank of Ukraine (NBU) strokes PricewaterhouseCoopers (audit) LLC (Kyiv), a Ukrainian subsidiary of PwC, off the register of audit firms that have the right to conduct bank audits. The decision was made by the Board of the National Bank on the basis of a submission by the NBU Committee on Bank Audit. A report says that the reason for that decision was the ungrounded confirmation by PricewaterhouseCoopers (audit) LLC of inaccurate information regarding financial and business activities of the PJSC CB "PrivatBank" (Kyiv), in particular, regarding the latter's size of credit risk and regulatory capital (Interfax-Ukraine News Agency, 2017).

"The findings of the PricewaterhouseCoopers (audit) did not reflect the genuine risks of PrivatBank's operations, which led to the adjudication of that financial institution as insolvent, its nationalization and substantial expenditure by the State on its capitalization," the National Bank of Ukraine press release says (Interfax-Ukraine News Agency, 2017).

Another example is the BDO LLC (a Ukrainian subsidiary of BDO International Limited), which was struck off the register of audit firms that have the right to conduct audits of banks, due to a scandal with inaccurate information regarding financial and economic activities of PJSC "Diamantbank", PJSC "Bank for Investments and Savings", and PJSC "CB "GLOBUS" for the year 2015.

As stated in the official press release of the NBU dated August 11, 2016, "The National Bank of Ukraine has for the second year in a row revealed a number of irregularities in the operations of the audit firm that were related to the company's improper performance of its duties as an auditor. Thus, as a result of the analysis of the relevant audit findings, the regulator has disclosed

the facts that evidence the confirmation by the BDO LLC of inaccurate information contained in the annual financial statements of some banks for the year 2015. What is more, in contravention of the requirements of Article 70 of the Law of Ukraine "On Banks and Banking Activity", BDO LLC did not notify the NBU in writing of the misstatements in financial reporting, irregularities and deficiencies in the operation of the Bank, including significant losses of regulatory capital, that had been disclosed during the audit and rendering other audit services and that could lead to the Bank's insolvency" (Internet portal about finance and economics "Finbalance", 2016).

However, BDO LLC managed to prove their non-involvement and win an appeal against the NBU's decision thereby regaining the right to conduct bank audits.

The Oratania LLC audit firm was also struck off the register of audit firms that have the right to carry out bank audits followed by its complete striking off the register of audit firms. It was noted that the National Bank of Ukraine had disclosed a number of irregularities in the operation of that audit firm that were related to the company's improper performance of its duties as an auditor. An important fact is that that audit company audited financial statements of the PJSC CB "PrivatBank" in the period from 2007 until 2009 (The National Bank of Ukraine, 2016).

It can, therefore, be concluded that a corrupt element in the general "audit company-client" arrangement does indeed exist in Ukraine, but the aspect of factual corroboration of that kind of corruption, gathering evidence base against it and public condemnation of that corruption, remain fairly problematic. In general, proving and public disclosure of corrupt schemes practiced by audit firms operating in Ukraine are to a large extent isolated.

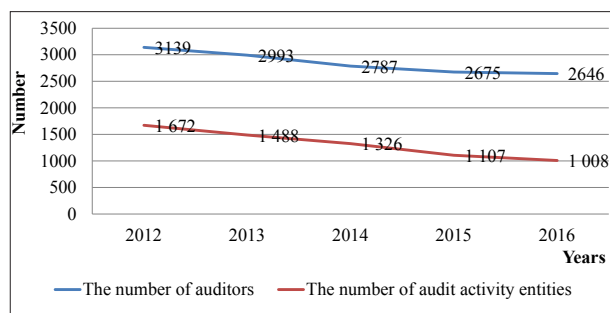
### 4. Problematic aspects of the audit firms' activities in Ukraine

In our opinion, the existence of a corruption precedent in the activities of audit firms in Ukraine is due to a number of factors of economic and non-economic nature.

One of the factors contributing to the increase in the likelihood of "corrupt" cooperation between auditors and their customers, i.e. consumers of audit services, is the tendency towards the reduction of the number of certified auditors.

According to the statistical reporting data of the Audit Chamber of Ukraine (ACU), in the period from 2012 until 2016, there was a negative tendency towards the reduction of the number of persons who were certified auditors (Audit Chamber of Ukraine, 2016).

The general dynamics of the number of audit firms and certified auditors is shown in Fig. 2.



**Fig. 2. Dynamics of the number of audit firms and certified auditors in Ukraine from 2012 until 2016**

Source: compiled by the authors on the basis of a generalization of data of the Audit Chamber of Ukraine (Audit Chamber of Ukraine, 2016)

Thus, in the period from 2012 until 2016, the share of certified auditors decreased by 493 persons in absolute terms and by 15.71% in relative terms.

It should be noted that in the period from 2013 until 2015, the reduction of the share of certified auditors in Ukraine was caused by the significant influence of the political factor, viz. the annexation of the Crimean peninsula and the beginning of hostilities in the East of the country that led to the emergence of some areas in the Donetsk and Luhansk regions that are temporarily beyond the government control. It was in the period between 2013 and 2014 that the number of certified auditors decreased by 206 persons.

The conduct of hostilities in the East of the country, the illegal annexation of the Crimean peninsula, the unfavourable economic situation, the intensification and the uncontrollable nature of inflationary processes and, as a result, an accelerated depreciation of the national currency, all contributed to the formation of the second factor for the increase of corruption in the economic sphere, i.e. the reduction of the number of audit firms.

According to the data of the Audit Chamber of Ukraine, the largest decrease in the number of audit activity entities took place in the Donetsk (43.8%), Luhansk (38.5%), and Ternopil (33.3%) regions. A significant decrease in the number of audit entities was observed in the Rivne (26.3%), Zakarpattia (21.4%), and Ivano-Frankivsk (20%) regions (Audit Chamber of Ukraine, 2016). The decrease in the number of auditors in the Western regions of Ukraine was caused by a growing number of bankrupt companies, the aggravation of migration processes, etc.

On the whole, the tendencies towards a reduction in the number of audit firms and certified auditors contribute to limiting the supply of audit services and ones associated therewith, as well as to strengthening the process of the market monopolization.

The shrinking of the audit services market in Ukraine contributes to the intensification of corrupt practices in the country's economy. It is our opinion that due to the increased risk of loss of potential clients, with which

the audit firms formed close professional relationships, the said firms apply not only measures of marketing and flexible pricing policy but, in some cases, they may also conduct an audit whereby their client company would obtain the "desired" results. Apart from that, prerequisites emerge for the auditor to obtain an additional income for "loyalty".

According to the data of the Audit Chamber of Ukraine, as for the year 2016, audit services were provided for the total amount of 1,973,102.3 thousand UAH. Of that sum, the share of the city of Kyiv and the Kyiv Region is 1,634,543.8 thousand UAH, which is 82.8% of the total amount of services rendered in 2016. So, the rest of the regions of Ukraine provided audit services for 338,558.5 thousand UAH, which is 17.2% of the total amount of services rendered in 2016. That being the case, the average cost of one order in Ukraine ranges from 9,600 UAH (Mykolaiv region) to 90,800 UAH (the city of Kyiv and the Kyiv Region) (Audit Chamber of Ukraine, 2016).

Taking that into account, it is quite clear that audit firms and individual auditors can enter into illicit corrupt schemes or be their direct initiators for the purpose of illegal enrichment.

## 5. Conclusions of the study

Despite the complexity of the economic and political situation, in order to successfully combat various kinds of corruption schemes in the field of audit services, it is necessary to develop a full range of administrative and legal measures.

Having analysed the negative factors contributing to the development of corruption processes in the audit activity, and the findings of the research conducted, we consider it expedient to suggest the following:

1. The inclusion of a representative of the National Anti-Corruption Bureau of Ukraine (NABU) into the governing body of the Audit Chamber of Ukraine. The inclusion of a NABU representative into the governing body of the Audit Chamber of Ukraine will promote cooperation in the anti-corruption struggle, the promptitude in detecting corruption and examining cases regarding auditors who violate the principles of the Code of Professional Ethics. At the same time, in order to avoid corruption precedents, we propose a systematic rotation of the representative of the NABU in the governing body of the Audit Chamber of Ukraine, the rotation period presumed to be six months.

2. Developing a State system of material incentives for individuals and corporate entities to make them point out the facts of corruption during an audit while preserving the informer's anonymity.

3. Establishing at the legislative level a procedure whereby the mandatory change of the audit company by the client company is effected once every three years.

4. The imposition of an “interest on corruption”, i.e. all losses incurred by the State or natural persons and corporate entities due to the concealment or incorrect submission of information in the auditor’s report, should be paid by the audit firm in question.

5. Introducing and making public on a mandatory basis of declarations of property status and personal income for auditors, heads of audit firms, and their immediate families. At the same time, we propose to envisage administrative and criminal responsibility for not submitting or distorting information in the above declarations.

6. Creating an analogue of the ProZorro system for audit firms. We suggest introducing the following mechanism for the functioning of a similar electronic system: audit firms should hand over to the Audit Chamber of Ukraine the lists of services they can provide, the official number of auditors who are authorized to conduct audits, and the price lists of their services. At the ACU, the information gathered would be processed, sorted, and a general list of all audit firms would be compiled. That being the case, it is important that neither the State nor the system administrator could influence the participants in the procedure and sift them out in any way. An audit service client would log on to the ACU website and file an application, which should indicate the type of services that must be performed by a potential service provider, as well as the amount of payment for the services rendered. After that, the electronic system, based on the criteria entered

and using the “random” principle, selects an audit firm for the client company. The main advantages of this solution are that the State is in a position to monitor the real situation on the market of audit services, and at the same time, the possibility of a “prior coordination” of the audit results is ruled out.

7. Introduction of amendments and supplements to the Law of Ukraine “On Auditing Activity” and the International Standards on Auditing, in particular, to ISA 240 “The Auditor’s Responsibilities Relating to Fraud in an Audit of Financial Statements”, where Article 7 says: “Two types of intentional misstatements are relevant to the auditor – misstatements resulting from fraudulent financial reporting and misstatements resulting from misappropriation of assets” (The International Federation of Accountants, 2012). Audit standards prescribe that the theft of assets and misstatements that affect the financial position of the company while ignoring the impact of corruption should be taken into account. The insufficient accuracy of standards in that part has been and will be the cause of many corporate scandals related to the auditor’s findings, on account of which the professional opinion of that auditor may be called into question.

The above suggestions and areas of improvement of audit activity in Ukraine should also be strengthened by the support on the part of the State: legislative stability of the legal and regulatory framework should be ensured as should be the promotion of the accountability of national audit firms as regards the market of audit services.

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# NATIONAL ECONOMIC SECURITY: AN ECONOMIC AND LEGAL FRAMEWORK FOR ENSURING IN THE CONDITIONS OF THE EUROPEAN INTEGRATION

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**Abstract.** The *purpose* of this article is to characterize legal and economic basis for ensuring national economic security in the conditions of Ukraine's entry into a common European economic and political space. This article analyses approaches to the understanding of economic security in the meaning of legal regulation and explores its interrelation with national security. The context of legal regulation, which is directly related to sovereignty and protection of the national interests, the possible threats affecting the state of national economic performance are distinguished. It is noted that the problems of domestic economic development of Ukraine, dynamic changes that take place within the global economic space, and increase of the extent of national economy's openness stipulate the need to study the scope of "economic security" category taking into account peculiarities of modern economic system development that will allow timely identifying the threats to national economic interests and preventing damage to the entire social and economic system. At the same time, a special attention is paid to the fact that despite different ways of the state management of the economy, many of them are implemented specifically in the legal form. The point was stressed that legal regulation of the economic system of Ukraine should be carried out in two priority areas: first was a normative codification of the adopted mechanisms that developed as a result of the natural economic influence patterned and second was the direction of economic development to achieve interests of the state and the society within the framework of the European integration. Establishment of the effective legal and regulatory framework of the economy in Ukraine is quite a reachable goal. Legal regulation of the economic area must be flexible and it must timely and optimally respond to internal and external changes that will allow enhancing substantially national economic security. *Practical importance* of the scientific research results lies in detailing the "economic security" concept in the context of legal regulation, which is important for the successful social and economic development of the state, and it contributes to the identification of factors hindering economic development, it facilitates development and further improvement of the legal framework governing economic area and having impact on development of an effective economic crisis exit strategy. National economic security is not just one of the most important elements of the entire national security system as a scope of the national interests' protection but it is also a basic, critically important condition for observance and implementation of national interests. In view of the stated above, scientific researches in this area are relevant and timely within the period of search for the priorities of national economic policy. *Methodology.* A methodological framework of the economic security research is defined by a complex of scientific cognition methods that allow us to look at this problem as a multi-aspect, interdisciplinary phenomenon. On the basis of the system-based, structural, systemic-functional, and other scientific approaches, the idea of the economic security has formed a complex systemic category covering the theoretical and practical level of economic activity.

**Key words:** economic security, national security, legal regulation of economic area, threats to economic security.

**JEL Classification:** R14, D18, P2

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## 1. Introduction

These days it can be said with a great probability that the greater part of the world has made three extremely important choices over the past decades: 1) democracy has been recognized as the desirable form of a political system; 2) the dominant form of the economic system is a modified free market; 3) most people realize themselves as an organic part of the global civilization that helps us better understand our moral obligation to the future. Even those countries that still formally oppose democracy and market relations are gradually moving towards this direction (Tolstoukhov, Hylko, 2001).

At the same time, all of us have become by today not just witnesses but also active participants in the implementation of drastic transformational processes aimed at building up a legal, social, and democratic state in Ukraine with a strong and stable economic basis.

Implementation of the Ukraine-EU Association Agreement stipulates for the transition to the socially oriented economy, it reasonably requires targeting actions by the state, which in addition to the general governance functions performs a range of the specific functions, including ensuring economic security. It comes as no surprise that "Ukraine-2020" Sustainable Development Strategy (2015) determines the key vectors to follow that will facilitate the solution of the tasks indicated above. Thus, the development vector provides for ensuring sustainable development of the state, implementation of structural reforms and, consequently, raising the standards of living. Ukraine should become the state with a strong economy and with advanced innovations. The security vector is aimed at ensuring security guarantees for the state, businesses, and citizens, protection of investments and private property (Decree No. 5/2015). This vein, without the economic basement, which is understood as production relations' system of the society, the state cannot normally exist, function, and develop, and this, in its turn, requires the establishment of conditions for ensuring its economic security.

In view of the noted above, **the purpose of this publication** is to clarify the subject matter and the essence of "economic security" concept as economic and legal category to facilitate search for the ways for building up such a national economic security strategy that would be aimed at the prevention of devastating development of the threats to national security, but on the other hand, it would ensure protection of the rights and fundamental freedoms of an individual and a citizen.

## 2. National economic security: approaches to the concept definition

First of all, it should be noted that economy is a comprehensive system of social relations formed in the area of production, distribution, consumption of

material wealth; it determines the scope of different kinds of ideological relations, forms of public conscience, political and legal institutions. The economy in many respects defines not just the policies and the system of government but also right, main lines of the government activities and its functions. It directly affects domestic and foreign policy, changing the nature of political and legal decisions. Under such circumstances, ensuring national economic security becomes the main and the determinant task. It should be noted that until the present, the scientific literature has not developed a single approach to the understanding of "economic security" concept. At the same time, within the existing circumstances, this category acquires a new meaning, it becomes more multi-aspect, which is primarily connected with the global socioeconomic and political processes such as globalization and regionalization, that is, opposed by their nature, as well as building up the information society.

Analysing the academic views on the essence and the meaning of "economic security" category, it should be noted that they are distinguished by their diversity. Thus, Bielov (2016) understands economic security as "the state of the national economy, which allows maintaining resistance to internal and external threats and is able to meet the needs of an individual, a society, and a state."

Binko and Shlemko (1997) share the same opinion defining economic security as "the state of the national economy that allows maintaining resistance to internal and external threats and is able to meet the needs of an individual, a family, a society, a state."

G.A. Pasternak-Taranushchenko (2002) also considers economic security as the state, which points up the fact that "economic security is the state of a country that provides the ability to establish and to develop the conditions for the productive life of its population, the perspectives for economic growth in the future, and growth of its residents' well-being."

At the same time, L.I. Abalkin (1994) contends that economic security is the combination of conditions and factors that ensure national economic independence, its stability and sustainability, its ability to upgrade and to improve itself on regular basis.

Mishyna (2007) considers economic security as the basis of the vital activity of the society, its socio-political and national-ethnic stability.

Muntian (1999) expresses a separate opinion related to the understanding of economic security meaning and believes that it is "a nation-wide set of the measures aimed at the continuous and sustainable development of the national economy that includes a tool to counteract internal and external threats.

American scientists expressed a special attitude to "economic security" category and believe it must meet at least two important conditions: first is preservation of economic independence of the state, its ability to take the decisions in its own interests related to development

of the economy generally; second is preservation of already reached living standard of the population and potential for its further improvement (Murdoch, Knorr, Trager, 2001).

As it is noted by Chechel (2010), "under the conditions of crisis processes that can be observed currently, the tools for economic security stabilization and ensuring are multi-valued and extraordinary. Thus, the most summarized and logic characteristic of economic security must include three most important elements as follows:

- economic independence, which in current conditions means the ability of the state to exercise control over national resources, achievement of such level of production efficiency and quality of products that could ensure its competitiveness and enable equal participation in world trade;
- stability and sustainability of national economy involves protection of property in all its forms, establishment of reliable conditions and guarantees for business activity, prohibition of the factors that are capable to destabilize the situation (tough policies related to counteracting illegal takeovers, curtailment of corruption within the government, the judicial system and appropriate foreign economic policy);
- the economic progress, which provides for the establishment of a business-enabling environment for investments and innovations, continuous modernization of production, state support of strategic industries, search for new lines of activity that are necessary for national economy's sustainability and self-preservation."

Thus, in the scientist's opinion, the scope of "economic security" concept can be disclosed through the set of conditions and factors that ensure national economic independence, its stability and sustainability, and ability to steady progress (Chechell, 2010).

At the same time, the economic literature highlights that the essence of economic security is disclosed within the system of criteria, indicators, and threshold values. However, it is noted that, first of all, it is necessary to classify the threats to economic security that refer to the factors that make it impossible or complicate substantially the process of national interests implementation, representing the threat to livelihoods of the nation, its socioeconomic and political systems. Therefore, taking due account of the economic development peculiarities, identification of the current challenges and threats and their elimination must be the priority elements for the national economic policy.

We tend to believe that national economic security is a process of ensuring sustainable and safe economic system development where the economy is capable of completing the following tasks:

- to ensure national economic independence, national economic sovereignty, its energy independence;

- to satisfy effectively material needs of an individual, a society, and a country;
- to support the required level of social and political stability of the society;
- establishment of conditions for the harmonious development of the system of economic relations;
- to protect effectively domestic and foreign markets;
- to protect all forms of ownership;
- to ensure national economic sustainability in the conditions of unforeseeable breach of international economic relations;
- to ensure sustainability of the economy about natural and man-made emergencies, as well as armed conflicts of a different level;
- elimination of criminal structures' impact on the economy, etc.

Analysing economic security as a scientific category, Kuziomko (2010) draws his attention to the fact that currently two main general-methodological approaches have been formed within the academic community, from which the said category is considered, they are static and activity approaches. At the same time, the scientist proves that "both approaches (static and activity) can be considered not an alternative, but complementary ones that from different perspectives consider the essence of the "security" category. Nevertheless, economic security should be considered as one of the types of security that is specific to the economic systems. It can be considered at micro and macro levels. In the first instance, it is referred to national economic security (as one of the types of national security); in the second instance, it is referred to security of industries and regions; in the third instance, it is referred to security of certain economic entities and individuals that enter into economic relations."

Thus, we can state that the analysis of some definitions of "economic security" concept permits us to finalize that this category is characterized by a complicated internal structure. The general disadvantage of all these approaches is the lack of a comprehensive approach to the entire set of the interrelated elements of economic security. In fact, economic security is not just the state of national interests' protection but also the readiness and the ability of government institutions to set up tools for the implementation and protection of the national interests and protection, development of the domestic economy, support for the socio-political stability of the society.

### **3. The relationship between national and economic security**

National economic security is one of the most important components of national security. It plays a crucial role in ensuring economic development, in support of the sustainable economic development, implementation of the effective social policies,

protection of the society from environmental disasters, maintaining the proper level of competitiveness in the conditions of international economic interdependence. In other words, economic security is meant to protect national interests of the state.

Over the last years, the traditional approach to the development of national security focused on national interests, political sovereignty, and territorial integrity undergoes significant transformations, which are primarily connected with radical changes within the system of threats and methods of destructive influence.

The “economic security” concept is developed on the background of the threats to national security connected with the economy. Transformation of the Ukrainian economy is lengthened in time and in recent years the economic crisis has been in progress. Under such conditions, the contradictions become pointed that exist in economic relations, and new threats emerge to national security. Economic security as a foundation of national security becomes of paramount importance.

Peandiura (2005) points out that national economic security is not just one of the most important components of the entire national security system as complex for national interests’ protection but it is also a crucial condition for the observance and implementation of national interests.

These days, national security has become an extremely relevant issue since the fate of Ukraine, social and economic welfare of the citizens, formation of their national identity and respect for their state will depend on its resolution, thus it is necessary to take into account the mistakes made in the course of the economic reforms implementation that led to destructive processes in the economy and in the minds of people.

Our emphasis specifically on “national security” concept in this particular part of the research is based on the fundamental provision stating that economic security, which is the subject of the research, is relevant to national security as per a “part/whole” scheme. Along with this, the economic aspect of national security is its integral part. Thus, economic security can neither exist beyond overall national security nor national security will be comprehensive if it is deprived of its economic vectors.

In general, “national security” concept has many of determinations and aspects that are different particularly in the corresponding standpoints, from which this issue is addressed.

National security is a complex inseparable system developed on its own and, therefore, it consists of a number of the subsystems (elements) with the corresponding clear interrelations both within the system and with its surrounding elements that in their entirety generate a new quality. Among other specific features of the system indicated above, we should place an emphasis on the appropriate structure, the systemic unity and integrity, the general objective, the relative

independence of each other element of the system with the mandatory performance of the functions required for the existence of the entire system.

Thus, Honcharenko, Lysytsyn (2001) point out that previously this category was of abstracted nature to some extent, but currently, it was being used in the state administration practiced. In addition, quantification methodologies to assess the national security state have been developed and used. According to the methodologies above, the national security state is characterized by a numeric value that belongs to a segment from zero (the lowest level of the state of the national security, that is, its worst state) to one (the highest level of the state of the national security, that is, its best state). Therefore, they propose to define national security as the degree (measure, level) of protection of vital interests, rights, and freedoms of individuals, societies, and countries from internal and external threats or the degree (measure, level) or absence of the threats to human rights and freedoms, basic interests and values of the society and the country.

In their turn, Danilian, Dzioban, Panov (2002) represent national security concept as the state for the protection of vital interests of an individual, a society, and a country, the mankind in whole from internal and external threats. The definition above became a classic one in fact and it was used by the legislature in the Law of Ukraine “On the Fundamentals of National Security of Ukraine” (2003) where it was stated that national security was “protection of vital interests of an individual, a citizen, a society, and a country where sustainable development of the society, timely detection, prevention and elimination of the real and potential threats to the national interests in the area of law enforcement activity, fight against corruption, border guard activity and defence, migration policy, healthcare, childcare, education and science, scientific and technical and innovation policy, cultural development of the population, ensuring the right to free speech and information security, social policy and pension provision, housing and utilities, financial services market, protection of property rights, stock markets and securities turnover, fiscal and customs policies, trade and business, banking market, investment policy, audit activities, monetary and foreign exchange policy, information security, licensing, industry and agriculture, transport and communication, information technology, energy and energy saving, natural monopolies functioning, utilization of mineral resources and water resources, ecological and environmental protection and other areas of public administration when negative trends emerge as to evolution of potential or real threats to national interests are ensured.”

As with “economic security” category, “national security” category has a variety of the specific approaches to its definition. Thus, the “state of protection (safeguarding)” specification when determining the “national security”

concept is the most widespread. Nevertheless, more and more researchers point out that the definition above was formed in the days when "security" had a specific expression, mainly in the speeches and it was measured by their state. The state of things (material values) and their properties were clearly defined, they did not change for the most part, but the change predetermined a new steady state (Hurkovsky, 2004).

The specification indicated above has been equally criticized because it reflects the security knowledge paradigm that existed in Soviet times when the priority was given to protection against prevention.

Nowadays, elucidation of just one side of protection when determining security is considered incomplete. In light of the fact that in the course of this approach such important functions of security as preventive actions are de-emphasized and dropped of the equation: narrowing, relaxing, eliminating and prevention of dangers and threats. Yarochkin (2000), in particular, draws his attention to this circumstance.

Some researchers speak both about the immanent nature of the threats and their creative and constructive role in the development of the object. In particular, such a viewpoint is represented in the work of Lipkan (2003) "Security Knowledge".

Thus, national security is considered as an integrative set of different areas of life of the society and one of them is the economic area.

Even within the framework of the approach, we outlined above, we can single out two rather independent existence areas of national security concept and its economic component.

First, it is a theoretical sphere of national security, which considers the problem above through the lens of understanding of the content and the essence, the definition of its place within the system of government activities.

Second, it is a practical sphere of national security, to which we refer a legal framework of the activity of the state aimed at the protection of national security and establishment of the appropriate effective tools for this protection.

#### **4. Legal regulation of the economy is the basis to ensure economic security**

Favourable development of the economy and, consequently, ensuring of economic security are rather problematic without the improvement of legal regulation of the economy, entrepreneurial activity. Using the experience of the implementation of the reforms in the nineties of the 20th century within the states that became the EU members, we can conclude that the economic reform cannot be effective without the government intervention of the certain extent in the economic processes. In this regard, we can see a significant collection of the legislative acts in this area,

the range of the economic measures taken by the state, for example, privatization of state and community property, land reform, etc. With the help of legal regulation, taxes, public procurements, administrative controls of various types, the state should have a diversified effect on the economic processes.

The system of legal and regulatory environment for the area of economic activity includes a significant list of laws, decrees of the President of Ukraine, resolutions of the Cabinet of Ministers of Ukraine, and other regulations, provisions of which can be sorted out as follows: principles defining the basis of social relations protected by law enforcement system and the basis of this system's organization and functioning, regulatory provisions that codify the procedure for social relations that are subject to protection; provisions that are implemented as a result of the law enforcement activity through enforcement of law; provisions determining the structure (organization) of the law-enforcement system and its offices and regulating the operating procedures.

Every regulatory legal act may contain separate articles relating to other groups of provisions (for example, some constitutional principles are repeated largely in all codes) and there are also such acts that have holistic character Code of Ukraine on Administrative Offenses (1984).

Section VII of the Criminal Code of Ukraine (2001) stipulates criminal responsibility for unlawful acts in the area of economic activity. The Code contains the sections establishing the responsibility for crimes against property (Section VI), crimes in the area of official activities and professional activities related to the provision of public services (Section XVII).

The Code of Ukraine on Administrative Offenses (1984) contains chapters that stipulate responsibility for administrative offenses in the area of finance and business (Chapter 12), protection of property (Chapter 6).

The Civil Code of Ukraine (2003), along with the other laws adopted according to it, is the main source of civil law in Ukraine. The first book of the Civil Code contains fundamental rules of civil law, basic definitions of civil law, regulations for agreements, representation, limitation of actions, the right of property, etc.

However, the economic offenses occurring under the cover of civil law provisions demonstrated the lack of completeness in the law of a number of classic civil law institutions. These institutions may include invalidity of agreements, incorporation, reorganization, and liquidation of legal entities, assignment of claim and transfer of debt, pledge, etc., that necessitate a range of the systemic amendments to be made in the Civil Code.

A special attention should be paid to the structure of the tax law. The Tax Code of Ukraine (2010) contains provisions relating to the tax offenses and the responsibility for their commission (Chapter 11).



Recently in practical terms none of the regulatory legal acts that characterize the socio-economic and political situation in Ukraine have been handled without the reference to the need of fight against corruption. Until recently, fight against corruption has been ineffective. However, although that recently the state has been taking measures to increase the effectiveness of the fight against corruption, this phenomenon impedes the normal functioning of different government mechanisms, and it hampers economic growth of the state. This is the factor that breeds up concern and distrust of the public in public institutions. In this regard, particularly relevant is the Law of Ukraine "On Prevention of Corruption" (2014), which codifies the keystones of counteracting corruption, legal and organizational principles for the prevention of corruption and fight against corruption, minimization, and elimination of the consequences of corruption-related offenses.

By the Resolution of the Cabinet of Ministers of Ukraine, the Communications Strategy in the Area of Prevention and Counteraction of Corruption (2017) was approved, which provided for the establishment, functioning, and development of the specialized information and methodological resource on the issues of anti-corruption requirements implementation. A special attention is given to work on prevention of corruption in organizations established to perform the tasks of the government authorities, educational and awareness-raising activities for the citizens are provided for around the requirements of the anti-corruption legislation.

Protective, regulatory, and direct effect measures that are applied by the state should be aimed at the support of the qualitative state of economic relations through the suspension and limitation of negative phenomena development within the economy. The above measures should come with the appropriate mechanisms for their application. Economic security should not be ensured by one authority, but it should be supported by the whole of government authorities system, all branches, and structures of the economy. Regulatory influence of the state should be aimed at the gradual reduction of the state's impact on the economy (as the opportunities and the conditions are established for setting up a relatively independent protection system by the economic entities).

Detailing, which means more detailed regulation of economic processes, is a general trend of the legislation developed in the area of economic activity. At the same time, the quality of legislation specifically is one of the essential conditions for the dynamic and progressive development of the economy.

One of the important features of the state activity is the circumstance that the requirement to increase the efficiency of legal support of the economy is embodied within "Ukraine-2020" Sustainable Development Strategy (2015), in a range of the regulatory documents

that result from it. It is emphasized in the Strategy that successful reforming of the economy and social area involves the establishment of effective interaction tools between the society, the business, and the state that are aimed at the coordination of all parties' efforts, ensuring consideration of interests of various social groups of the society and the business in the course of development and implementation of socio-economic policy.

We can't fail to agree that reflection of real threats to economic security requires highly qualified and effective political and economic actions, the need to change social-psychological attitudes that are present in the society. This grounded viewpoint is supported primarily by the European experience, examples of the Baltic States that managed to overcome aggressive influence of Russia, as well as to find the effective manner in search for the way of economic development, to raise the economic indicators to the optimal level due to the European integration and accession to NATO membership.

However, the problems related to the internal threats to national economic security deserve special attention. In the National Security Strategy of Ukraine, approved by Decree of the President of Ukraine (2015), a high priority is given to all types of national security, including the economic one. The Strategy outlines such types of unlawful activities where information, communication, and other high technologies are used. A special position in the Strategy holds the provision, which stipulates that the main subject of economic reform is the establishment of conditions to overcome poverty and excessive gap between the rich and the poor in the society, approximation of social standards to the level of Central and Eastern European states being the EU Member States, achievement of the economic criteria required for Ukraine to become a member of the EU.

The National Security Strategy of Ukraine (2015) defines the priority lines for ensuring national security in the economy for long-term perspective (this includes upgrading of energy security level). Internal and external threats are the result of insufficient and imperfect legal support for the national economy.

Contextually the National Security Strategy of Ukraine (2015) contains a number of the factors that affect development of the certain threats to economic security: irregularity of financial institutions formed in the country, state of the stock market, inconsistency between the domestic tax policy and the EU, efficiency level of the state financial control arrangement, regulation of financial system; unevenness of small businesses regional development, which contributes to further economic lag of the regions; deficient legal regulation of foreign investors' participation in the securities market, etc.

Legal regulation of foreign investors participating in the securities market of Ukraine is carried out on the basis of the following laws: "On Foreign Investment

Environment" (1996); "On Securities and Stock Market" (2006); "On State Regulation of Securities Market" (1996), and other regulatory acts. They determine the procedure of foreign investments entrance into the securities market. Participation of investors in the projects of national and government-wide levels makes an effective impact, especially on innovative economy branches development. In view of this, legal regulation of these social relations takes on greater importance.

One of the most important lines of the state's activities in the area of economic life is remedial action in the wake of escalation of armed aggression of the Russian Federation against Ukraine that has had a significant impact on the government processes. Armed aggression has determined largely further lines of the country's development. With a view to overcoming adverse consequences of armed aggression, to eliminate the greatest threats in the area of economic security, to stabilize socio-economic development, it is necessary to implement a set of specially adjusted measures by the government authorities in ensuring proper and favourable conditions for the economic growth of the state. An important condition for the effective solution of the assigned tasks is well-coordinated and well-organized work of the government authorities, which is based on the certain program of powers, strict compliance with the principles of European financial and fiscal legislation.

## 5. Conclusions

Ukraine along with the implementation of the recovery from acute economic crisis policy should define a new, scientifically grounded economic security strategy. It is about mainstreaming the government support for the economic dynamic development of all business entities, ensuring the guaranteed protection of national interests, implementation of socially-oriented policy.

Negligence of economic security can lead to disastrous consequences: economic decline, businesses bankruptcy, and undermining of the life support system of the nation with further loss of sovereignty.

At the same time, despite different ways of government regulation of the economy, a large portion of them are implemented specifically in the legal form. The point should be stressed that legal regulation of the economic system of Ukraine must be carried out in two priority areas: first is a normative codification of the adopted mechanisms that develop as a result of the economic influence patterns and second is the direction of economic development to achieve the interests of the state and the society within the framework of the European integration. Establishment of the effective legal and regulatory framework of the economy in Ukraine is quite a reachable goal. Legal regulation of the economic area must be flexible and it must timely and optimally respond to internal and external changes that will allow enhancing substantially national economic security.

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# THE LEGAL FRAMEWORK FOR THE IMPLEMENTATION OF CURRENCY REGULATION IN SOME FOREIGN COUNTRIES AND IN UKRAINE

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**Abstract.** *The purpose of the article* is to conduct a comparative legal study of laws and regulations that determine the legal framework for the implementation of currency regulation in some foreign countries and in Ukraine and to define ways for improving domestic legislation in this area on this basis. *The subject of the study* is the experience of currency regulation in some European countries, USA, China, and Ukraine. *Methodology.* The research is based on a comparison of foreign exchange regulation in Ukraine and abroad. Based on the analysis of peculiarities of the state regulation of currency circulation in Great Britain, Germany, France, Poland, the USA, China, and in some other countries, the advantages and disadvantages of different regimes of state control over currency circulation are determined: from the regime of the floating rate to the rigorous state control. On the basis of the comparative legal study of certain provisions of the administrative legislation of Ukraine, the possibilities and limits of the application of positive foreign experience in this area are determined. *The results* of the study showed that in order to implement foreign exchange management experience, it is necessary to postpone the final transition to establishing a floating rate regime, reinforcing state interference. At the same time, it is necessary to strengthen currency control not only over the implementation of foreign exchange operations but also over the activities of entities that determine the state policy in the field of currency regulation, as well as directly implement the relevant activities using the instruments determined by provisions of the current legislation. *Practical implications.* The positive experience of the formation of the foreign exchange market in foreign countries shows that the gradual transition from a fixed to a floating exchange rate is the beginning of a natural market exchange rate formation, equalization of the balance of payments, and the gradual liberation of the national economy from the pressure of administrative and corruption restrictions. *Value/originality.* Conducting a comparative analysis of foreign exchange regulation in foreign countries is the basis for developing the most promising directions for the development of domestic legislation in this area.

**Key words:** foreign experience, currency regulation, currency exchange rate, currency control, EU countries.

**JEL Classification:** G15, G17, G18

## 1. The relevance of the problem

The current state of development of the world economy is characterized as extremely risky. The study of causes of disturbances of balance and economic stability in the world makes it possible to conclude on the significant role of monetary policy in strengthening crisis phenomena. The key issue for the country's

investment attractiveness is the ability of the rules of currency regulation to be as flexible as possible with respect to foreign investors (Savka, Miedieliaieva).

Most countries of the world have rules of currency regulation or currency control in one form or another. The existence of such rules of currency regulation has always been noted as an important component of state

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regulation, which affects all participants in foreign transactions in the country. The stability of the country's economic development, high rates of economic growth are largely determined by the state of national currency relations, which, in turn, is determined by the monetary policy pursued in the country. Foreign exchange policy as one of the main forms of regulation of foreign economic relations becomes of paramount importance in the practical realization of state influence on the course of all economic processes in order to implement the strategy of economic development and the development of an effectively functioning market mechanism in Ukraine.

That is why the study of foreign experience in the implementation of monetary policy becomes relevant and important since both the development of market relations and the expansion of foreign economic relations and general ensuring the economic security of the state and economic development depends on its effectiveness (Sorokivska, 2013), which determined the relevance of the selected theme.

A significant contribution to the study of the problem of choosing the optimal foreign exchange policy for countries with a transformational economy has been made by foreign and domestic scientists: J. Fraenkel, O. Bereslavskaya, Ya. Belinska, O.I. But, A. Halchynskyi, O. Dziubliuk, F. Zhuravka, Zh.V. Zavalna, V. Kovalenko, B. Lapchuk, S. Makukha, S.Ya. Morynets, O. Romanyshyn.

## 2. The purpose of the article

The purpose of the article is to conduct a comparative legal study of laws and regulations that determine the legal framework for the implementation of currency regulation in some foreign countries and in Ukraine and to determine on this basis ways for improving domestic legislation in this area.

Many scholars and researchers are of the opinion that Ukrainian currency control rules are restrictive and close to very strict ones. Although the National Bank of Ukraine initiated a significant number of changes to existing exchange control rules by proposing amendments to existing legislation or by introducing its own explanatory rules, such changes are mostly partial and very slow. Consequently, the Ukrainian currency control rules remain backward and not renewed for a long period of time (Savka, Miedieliaieva).

In terms of the globalization of all forms of international economic activity, the monetary policy of any country is one of the most important elements of its economic strategy since the national currency systems link the economies of individual countries into a single world economic complex (Motorniuk, Kalynovska, 2010).

Globalization of society not only contributes to the positive interpenetration of cultures, the strengthening

of the country's potential by joining the world's best intellectual assets, the study of historical experience in solving socially important issues (Sevruk, Pavlenko, 2015).

Thus, an increase in the volume of foreign exchange operations in Ukraine, effective organization of foreign economic activity of economic entities, development of the national currency system and a full-fledged currency market exacerbate the problem of the dialectic combination of market and administrative methods of economic management and require strengthening of the state regulatory influence on the activities of subjects of currency relations (Melykh, 2012).

In developed countries with a socially-oriented market economy, the entrepreneurial sphere of activity is its leading sector. It is because of it that a new layer of owners is formed – the middle class, which is the social base of the existing socio-economic system.

## 3. Presentation of the main research material

Ukraine at the present stage of its development is on the path of significant transformations: the structure of economic relations is changing, new subjects of property and political activity are forming, the basic values are transforming, core values life, the way of life, and traditions are changing (Sevruk, 2017).

The transition from the planned and administrative management of the economy to market relations required from our state to create appropriate market institutions. Realizing the importance of the formation of the non-state sector as one of the components of a market economy, Ukraine, from the first years of independence, began to create legal conditions for the development of entrepreneurship (Kamlyk, 2005).

Therefore, the monetary regulation of any state is realized through the mechanism of currency restrictions and currency control. When conducting currency regulation, the state regulates the system of international settlements performed by participants of foreign economic activity, and establishes (Platonova, 1996):

- The scope and procedure for conducting foreign exchange transactions;
- Procedure for the formation and use of the currency reserve of the country;
- Procedure for the formation and use of currency funds of economic entities;
- The scope and procedure for the implementation of currency control.

Foreign exchange restrictions as a system of state measures (administrative, legislative, economic, and organizational) for establishing a procedure for conducting operations with currency values usually involve the regulation of international payments and transfers of capital, repatriation of export earnings, profits, notes and securities, the prohibition of free sale of foreign currencies (Krokhina, 2015).

In the passive balance of payments, such measures are used to restrict the export and “escape” of capital, stimulating the flow of capital in order to maintain the exchange rate:

- Limiting the export of national and foreign currency, gold, securities, loans;
- Control over the activities of the credit and stock markets, which means that transactions are carried out only with the permission of the Ministry of Finance and when providing information on the size of loans and direct investment abroad, the attraction of foreign loans provided the prior approval of the currency control authorities (in particular, for the issuance of bonds loans) so that they do not affect the national currency market, the market for loan capital, and the growth of money supply in circulation (Krokhina, 2015);
- Restrictions on the participation of national banks in the provision of international loans in foreign currency;
- Forced redemption of foreign securities owned by residents and their sale for currency (Germany resorted to this event before the Second World War and Great Britain – in the post-war period);
- Complete or partial termination of foreign debt repayment or payment in its national currency without the right to transfer abroad.

With an active balance of payments in order to curb both the inflow of capital to the country and to increase the national currency, the following forms of currency and credit restrictions on international financial transactions are applied:

- Depositing in a central bank’s non-interest account of new international obligations of banks (in Germany in 1978, the minimum reserves of credit institutions that they are obliged to keep in the central bank were raised to 100% increase in foreign liabilities of banks; in Japan, this rule was raised in March 1978 from 50% to 100% in order to suspend the flow of dollars into the country; in December 1978, it was reduced to 50% after the announcement of the US dollar support program; since February 1979 it was 0.25%) (Krokhina, 2015);
- Prohibition on non-residents’ investments and sale of national securities to foreigners (in Switzerland in 1972–1974, partly, and from February 1978 to the end of 1979, the sale of short-term Swiss securities to non-residents was almost completely prohibited; in January 1978, sales of national securities for a term of two to four years to foreigners were prohibited in Germany; in Japan, the ban on short-term bonds purchases by non-residents in yen was temporarily imposed in March 1978);
- Mandatory currency exchange of national currency loans at the national central bank;
- Prohibition on payment of interest on term deposits of foreigners in the national currency (a similar prohibition was in force in Switzerland from November 1974 to February 1980 for the purpose of redistributing capital from the country to the euro-Swiss franc market and

reducing the exchange rate of the national currency) (Krokhina, 2015);

- The introduction of a negative interest rate on deposits of non-residents in the national currency (from 12 to 40% per annum). At the same time, the interest is paid either by the bank’s depositor, or by the bank itself that is interested in attracting foreign currency deposits to the relevant government institution (this measure was applied at different times by Belgium, the Netherlands, Germany, Switzerland (1972–1979) in order to curb the inflow of capital; for example, in Switzerland in 1978, the rate of “negative” interest was 10% in the quarter for contributions from non-residents in Swiss francs to more than 5 million francs) (Krokhina, 2015);
- Restrictions on the import of currency into a country (this measure was introduced in Switzerland in 1976–1977; then the Banking Act of 1979 prohibited banks from storing banknotes in Swiss francs in safes leased by foreigners, keeping checks for large amounts issued on their behalf by order foreign clients);
- Restrictions on forward sales of the national currency to foreigners (in Switzerland, these restrictions were practiced between November 1974 and March 1980, then they were mitigated: based on the sale of francs for up to ten days the limit was increased from 20 to 40% of the amount of the transaction as of 31 October 1974, for operations for a longer term – from 50 to 80%);
- The scheme of compulsory deposits (this measure was used in Germany from March 1972 to September 1974; firms that are actively resorting by Eurocredits, for which rates were lower than in the country, were obliged to place a part of the attracted capital at a non-interest account in the German Federal Bank) (Krokhina, 2015).

Conducted analysis of the main approaches to the definition of mechanisms for the unshadowing of the Ukrainian economy provides grounds for arguing that the main mechanisms, according to scientists, are economic (improving the tax system, reforming the national financial control system, stimulating investment processes, creating favourable conditions for business development, fighting corruption, etc.). It is necessary to agree with the opinion of S.O. Pavlenko that corrupted ties, which are closely regulated in the legislative, executive, and judicial authorities, lead to the establishment of their dependence on criminal structures, which ensures the adoption of necessary decisions for them, in violation of current legislation or existing social norms (Pavlenko, 2016).

In our view, for the national economy, integrated into the world, the fuller implementation of the liberal idea of foreign exchange control is of great practical importance. At the same time, we cannot neglect the stage of transition from less liberal currency control to more liberal, so as not to suffer certain losses. As rapid liberalization of currency control, so unjustified tight measures can lead to negative social and economic

consequences. For a deeper understanding of the essence of relations in the field of currency control in order to improve the national currency system, it is expedient to study the practice of currency control in developed European countries (Dzhavaha, 2014).

Let us also dwell on the system of currency control in Germany. Legally, the system of currency control in this country has existed since 1949 when the Law "On Foreign Exchange Turnover and Control of Goods" was adopted (Foreign Exchange Law). The law contained a prohibition (with the obligation to request permission) on transactions with property between citizens and foreigners, a ban on the movement of currency, provisions on currency control. And by this time, the Law is the basic document defining currency relations in the country. In our time, currency control in Germany is carried out on the basis of the Foreign Exchange Law of 1949 (Yalta Interbank Conference: more questions than answers, 2004).

One of the main principles of the economy in Germany is the free movement of capital. However, despite the capital movement liberalization, there is a strict control in the form of accounting of capitals that cross the state border. Mostly, banks, as well as other lending organizations, which transfer collected and aggregated information to central banks of lands or directly to the central bank of the country, deal with this issue. Such a collection and analysis of data on the movement of capital allows developing, if necessary, specific measures for the regulation of the currency market, and is also used in compiling the balance of payments of the Federal Republic of Germany by a special unit of the Deutsche Bundesbank (Federal Bank) (Kizenkov, 1997).

As a result of the liberalization of currency legislation in the FRG, the issue of organizing effective counteraction to the use of financial systems for the purpose of laundering of the proceeds of crime has become particularly relevant. Therefore, the FRG is actively involved in expanding international cooperation in the fight against money laundering, while taking appropriate measures at the national level.

Thus, in the system of currency control in Germany, there are relevant legislative acts, currency transactions related to the movement of capital are monitored, and the fight against the legalization of criminal proceeds is carried out. The currency control authorities are the German Federal Bank, the central banks of land, commercial banks, and other lending institutions (Dzhavaha, 2014).

In 1989, in Italy, the Decree on Currency Regulation was adopted, which allowed carrying out any currency activity that did not contradict the law. Since 1989, the Italian Foreign Exchange Office serves the circulation of all funds in foreign currency. Together with the Bank of Italy, this body also manages official currency reserves. Coordination of activities of these two institutions is ensured by the fact that the central bank manager is

simultaneously the head of the Italian Foreign Exchange Office. Control over export-import foreign exchange operations is also carried out by the customs services, which submit their received information about illegal actions in the financial sphere to the Italian Foreign Exchange Office and the Guardia di Finanza.

In 1995, the Italian Foreign Exchange Office created a special department to combat the prevention of the use of financial institutions to launder criminal proceeds (Kolesnikov, Shmyreva, Klimov, 1999).

It is also worth studying features of the currency control system in Great Britain. The foundations of the current system of currency and export control of Great Britain were laid in the pre-war period – in 1939 when the Prescriptions on Defence (Finance) and the Law "On Import, Export and Customs Authorities" were adopted. Since 1947 the Law "On Currency Control" has entered into force, as well as more than 40 statutory documents, including orders, rules, and directives issued by the Treasury and the Bank of England (Platonova, 1996). Among the modern statutory instruments regulating foreign exchange controls, the Law "On Import and Export" of 1990, the Order "On Export Control of Goods" of 1979 should be noted (Khamaganova, 2001).

The Law "On Currency Control" provides authority and imposes obligations and restrictions on the circulation of currency values. Currency control authorities include the Treasury, the Bank of England and authorized banks with exchange permit, as well as customs and excise authorities. British Treasury is the main authority of the currency control. However, it delegated most of its powers to the Bank of England, which directly exercises currency control. The Bank of England manages its affiliates and authorized representative offices in most commercial banks (both domestic and foreign) located in Great Britain and executing a wide range of transactions with its permission. The customs and excise authorities control the movement of capital and currency across the border (Shmyreva, 1999).

Thus, in Great Britain, individual elements of the currency control system continue to be applied. Yes, there are restrictions on the circulation of currency values, control over foreign currency investment, the fight against the legalization of proceeds of crime, which involves the Joint Working Group and the National Bank of the United Kingdom for Financial Investigations, are being actively pursued.

In Poland, with the commencement of the reform process, a fixed exchange rate was introduced – first to the US dollar, and then to the "basket" of the top five currencies, to curb inflation. In May 1995, the regime for fixing the exchange rate was changed to the "currency corridor", the limits of which gradually expanded from  $\pm 7\%$  to  $\pm 15\%$ . Since April 2000, as a result of the introduction of free floatation of the exchange rate on the

Polish zloty course, market factors begin to affect. In the mid-90s of the XX century, the National Bank of Poland actively used exchange rate policy to combat inflation. The strengthening of the zloty's exchange rate in 2000–2001 occurred as a result of the large privatization proceeds and consistent restricting monetary policy of the Polish government, as well as the inflow of foreign capital (Honcharuk, Matsko, Shparhalo, 2010).

On July 27, 2002, a new law "On Foreign Currency" was issued in Poland, which regulates the execution of foreign exchange transactions. This law abolished all restrictions on the movement of funds between Poland and the EU countries. At the same time, the law provides for some restrictions regarding the movement of funds from non-EU countries. Currency restrictions can be removed by obtaining currency permits that are of two types: general and private. The general currency permits are issued by the Ministry of Finance, and private ones – by the National Bank of Poland. The main measure of currency regulation was the transition to a flexible exchange rate and the introduction of the "free-swimming" regime in 2000. Thus, the government and the National Bank of Poland were able to solve the problem of the impossibility of combining three goals, namely: stability of the exchange rate, capital mobility, and monetary autonomy (Zhuravka, 2008).

On the basis of the above analysis, one can conclude that the common for most developed European countries is the fact that in the post-Second World War period, currency control was rather rigorous. With the improvement of their currency and financial status, such countries have gradually liberalized currency control.

In intergovernmental relations, currency restrictions can be used to establish a currency blockade – an economic sanction in the form of one-sided currency restrictions of one country or group of countries in relation to another state, which impede the use of its currency values in order to force it to comply with certain requirements and are aimed at undermining its currency-economic situation.

The application of such measures allows freezing the foreign currency values stored in the accounts with foreign banks of the state, against which the currency blockade is directed, to discriminate it as a trading partner. For example, in the period of the American-Iranian conflict in November 1979, the USA blocked Iranian bank accounts (12 billion USD) and cancelled some loans, demanding the release of American hostages, and ultimately in order to undermine the country's economy, which began to pursue anti-American policies. During the Falklands Conflict in 1982, Britain blocked Argentina's currency assets, which then dropped off its example. In January 1986, the USA announced the currency blockade of Libya, freezing its currency assets in American banks in order to force the country to abandon its independent foreign policy. In 2003, the USA froze Iraq's foreign currency accounts.

International sanctions against Iraq were abolished in the spring of 2003 after the US and British military operations in that country ended (Krokhina, 2015).

The currency policy is closely interrelated with the transformational and monetary processes taking place in the economies of different countries. Thus, most Eastern European and CIS countries were undergoing stagflation at the stage of transformations, so central banks were forced to introduce a fixed exchange rate regime with the purpose of curbing inflation. Further gradual recovery and the development of financial and money markets contribute to the liberalization of the exchange rate and the operation of the foreign exchange market as a complete monetary regulation tool (Honcharuk, Matsko, Shparhalo, 2010).

In general, it should be noted that for most countries of the world (which was and is), a widespread use of various currency restrictions and even a state monopoly in the currency sphere are peculiar.

World experience shows that the choice of the exchange rate regime is an equally important element in the realization of foreign exchange policy. There are many good examples of using floating, fixed modes or their combinations. Recently, however, most countries prefer the regime of floating exchange rates. This is determined by the fact that, in the long run, there is no alternative to the floating regime, because long-term stability at a fixed rate cannot be achieved. However, in the short run, currency policy is obliged to ensure a rigid limitation of exchange rate fluctuations.

The use of foreign exchange restrictions is associated, at least, with a number of reasons: first, restrictions are used to strengthen the regulatory impact on the balance of payments; secondly, to solve problems of repayment of debts on foreign loans; thirdly, many states seek to concentrate foreign currency in their hands in order to spend it more effectively on economic development; fourth, in order to increase their foreign exchange reserves, they introduce such official rates, which market events cannot be sustained with limited reserves, because these rates differ significantly from potential market ones; fifth, in relatively poor countries, governments simply cannot allow free sale (and hence import and export) of the national currency since the latter is a debt obligation of the country, the possession of which allows at any time show it for payment (Krokhina, 2015).

Thus, by combining the theoretical bases of the introduction of a floating exchange rate and the transition to inflation targeting with the practice of other countries and the economic characteristics of Ukraine, one can conclude that there is a need to introduce a transitional period, during which it is worthwhile to ensure:

1) increasing the efficiency of monetary policy operations and increasing the share of refinancing operations and securities operations in the open market in the NBU emission policy;



2) the gradual liberalization of the capital market and the development of the banking system, as the abandonment of currency restrictions requires a certain redevelopment of the financial services market regulation system;

3) maintaining a sufficient level of gross international reserves. By the end of March 2013, the volume of gold and foreign exchange reserves amounted to 24728.61 million USD. According to the expanded criteria for adequacy of risk-based reserves (loss of access to the international capital market, national capital escape, and growth of current account deficit), this volume is insufficient;

4) maintenance of the exchange rate from significant nominal fluctuations within the specified limits, since the advantage of a floating regime is the very possibility of smoothing out the negative effects of the globalization process by adjusting the nominal exchange rate (Sorokivska, 2013).

Thus, a successful long-term foreign exchange policy should combine elements of flexibility and control, and its benchmark is to gradually shift to a floating exchange rate regime.

Consequently, currency restrictions in a number of cases are very closely related to credit and trade regulation. Their arsenal is varied; ineffective forms are replaced by more adapted to the peculiarities of the monetary and economic situation of the country and competition in the world market.

A particular attention should be paid to the comparative survey of foreign legislation on the legal status of digital money and state regulation of cryptocurrency business.

Canada. In June 2014, the Governor General of Canada approved a bill (Transactions Involving Bitcoins) according to which: Cryptocurrency exchanges are subject to registration at the Financial Transactions and Reports Analysis Centre of Canada (FINTRAC) (Financial Transactions and Reports Analysis Centre of Canada) as financial institutions; Companies should ensure compliance with anti-money laundering legislation: to notify the regulator of suspicious transactions, to introduce user verification, and more; Banks cannot open accounts for cryptocurrency exchanges that are not registered in FINTRAC. The bill extends both to companies incorporated in Canada and companies that provide relevant services in Canada but are registered in another jurisdiction. Payment for goods or services using cryptographic goods is taxable as a barter transaction. In the case of sale of a digital currency, a tax on profit or a capital gains tax is imposed. Cryptocurrency, obtained as a result of mining, carried out for commercial purposes, is subject to tax on income.

The USA. The state of California, the first of all US states that allowed the use of crypto foreign currency at the legislative level. The law (Assembly Bill No. 129) allows any corporation, association, or private person in California to engage in a turnover other than legitimate

US funds, and it came into force in early 2015. However, the management of the cryptocurrency business in the state is not regulated. In the state of New York, such a business was regulated in August 2015, when BitLicense – a license to run a cryptocurrency business was introduced by the New York State Financial Services Department (The United States is Falling Behind in Bitcoin Regulation. Kyle Torpey).

In the state of Washington, the digital currency is the object of money transfers (Money Transmission) in the sense of the Law “On Unification of Financial Services”. This means that companies can execute crypto-currency transfers to a Washington resident only after receiving the Washington money transfer operator license (Washington Money Transmitter License). This requirement also applies to exchanges that provide currency exchange services for cryptocurrency and vice versa. Subject to this regulation are companies that provide cryptocurrency wallets to users and perform transactions for the exchange or transfer of digital currency. Companies that provide cryptographic currency wallets should conduct a security audit of the computer system in order to obtain the appropriate license (Uniform Money Services Act).

Japan. In May 2016, the Japanese parliament passed a law, according to which: Cryptocurrency operators are subject to registration at the Financial Services Agency; The Agency has the authority to carry out stock market inspections and, if necessary, may apply administrative measures; Cryptocurrency is recognized as a value similar to assets. In this case, the digital currency is not considered a legal tender, but as a means of exchange, through which you can buy goods, services or legal means of payment. Taxation of cryptocurrency and operations with it in Japan are carried out according to the standard rules defined in the tax legislation. Thus, the income received by an individual as a cryptocurrency is subject to income tax (Income Tax), the income of a legal entity in a digital currency – corporate tax (Corporate Tax). The sale of cryptocurrencies is subject to a Japanese analogue of value added tax (Japan Makes First Bitcoin-Related Drug Arrest).

For today, no one of the regulators (authorities) of the European Union adopted special rules for the regulation of cryptocurrency activities. However, Member Countries carry out legal regulation of exchange business, in particular, cryptocurrency. Some member states have legislative rules on the regulation of cryptocurrency business, whereas other countries do not conduct legal regulation of this business at all. In many of them, cryptocurrency business is regulated through reports, warnings, press releases, information notes issued by central banks or other regulatory bodies that do not have a mandatory order. In EU legislation, the legal regulation of cryptocurrency transactions is considered within the framework of the implementation of the policy of combating money

laundering and terrorist financing (Directive (EU) 2015/849; A comparative review of foreign legislation on the legal status of digital money and state regulation of cryptocurrency business).

Analysing this problem, it is necessary to separate the draft Law of Ukraine "On Currency". The draft Law "On Currency" was developed in connection with the necessity of legislative consolidation of principles of transparent foreign exchange policy of Ukraine, regulation of the currency market, the need to restore the stability of the currency of Ukraine, and create a favourable investment climate in the country.

The current regime of currency regulation, which was established with the adoption of the Decree of the Cabinet of Ministers of Ukraine "On System of Currency Regulation and Currency Control" (Vidomosti of the Verkhovna Rada of Ukraine (VVR), 1993, No. 17, p. 184) and regulatory acts adopted in accordance with this Decree, is obsolete and does not correspond to the modern European practice of the organization of currency regulation. The system of currency regulation is non-transparent for subjects of currency transactions and creates additional difficulties when entering into currency legal relations. Moreover, the system of currency regulation and control is so inconsistent with time and demands of subjects of currency relations that cannot be changed by separate specifications/changes in the legislation and require a radical revision with the introduction of a new regime of currency regulation, which would correspond to the best practices of the European Union for the introduction of a free movement of capital.

The purpose of the bill is to establish a regime of currency regulation, which provides for the free exercise of currency transactions by their entities, aimed at improving the simplicity of such transactions, improving the investment climate and investment attractiveness of Ukraine, as well as the implementation of commitments undertaken by Ukraine under the Association Agreement between the European Union and the European Atomic Energy Community and their member states, of the one part, and Ukraine, of the other part, in particular, the introduction of regulatory principles of the movement of capital of the European Union (according to the Directive of the EEC Council of 24.06.1988 № 88/361/EEC) (Explanatory Note to draft Law of Ukraine "On Currency").

Adoption of the proposed draft Law of Ukraine will enable:

- to improve the legislative framework and bring it in line with the best European practices on the free movement of capital, which will expand the opportunities for residents to develop foreign economic activity and increase exports, contributing to the strengthening and development of the national economy;
- to create favourable conditions for investing capital in the Ukrainian economy, developing international relations, removing tensions in relations with foreign partners, and it will also have a beneficial effect on the business activity of foreign business entities/individuals in Ukraine;
- to improve the legislative provision of the implementation of a single state monetary policy, as well as the stability of the currency of Ukraine and the currency market of Ukraine, as factors of progressive development of the national economy and international economic cooperation.

As a result of the efforts taken by the states over the past two decades, in almost all countries with a market economy, the state's participation in increasing the competitiveness of domestic enterprises, in the development and cheapening of the necessary infrastructure for it has increased dramatically; the tax system, which encourages competitive enterprises, significantly rebuilds; rational investment, monetary and financial, and regional policies as the basis of currency regulation and currency control develop (Krokhina, 2015).

#### 4. Conclusion

Summarizing the above, it should be noted that in the face of the overcoming negative effects of the financial and economic crisis, there is a need to solve the problems of the search for and implementation of such mechanisms of currency regulation and currency control, which would be most adequate to the current stage of development of the Ukrainian economy. However, Ukraine has no sufficient regulatory framework to counteract this phenomenon, dangerous for the state. A leading role in solving this issue is played by effective, impartial, and timely state financial monitoring, the system of which should be built on the basis of world experience.

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