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MATHEMATICAL METHODS FOR DETERMINING THE COST OF MONEY IN THE NATIONAL ECONOMY

Abstract. *Money, currency in circulation and production of gross domestic product are essential cumulative factors of macroeconomic stability of the State. Cost variation of a money unit influences level of prices in economy and income level of economic agents. In particular money stock, volume of currency circulation and gross domestic product are constituents of determining value of money on a nationwide scale.*

In the article problems of determining value of national currency in economy were studied; general-theoretical approaches to building the model of determining value of money unit were formulated.

Theoretical and methodological procedures of the scientific study are fundamental premises of the quantity theory of money.

Keywords: *money, monetary circulation, gross domestic product, value of money unit, money stock, velocity of turnover of money unit.*

Introduction

The value of money for society and its purchasing power in the domestic market contribute to or hinder economic growth. When a society loses confidence in national money, it loses confidence in itself.

Problem. One of the problems in the development of the country's economy is the change in the value of national money. The value of money affects the price level and the income level of business entities and, accordingly, the aggregate demand and aggregate supply of goods and services in the economy. In a real economy, a change in the money supply does not always lead to a change in the price level and, as a result, in the value of the monetary unit. The reason for this is that money and money circulation are closely linked to the volume of production of goods and services in the country.

The problem of the formation and determination of the value of national money in the process of interaction between production and money circulation in the state determines *the relevance* of choosing the topic of scientific research.

Research task — this is a solution to the problems of the formation and determination of the value of national money by building modern mathematical models. The proposed models allow us to reveal a new mechanism for determining the value of a monetary unit. The mechanism of interaction of gross domestic

product, monetary circulation and their aggregates determines the value of national money.

In the process of research, a new macroeconomic indicator was introduced — the value of the monetary unit, taking into account the turnover of its value.

Research concept. The concept of determining the value of a monetary unit is based on the postulates of the quantitative theory of money, mathematical calculations and logical conclusions. The study is based on the basic equation of monetary economic theory — the equation of exchange of the quantitative theory of money [1]: $M \cdot V = P \cdot Q$, where P is the price level in the economy; Q — annual real product; the expression $M \cdot V$ represents the product of the money supply and the velocity of the currency, forming the economic category — money circulation.

The equivalent equation of exchange: $M \cdot V = GDP$ has been used in our research, where *GDP* is the gross domestic product.

Object of an article is to represent general-theoretical and practical approach to evaluation of influence of alteration in production and currency circulation on value of national currency unit on the ground of mathematical methods.

With this aim in mind following problems have been solved:

1) approaches in economists' works to formation and determination of value of money were considered;

2) problems of determining value of national currency in economy were studied;

3) general-theoretical approaches to building the model of determining value of money unit were formulated.

The result of investigation appears in following:

1. Construction of a mathematical model for value determination of a money unit on alteration of gross domestic product, currency circulation and store of money in economy: $P_G = (GDP_{R0} \pm \Delta GDP_R) / (M_A \cdot V_0 \pm \Delta S \cdot V)$, where P_G is value of a money unit; GDP_{R0} is gross domestic product, calculated by total expenditure; ΔGDP_R is alteration of gross domestic product; $M_A \cdot V_0$ is currency circulation; $\Delta S \cdot V$ is alteration of store of money in economy for the period under review.

2. Building the model of determining value of money unit taking into account its turn-round of value: $P_G \cdot V = (GDP_0 \pm \Delta GDP) / (M_A \pm \Delta S)$.

The subject of research in this article is the determination of the value of the monetary unit when changing the production of gross domestic product and the components of monetary circulation.

Literature Review

The issues of the importance of money in the economy and the determination of their purchasing power were dealt with by world-famous economists: K. Marx, I. Fisher, J.M. Keynes, M. Friedman, F. Hayek, P. Krugman, M. Obstfeld, etc.

D. M. Keynes noted the importance of money in the economy: "We cannot get rid of money even by destroying gold, silver and other legal tender. Specific problems of the monetary economy will arise as long as there are any non-expendable assets that can take on the function of money" [2].

The importance of money stems from the fact that they are the link between production and consumption, between seller and buyer. By the words of K. Marx, "the goods are always on the side of the seller, money is always on the side of the buyer as a means of purchase" [3]. Both production and consumption are characterized by the indicator "gross domestic product", which is served by the presence of a certain amount of money supply, taking into account the speed of turnover of the monetary unit. Based on this, you can argue that the main purpose of using national money in any country is to service domestic production and consumption of goods and services. The amount of money and money circulation are completely dependent on the monetary policy of the state.

Economists of the past and present tied the value of money:

to the value of gold (K. Marx, Nathan Lewis);

to the amount of goods that can be bought for a given amount of money (I. Fisher);

to the mass of goods, which corresponds to one nominal monetary unit (M. Fridman);

to the volume of aggregate demand (P. Krugman, M. Obstfeld).

K. Marx associated the value of paper money with a known amount of gold: "Paper money is only insignificant signs of value, since they are representatives of known quantities of gold, and the quantity of gold, like any other quantities of goods, is at the same time cost " [3].

I. Fisher, a well-known American economist and mathematician, defined the value of money as "the amount of other goods that can be bought for a given amount of money. The lower the price of goods, the greater their number can be bought for a given amount of money, the higher, therefore, the purchasing power of money. The higher the price of goods, the smaller their number can be bought for a given amount of money, the lower, therefore, the purchasing power of money" [4].

M. Friedman, the founder of monetary theory, proposed defining the value of a monetary unit as income, the value of which "in real terms from one nominal monetary unit is determined by the mass of goods to which this unit corresponds" [5].

Modern American economists P. Krugman and M. Obstfeld linked the value of money with their aggregate demand, which is determined by three main factors:

1) interest rate: an increase in the rate leads to a decrease in the demand for money and, as a result, for their supply to the economy; rate reduction — to increase the demand and supply of money;

2) the price level: reflects the monetary value of a fixed set of goods and services;

3) a real national product (GNP) [6].

The first factor changes the supply of money in the economy and, accordingly, affects the value of money.

The second factor suggests that the value of money changes when prices for a fixed set of consumer goods change: when prices for a fixed set increase, money loses its value, and when prices decrease, money becomes more expensive.

Consequently, P. Krugman and M. Obstfeld tied the value of money to the price level for a fixed set of goods and services.

The third factor determines the dependence of demand for money on changes in GNP production: with an increase in GNP, the demand for money grows due to an increase in the number of real transactions and their value in the economy, while a decrease in GNP, the demand for money decreases due to a decrease in the number and value of transactions in the economy.

To determine the aggregate demand for real money, they proposed the following formula [6]:

$M^D / P = L(R,Y)$, where M^D — is the aggregate demand for money; P — is the cost of the consumer basket; R — is the interest rate; Y — real GNP; $L(R,Y)$ is called the aggregate demand for real money.

American economists have defined aggregate demand for real money as the ratio of aggregate demand for money (M^D) to the value of the consumer basket *(P)*. The mathematical expression M^D/P determines the number of consumer baskets that can be purchased for money supply (income) in the economy.

According to P. Krugman and M. Obstfeld, the real value of money is determined by the number of consumer baskets that can be purchased for the money supply, which determines the aggregate demand for money. In our opinion, the aggregate demand for money is nothing more than the active money supply serving consumer demand.

P. Krugman and M. Obstfeld:

— do not take into account the speed of turnover of a monetary unit as a component of monetary circulation;

— consider the value of the benefits of the consumer basket, and not all goods produced in the economy.

It is necessary to clarify separately the formula for determining the aggregate demand for real money P. Krugman and M. Obstfeld: $M^D/P= L(R, Y)$.

This formula only takes into account the money supply as the demand for money. But in the real economy, money is being circulated, so it will be mathematically correct to take into account cash flow in this formula $M \cdot V$: $M^D \cdot V / P= L(R, Y)$.

The supporter of free money, Friedrich von Hayek, in the book "Private Money" proposed determining the real value of a monetary unit based on the competition of several free private currencies within the country. He "completely independently came to the idea of the advantages of independently issued competing currencies" [7]. He considered the state's monopoly on money emission to be useless and even harmful.

Despite the proposed new approaches proposed by F. Hayek for monetary circulation, the principle of "free monetary circulation" of different competing currencies in the economic system, in our opinion, cannot be applied due to its complexity and imperfection.

American economist Nathan Lewis proposed fixing the value of major world currencies to gold, which will ensure the stability of national currencies, since gold

retains its inherent monetary value better than anything [8]. He suggested that the value of the currency is to be tied to a fixed weight of gold (for decades, the US dollar has corresponded to 1/35 ounce of gold) and defined the objective of monetary policy — this is to maintain the currency at a fixed level.

Given the current realities of the development of the global economy, Nathan Lewis's proposal is worth considering. In this regard, we compare the trend in the change in the cost of an ounce of gold in relation to the US dollar for 2000 – 2019. The average price of gold for 1 ounce (troy) was [9]: 2000 – \$279.11; 2005 – \$444,74; 2015 – \$1160,06; 2018 – \$1268,49; 2019 – \$1392.60.

Over 19 years, the price of gold per troy ounce increased against the US dollar by 398,9% ((1392,60·100 / 279,11) – 100) or by \$ 1113.49. The likelihood of a gold price growth trend will continue in the future. This indicates a decrease in the value of paper money to gold.

It must be emphasized that the issue and supply of paper money is completely dependent on the actions of the central banks of countries (in the USA it is the Federal Reserve System), which do not always take into account the interests of society and, almost always, take into account the interests of governments.

From the above it follows that, according to prominent economists of the past and present, the value of money depends on:

— a known amount of gold in the monetary unit (K. Marx);

— the amount of goods that can be bought for a given amount of money (I. Fisher);

— income, the value of which is determined by the mass of goods to which the monetary unit corresponds (M. Fridman);

— aggregate demand for real money, determined by the interest rate, price level and GNP production (P. Krugman, M. Obstfeld);

— the value of the monetary unit, which is established on the basis of competition of several free private currencies within the country (Friedrich von Hayek);

— Linking the value of world currencies to a fixed weight of gold (N. Lewis).

Despite various and well-grounded approaches to the formation of the value of money in the economy, economists did not offer practical guidance on the application of mathematical methods for determining the value of money. They did not pay enough attention to money circulation in the formation of the value of the monetary unit.

Materials and Methods

1. Currency value

I. Fisher formulated the algebraic equation of exchange, which plays an important role in the theory of money and is the main equation of the quantitative theory of money [4]:

$M \cdot V = \Sigma p \cdot Q$, where M — is the average amount of money in circulation in a given company during the year; V — the number of revolutions of the national currency during the year; $p \cdot Q$ — price multiplied by the purchased quantity of each product or service. The equation of the quantitative theory of money I. Fisher became

the theoretical and methodological basis of the author's study in determining the value of the national monetary unit. In our study, the expression $\Sigma p \cdot Q$ is assumed to be equal to the gross domestic product produced.

Money is a commodity for exchange operations for other goods and services and, like a commodity, has value. The cost of money for the domestic economic space is determined by various factors. In the General case, the main such factors include:

1) the amount of money in circulation is characterized by the supply of money in the country's economy and depends on:

— money issue;

— interest rate of the central bank;

— reserve standards established by the central bank;

— issues and sales – purchases of government securities;

— tax policy.

2) the amount of consumed products (consumed GDP), which is served by monetary circulation;

3) the influence of external factors:

— export of goods and services;

— import of goods and services;

— the volume of external debt;

4) political and social factors.

In this study, all factors affecting the value of national money for the domestic economic space are taken into account in two macroeconomic indicators: gross domestic product *(GDP)* and monetary circulation *(M · V)*.

Consequently, the volume of production in monetary units and the amount of money in circulation, taking into account the speed of their turnover and determine the value of money.

We have proposed a new mathematical mechanism for determining the value of a monetary unit in the interaction of gross domestic product and monetary circulation.

The main points of our study:

1) money circulation of national money should be equal to the number of goods and services produced (consumed) in the country;

2) the value of the national currency is determined by the number of goods and services that can be purchased for this currency.

The following notation is used in the article:

gross domestic product *GDP* (Gross Domestic Product, is the main macroeconomic indicator);

money circulation (money circulation) — *M · V*;

monetary unit value as P_G, where *P* — is the price; index *G* — money ("Geld — money, from the word 'gelten' — to execute, pay, 'Geld' in German means a means of payment in general" [10]).
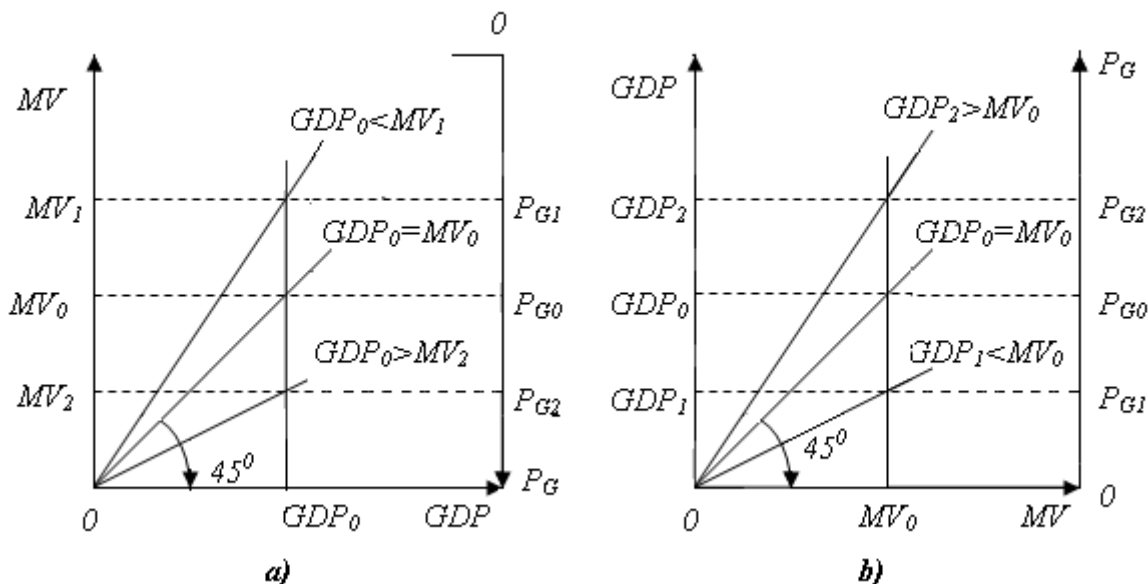
The formula for determining the value of a monetary unit, proposed by us as a basis, has the following form: $P_G = GDP / M \cdot V$.

From the formula it follows that the value of the monetary unit is directly proportional to the volume of gross domestic product and inversely proportional to the volume of money circulation.

It should be noted that from a mathematical point of view, the result of dividing two numbers is a number that shows how many units of the numerator are per unit of the denominator. Therefore, the indicator of the value of the currency unit РГ indicates that for one currency unit, taking into account the speed of its turnover, you can purchase goods and services for a certain amount. Therefore, in the equation $P_G = GDP / M \cdot V$ the unit of "money turnover" $M \cdot V$ accounts for a certain amount of gross domestic product GDP, which determines the value of money within the country.

In conditions of economic equilibrium of gross domestic product and monetary circulation, we have the unit value of the monetary unit: $P_{G0} = GDP_0 / M \cdot V_0 = 1$. In this case, the unit of value of the GDP produced is acquired per unit of monetary circulation. Changes in the numerator and denominator lead to a change in the value of money, namely:

— an increase in GDP production leads to an increase in the value of the monetary unit, a decrease in GDP — to a decrease in the value of the monetary unit;

— an increase in the monetary turnover $M \cdot V$ leads to a decrease in the value of the monetary unit, and a decrease leads to an increase in the value.

— a simultaneous change in the GDP and $M \cdot V$ indicators can lead to both an increase and a decrease in the value of the monetary unit.

Fig.1. The model for determining the value of the monetary unit in the national economy in the interaction of gross domestic product and monetary circulation
Figure 1a shows the effect on the value of a monetary unit of a change in money circulation M·V with a constant GDP.
On Fig. 1b — there is the impact on the value of the monetary unit of a change in GDP with a constant monetary circulation M·V.

Source: author's calculations

The relationship between *GDP* and the value of money (P_G) is direct; between money turnover *(M·V)* and the value of money is the opposite.

Based on the equation $P_G = GDP / M·V$, we construct and analyze a graphical model for determining the value of a monetary unit in the national economy in the interaction of gross domestic product and monetary circulation (see Fig. 1).

As indicated above, with the economic equilibrium of gross domestic product and monetary circulation, we have the unit value of the monetary unit. On Fig. 1 (a) and (b), this shows the equilibrium line, which is the bisector of the right angle. At any point on the equilibrium line, the equality *GDP = MV* and, accordingly, $P_G = GDP / MV = 1$.

Figure 1a shows the effect on the value of a monetary unit of a change in money circulation with a constant gross domestic product ($GDP = GDP_0 = const$), that can be formulated as a mathematical formula:

$$P_G = GDP_0 / (M·V_0 \pm \Delta M·V),\qquad(1)$$

where $\Delta M·V$ the amount of change in monetary circulation.

An increase in the denominator by "$+\Delta M·V$" reduces the cost of the monetary unit, and a decrease in the denominator by "$-\Delta M·V$" — increases the cost of the monetary unit. With an increase in money circulation on Fig. 1a from $M·V_0$ to $M·V_1$ unit value decreases from P_{G0} till P_{G1}, and with a decrease in cash turnover from $M·V_0$ till $M·V_2$ monetary unit value increases from P_{G0} till P_{G2}.

The percentage change in the value of a monetary unit, with a change in the volume of money turnover and a constant volume of gross domestic product, is presented in the following equivalent form:

$$\Delta P_G\,(\%) = GDP_0 / (M·V_0 \pm \Delta M·V)·100 - 100\qquad(2)$$

On Fig. 1b, with a constant volume of money circulation, any change in the volume of gross domestic product leads to a change in the value of the monetary unit, which can be formulated in the form of a mathematical formula:

$$P_G = (GDP_0 \pm \Delta GDP) / M·V_0,\qquad(3)$$

where ΔGDP — gross domestic product change.

Numerator increase by "$+\Delta GDP$" leads to an increase in the value of the monetary unit, and a decrease in the numerator by "$-\Delta GDP$" — to reduce its cost. On Fig. 1b, with the growth of gross domestic product with GDP_0 till GDP_2, monetary unit value is growing from P_{G0} till P_{G2}, while reducing gross domestic product from GDP_0 till GDP_1, the value of money is reduced from P_{G0} till P_{G1}.

The percentage change in the value of a monetary unit, with a change in the volume of gross domestic product and a constant volume of money circulation, is presented in the following equivalent form:

$$\Delta P_G\,(\%) = (GDP_0 \pm \Delta GDP) / M·V_0·100 - 100\qquad(4)$$

With a simultaneous change in gross domestic product and monetary circulation, the value of a monetary unit is determined by the formula:

$$P_G = (GDP_0 \pm \Delta GDP) / (M·V_0 \pm \Delta M·V)\qquad(5)$$

Clarify equality (5) by replacing the money supply indicator with the indicators of *active money supply and net savings*. M_A _ the amount of money directly involved

in the economic turnover "income – expenses"; S — net savings, or money in the hands of the population, at the box office of enterprises, unused funds in the accounts of financial institutions. Then the total money supply will be equal to: $M = M_A + S$.

In a country's economy, net savings in national currency can both increase and decrease. Based on this, the money supply for any reporting period is determined as follows: $M = (M_A \pm \Delta S) + (S \pm \Delta S)$, where ΔS — is the change in the amount of net savings and active money supply in the reporting period. Moreover, an increase in active money by ΔS leads to a decrease in net savings by ΔS, and a decrease in M_A by ΔS leads to an increase in net savings by ΔS.

To determine the value of a monetary unit, the amount of active money is taken into account. Therefore, we transform formula (5) as follows:

$$P_G = (GDP_0 \pm \Delta GDP) / (M_A \cdot V_0 \pm \Delta S \cdot V), \qquad (6)$$

where $(M_A \cdot V_0 \pm \Delta S \cdot V)$ — cash turnover for the period under review; $M_A \cdot V_0$ — cash turnover in the previous (base) period; $\Delta S \cdot V$ — injection into cash flow or withdrawal of net savings from circulation.

It should be noted that the active money supply serves consumption, therefore, in the formulas presented, the gross domestic product is calculated from the total = expenses, that is, it is consumed GDP_R, then ΔGDP_R — change in consumption. Gross domestic product for total costs equal to [1]: $GDP_R = R = C + I_g + G + X_n$. Considering this aspect, formula (6) can be written as follows:

$$P_G = GDP_{R0} \pm \Delta GDP_R) / (M_A \cdot V_0 \pm \Delta S \cdot V) \qquad (7)$$

Formula (7) is universal for determining the value of a monetary unit when changing gross domestic product, money circulation and net savings in the economy.

2. The value of the monetary unit, taking into account the turnover of its value

An important and problematic point in determining the value of money is the rate of turnover of a monetary unit, which is almost impossible to calculate. For the reporting period, it is determined mathematically with the already known indicators of gross domestic product and the amount of money in circulation. From the formula $GDP = M_A \cdot V$ we determine the speed of turnover of the currency:

$$V = GDP / M_A \qquad (8)$$

The turnover rate of the currency is stable [1] or changes slightly. By $V \approx const$ it is the change in the active money supply that affects the price level in the economy and, as a consequence, the value of the monetary unit. Therefore, we can use a new indicator for determining the value of money, taking into account the turnover of their value $P_G \cdot V$. From formula $P_G = GDP / M_A \cdot V$ we determine $P_G \cdot V$:

$$P_G \cdot V = GDP / M_A \qquad (9)$$

We draw attention to formulas 8 and 9, the right side of which is identical. In the formula (8), the value of a monetary unit is equal to one: $P_G = 1$. Follows from $GDP / M_A \cdot V = 1$, wherefrom $V = GDP / M_A$.

The price turnover of money, or the value of a monetary unit, taking into account the turnover of its value, is the product of the value of a monetary unit and the speed of its turnover.

If we consider it as a special case for $V = 1$, then formula (9) can be written as follows: $P_G = GDP / M_A$.

Therefore, when the turnover rate of a monetary unit is equal to one, the value of money depends on the gross domestic product and the money supply in circulation.

Using formulas (7) and (9), we can formulate a general formula for determining the value of a monetary unit, taking into account the turnover of its value:

$$P_G \cdot V = (GDP_0 \pm \Delta GDP) / (M_A \pm \Delta S) \qquad (10)$$

Formula (10) allows you to determine the value of a monetary unit, taking into account the turnover of its value when changing the gross domestic product and active money supply, taking into account the infusion into circulation or withdrawal from circulation of net savings.

Discussion

The scientific article outlines a mathematical approach to determining the value of money. Since money serves the production and consumption of gross domestic product, the real value of the monetary unit is also determined by the amount of money supply in the economic turnover, taking into account the rate of turnover of the monetary unit. The amount of money supply is determined by central banks, which form the value of money in the country by regulating the supply of money. The initial monetary emission of the country's central bank (for example, in the case of monetary reform) should be oriented to the level of gross domestic product production and the estimated value of the monetary unit.

Modern Ukrainian and Russian economists often associate the value of a monetary unit with the prices of goods and services of a consumer basket. The main factor in reducing the cost of money is considered to be the increase in prices for such goods, that is, inflation. According to American economists, Campbell R. McConnell and Stanley L. Brue raising the general price level "does not mean that all prices are necessarily rising. Even during periods of rather rapid inflation growth, some prices may remain relatively stable, while others may fall " [1]. In their opinion, this is "one of the main sore spots of inflation." Consequently, inflation can be tied to the indicator of the value of money in some segments of the general market; in the rest of the market space, the value of money remains relatively stable.

In practice, the value of a monetary unit decreases at a slower rate than the rate of inflation. This is because the inflation rate is tied to the cost of goods and services included in the consumer basket, and the value of the monetary unit to the production of gross domestic product.

If we consider the general market in the country (goods, services, investments, labor, financial market), as well as net exports, then, in our opinion, the mathematical

models proposed in the article are more accurate determination of the value of national money. These models take into account the impact on the value of money aggregates of GDP and the supply of money in the economy.

The proposed formulas determine the purchasing power of a monetary unit and the value of a monetary unit, taking into account the turnover of its value.

From the formula (7) it follows that:

1. If the growth rate of gross domestic product exceeds the growth rate of the money supply, then the value of the monetary unit is growing.

2. If the growth rate of the money supply exceeds the growth rate of the gross domestic product, then the value of the monetary unit decreases.

It should be noted that earlier in the article "Theoretical and mathematical aspects of determining the price level in the economy" ("Economics and Finance", No. 8, 2017, pp. 23-32), the following formula was proposed for determining the price level in the economy: $P = M \cdot V / GDP$. This formula is the inverse of the formula for determining the value of a monetary unit and determines the number of monetary units per unit of value of a manufactured product in a country. The formulas for determining the level of prices and the value of the monetary unit in the national economy are closely linked and depend on changes in factors affecting economic processes in the economy.

The value of formulas (9) and (10) is that they simplify the calculations for determining the purchasing power of money by introducing an indicator of the value of money, taking into account the turnover of their value. For this, only indicators GDP и M_A are needed, which, unlike V, are subject to statistical accounting.

Conclusion

At the present stage of development of society, there is a need to improve and develop new approaches to determining the value of money in monetary theory.

The research methodology and the proposed mechanism for determining the value of the national monetary unit do not contradict the basic principles of the theory of money and are a continuation of its development.

The article proposes mathematical methods for determining the value of national money and formulates general theoretical approaches to solving this problem. When determining the value of money and the monetary unit, taking into account the turnover of its value, the gross domestic product, money circulation, money supply, savings are combined into a single economic system and their interaction is considered. Their effect on the value of the currency is mathematically proven and graphically revealed.

The main results of the study can be formulated as follows:

1. Mathematical formulas are proposed for determining the value of a national currency and changing its value when changing gross domestic product production and monetary circulation:

a) $P_G = GDP / M \cdot V$;

b) $P_G = (GDP_{R0} \pm \Delta GDP_R) / (M_A \cdot V_0 \pm \Delta S \cdot V)$.

2. A graphical model "gross domestic product – monetary circulation – monetary unit value" is proposed, which allows analyzing the effect of changes in gross domestic product and monetary circulation on the value of the national monetary unit.

3. The mathematical formulas for determining the value of a monetary unit are proposed taking into account the speed of turnover of its value:

a) $P_G \cdot V = GDP / M_A$;

b) $P_G \cdot V = (GDP_0 \pm \Delta GDP) / (M_A \pm \Delta S)$.

Suggested mathematical methods for value determination of a money unit are compatible with fundamentals of market economy, present a generic approach to evaluation of influence of gross domestic product and currency circulation on value of money, offer the possibility to carry out analysis and factor score of alteration of value of national currency and to apply the given models in practical life of society.

The practical significance of the obtained results consists in the possibility of applying the theoretical expositions proposed in the paper in a practical dimension, namely:

— determination of the value of money in the national economy;

— analysis of the reasons for the change in the value of money;

— regulation of the money supply to ensure stability in the economy

Further research in the aspect of determining the value of money should be aimed at finding a more accurate methodology for determining the active money supply and savings in the economy.

The proposed theoretical studies contribute to the development of the theory of money in the aspect of determining the value of national money and can be used as practical recommendations for the analysis of determining their purchasing power.

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FEATURES OF SEGMENTATION IN THE MEDIA MARKET

Abstract. *The article deals with the segmentation process in the media market, especially peculiarities of its functioning in the dual market of goods and services. A segmentation approach is proposed that divides media clients into two groups of consumers and advertisers, and provides recommendations on the composition of segmentation criteria for each group in order to identify attractive target segments and develop further marketing strategy.*

Key words: *segmentation, segment, media market, segmentation criteria, consumers, advertisers.*

Introduction

The media industry is a powerful tool for influencing political life, culture, national consciousness, forming the worldview of human and society. The peculiarity of the media industry is that it functions in two markets - goods and services. On the one hand, the media industry generates and distributes content in various media formats (radio, television programs, print media, books, online publications, etc.), on the other hand, it gives advertisers access to their audience. The need to study approaches to consumers' segmentation of the media industry is conditioned by the peculiarities of its functioning, which distinguish it from other sectors of the economy. In the current economic environment, market segmentation is an important component in building a successful marketing strategy and business activity.

Literature Review

The works of the following domestic and foreign researchers are devoted to the study of approaches and methods of segmentation in the consumer and industrial markets: N. Butenko, S. Garkavenko, H. Graham, M. McDonald, J. Dunbar, S. Dibb, L. Simkin, O. Zozuliov, A. Kosterin, F. Kotler, N. Kudenko, A. Starostina, and others. However, the peculiarities of segmentation of the media market, taking into account its dual nature, are not sufficiently covered in the scientific literature, furthermore, the criteria for segmentation are not substantiated, which necessitates further research in this area.

The aim of the article is to to develop approaches to segment the media market taking into account its dual nature.

Discussion

Conducting segmentation allows the company to identify and research consumer characteristics as well as their needs in order to ensure that the product meets market requirements.

As it was mentioned above, the media industry operates in a dual market of goods and services.Therefore, the dual approach should be used when segmenting the market by media organizations. On the one hand, media organizations must conduct consumer research that is generated and distributed by the organization, but on the other hand, customers who have access to an audience of a particular media organization or media product. Thus, media organizations should simultaneously apply the segmentation approaches used to research the consumer and industrial markets.

A significant feature of today's media market is the increasing demand for personalized information. The goal of such information is to provide the consumer with content that best meets his requirements and interests. This trend requires media organizations to pay more attention to identifying, researching and characterizing their potential and real audiences in order to ensure a better accordance between media products and consumer requirements. On the other hand, depending on the media type, characteristics and scope of its audience, advertisers are given access to a specific target audience that is most relevant to them. Considering the fact that revenue from the sale of access to their audience is a major share in the revenue structure of most media organizations, the issue of defining and characterizing their audience becomes especially important, because the better the media knows its consumers, the more advantageous it can be for advertisers to gain access to them.

According to the prevailing majority of researchers, the main features used in the process of goods market segmentation are geographical, demographic, behavioral and psychographic. Recently, complex indicators have become extremely popular, as they allow to distribute consumers by types of behavior:

PRiZM – segmentation is carried out based on demographic and behavioral characteristics;

- «The system of international socio-economic classification of respondents participating in marketing and social research» (ESOMAR) – a complex replacement is used to form socio-economic groups of consumers;
- VALS – segmentation is carried out based on defining values and lifestyles of consumers;
- The Rokic Values Scale (RVS) – segmentation is carried out based on the division of consumers into groups that have similar value systems. [1]

The development of internet technologies, mobile communications technologies, improvements to mobile devices have led to the emergence of "new media", as well as online and mobile versions of most traditional media. Taking into account this tendency, according to the author`s point of view, it is advisable to supplement the geographical segmentation of consumers by definition of the platform with the help of which media consumption happens: traditional, online, mobile versions.

The key to successful segmentation, taking into account the peculiarities of the media market , is the study of traditional features, as well as value consumers` preferences. According to the latest survey data, the main conditions that determine the audience's attitudes are the level of trust in the media [2] and the similarity in their values.

Table 1

Amount of the Ukrainian media advertising market in 2019 and forecast of market development in 2020 * [3]

	Results of 2019, UAH million	Percentage change 2019 to 2018	Forecast for 2020, UAH million	Percentage change 2020 to 2019
TV advertising, total	**11 526**	**24%**	**13325**	**16%**
Direct advertising	10 089	25%	11600	15%
Sponsorship	1 438	20%	1 725	20%
Advertising in the press, total	**1 850**	**14,8%**	**2099**	**13.5%**
The national press	1 106	14.6%	1 255	13.5%
including sponsorship	284	15.1%	321	12.8%
Regional press	320	15.3%	363	13.5%
Specialized press	425	14.7%	481	13.4%
Radio advertising, total	**717**	**24%**	**839**	**17%**
National radio	518	24%	606	17%
Regional radio	65	20%	74	14%
Sponsorship	134	25%	157	17%
OOH Media, total	**4 240**	**22%**	**4 990**	**18%**
Outdoor advertising	3 283	13%	3 779	15%
Transport advertising	600	36%	660	10%
DOOH	205	n/a	383	86%
Indoor advertising	152	20%	168	11%
Advertising in cinemas	**58**	**20%**	70	**20%**
Digital (Internet) Media advertising	**5 740**	**34%**	**7 120**	**24%**
Total advertising media market	**24 131**	**25%**	**28 443**	**18%**

the amount of advertising and communication market does not include the amount of political advertising

For most media organizations, the main source of revenue is the money earned from advertising. In order to reach a larger audience and attract a wider range of advertisers, media organizations can produce different media products for the various target audience (for example, there are 8 radio stations within the Ukrmedia Holding, one of the largest media holdings in Ukraine (Golos Stolytsi, Jam FM, Lounge FM, NRJ, Retro FM, Our Radio, Radio Friday, AutoRadio), sites and portals (Korrespondent.net, Football.ua, Bigmir.net, I.ua, Tochka.net, Dengi.ua, KP.ua, Arguments and facts, Tv.ua, Vgorode.ua, iSport.ua, Gloss.ua, Smak.ua, Import.ua, archidea.com.ua, kolobok.ua, Za Rulem), publications (Correspondent, Telenedelya, Za Rulem, Football, Komsomolskaya pravda, Argumenty i Fakty), with different target audiences).

Ukraine's advertising market has been steadily developing in recent years. the most intense growth rates were observed in the Digital (Internet) advertising sector due to the further digitalisation of the media and their multiplatformity.

Manufacturers of goods and services, intermediaries, political parties, government bodies, individuals and others can be media advertisers. Segmentation criteria are suggested to be applied to explore advertisers used in the B2B market. The most important, according to the author`s point of view:

– territorial - local, regional, national, international;
– organization type - commercial, noncommercial, government institutions;
– field of activity (industrial, trade, services, financial institutions, etc.);
– assortment of goods and services;
– the size of the organization;
– methods of procurement (stages of the procurement process, criteria for purchasing decision, procurement policy, etc.),
– situational factors (urgency of the order, volume and frequency of the order, seasonality, features of the ordered services, etc.);
– individual characteristics (sensitivity to prices, quality, level of service; loyalty level to the supplier; relationships forms; status of the client; personal characteristics of decision-makers, etc.).

Local advertisers prefer local and regional media. Consumer goods manufacturers prefer to advertise on television and radio as they are characterized by wide audience coverage. Industrial enterprises use specialized publications, direct mail, specialized exhibitions for advertising purposes. Advertising agencies can provide a full range of advertising services, including the following aspects: consumer research, strategic planning, production and advertising, evaluation of advertising performance, or even specialize in a specific profile (type of advertising medium, promotional activity, promoted products, etc.). Advertisers may have their own marketing and advertising department and apply to media organizations only to place the advertisement or to order its development in advertising agencies or media organizations. Individuals and small advertisers directly appeal to media organizations for advertising, without engaging the advertising agencies services of or research organizations that conduct marketing researches. Larger advertisers tend to do market research on their own or with the help of specialized companies, or even

collaborate with advertising agencies (Kyivstar, Danone, Philips use the services of an advertising agency. Carat; Epicenter, Google, H&M, Henkel Group, McDonald's, Mars, Nova Poshta, PepsiCo, Sony Pictures / B&H, Vodafone, Uber - OMD Optimum Media). [3]

The Pareto 80/20 rule, which states that 20% of customers provide 80% of revenue, emphasizes that special attention should be paid to large orders. For many organizations, only a few customers provide such orders. Therefore, it is advisable to treat such customers as a special individual segment [6], carefully selecting products and services to meet their requirements totally.
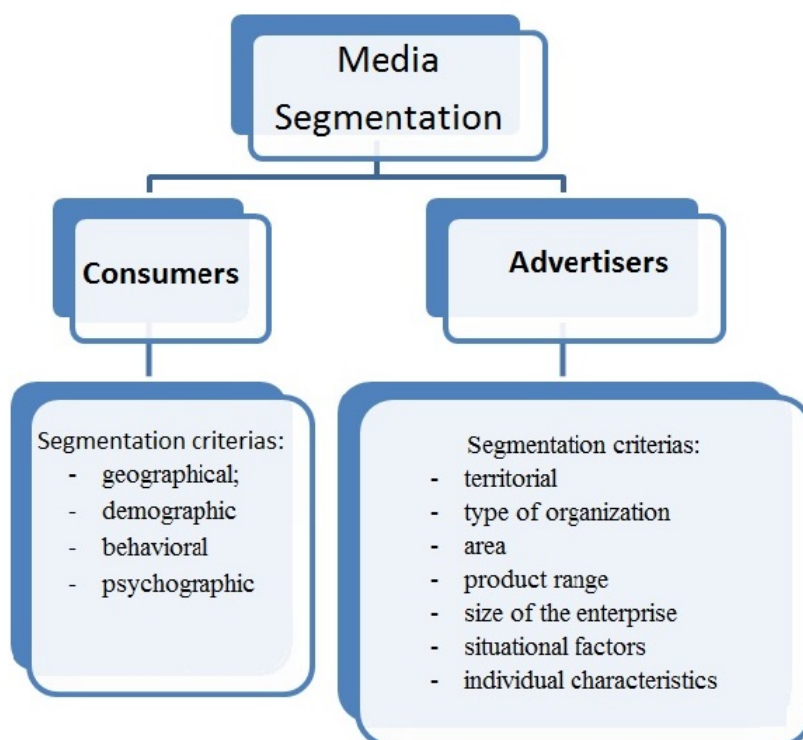
Figure 1. Media market segmentation criteria by customer groups

The segmentation criteria mentioned above have varying degrees of importance for certain media organizations, so it is advisable to select the most significant ones when performing consumer segmentation. It is undesirable to include in the study an excessive number of criteria, as this complicates segmentation information support and reduces market capacity. The composition of the criteria used in the study depends on the purpose of segmentation, type and characteristics of the market and consumers of a particular media product, but there are also some general requirements for the formation of segments:

– segments should have significant differences;
– the unified attitude of consumers to a specific product and reaction to marketing activities should be ensured within one segment;
– the proportions of the segment should be significant to ensure sales and cost recovery;

–   the target segments should have the characteristics available for measurement;
–   segments must have available communication and distribution channels.

Conclusion

The research made it possible to systematize and extend the approaches to segmentation in the media market taking into account its specific features. The consumers and customers segmentation allows to understand their needs and motives better, create the conditions for developing an effective marketing strategy and, what is more, to ensure the organization's effectiveness. As a result of segmentation, one or a few attractive target segments are selected that are relevant to the interests and possibilities of the organization, and then a strategy is developed for each of them.

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AUDIT OF EXPORT OPERATIONS

Abstract. *The purpose of this article is to investigate the theoretical and organizational aspects of export operations audit and to identify its role in Ukrainian enterprises. Audit as a kind of control is necessary and justified, since the possession of authentic information is a prerequisite for the successful functioning of business entities. The article defines such notions as "export activity" and "export". The organization basic elements of export operations audit are also identified. The task is formulated and the sources of audit of export operations are summarized, as well as the methodological means and stages for its implementation are mentioned. It is proposed to create an internal audit department in order to control export operations at the enterprise effectively.*
Keywords: *audit, export operations, foreign economic activity, enterprise, accounting.*

Introduction

Development of foreign economic activity, which is based on the initiative of economic entities, as well as the government's efforts to strengthen its position in the world as a market economy country capable of forming adequate foreign and domestic policy, create an effective tax policy, control system, including in the foreign economic activity contributes to the integration of Ukraine into the European community.

One of the main prerequisites for successful operation of foreign economic entities is the audit of export operations. Auditors, as independent experts, are involved in audits in order to obtain an unbiased opinion on the authenticity of the provided information and reports. Thus, the auditors have to constantly try to minimize the audit time, without reducing the quality of such audit and, accordingly, without increasing the audit risk.

It should be mentioned that one of the most effective ways to solve this problem is to develop a clear methodology for verifying export transactionsOn the other hand, export transactions are related to virtually all other aspects of accounting, such as sales, payments to foreign buyers, foreign currency and current accounts. Therefore, the usage of a sound audit methodology is an objective process as it contributes to the information accuracy regarding export transactions.

Literature review

Problems of organization and methods of audit regarding export operations were investigated by the following national economists: Astafieva, K.L. Bagriy, A.O. Baranova, I.S. Heidey, G.Ya. Deaf, O.A. Zadoy, O.A. Yevtushenko, T.O. Krivtsova, O.I. Koblyanskaya, Yu.G. Kozak, N.M. Levchenko, E.M. Limanova, S.V. Palchikovsky, N.Y. Radionova, V.V. Semenets, R.V. Shynkarenko, S.V. Shulga. However, issues related to the audit methodology of export operations are not explicitly explored either in science research in the audit sphere or in regulatory documents that have been formally approved in Ukraine. Thus, the chosen field of our research is quite relevant nowadays.

The purpose of the article. The aim of the article is to investigate the theoretical and organizational aspects of export operations audit and to clarify its role at Ukrainian enterprises.

Results

Foreign trade is one of the main forms of foreign economic activity. The promotion of domestic goods in the international market makes it possible to expand the markets of Ukrainian manufacturers. Reports of the State Statistics Service of Ukraine indicate that during the January-February 2019, exports of goods was up to 7.96 billion. USD, which is 7.9% more than in the same period of 2018. During the two months of 2020, foreign trade operations were conducted with partners from over 202 countries [2].

During this period, Ukrainian exporters have sold plant products worth nearly $ 1.99 billion, precious metals and their products for $ 1.9 billion, machinery, electrical equipment - $ 669 million. In particular, in the first two months of 2019 goods were exported to the EU countries worth about $ 3.5 billion, which is 4% more than in January-February 2018 [2].

It should be mentioned that Ukrainian goods and services exports amounted up to $ 57.1 billion in 2018 and have increased by 8.6% or $ 4.5 billion compared to 2017.

Integration of Ukraine into the world economic system have started active participation of domestic enterprises and organizations of different ownership forms in foreign trade activities. Foreign trade activities have a wide range of import and export relations. This movement of capital requires in turn clear registration and reporting, as well as strict control, which include not only domestic, but also external, independent controls. Audit is the most effective form of control.

Audit as a type of control is necessary and justified, since reliable information is a prerequisite for the successful functioning of business entities.

First of all, it is advisable to consider approaches to the interpretation of the "export activity and export" concept in the normative legal acts and works of domestic scientists on economic theory and accounting (Table 1).

Thus, based on the reviewed literature, we can say that the export activity of the enterprise is a systematic long process, which consists of the following stages: preparation of the company for export, adaptation of the goods to the requirements of

the potential market and export itself, which in turn has certain economic consequences.

Export sales audit is one of the most responsible and complexive areas of the auditor's work. Specificity of foreign trade activity requires analysis of various documents, on the basis of which an assessment of the reliability of reporting and compliance of the performed transactions with the current legislation is formed. Before starting the audit of export operations, it is advisable to formulate the purpose and tasks of such verification (Fig. 1).

Table 1

Interpretation of the essence of the notions "export activity of the enterprise" and "export"

Source	Definition
Law of Ukraine "On Foreign Economic Activity" [10]	Export (of goods) - sale of goods by Ukrainian entities of foreign economic activity to foreign economic entities (including payment in non-monetary form) with or without export of these goods through the customs border of Ukraine, including re-export of goods
A.Cherep, O. Ortinskaya [13]	Export activity of enterprises is a certain sequence of implementation of specific stages of enterprise integration process into the foreign market
O. Melnyk, M. Nagirna [9]	The export activity of an enterprise is a range of interrelated transactions that involve the sale of goods with compulsory passage through the customs border, in order to make these products available to a foreign partner.
N. Tyurina and N. Kravatska [3]	Export is the sale of goods and services in foreign markets, which were manufactured or provided in their own country
O. Skurupiy [4]	Export – is the sale of goods or services manufactured in the territory of the exporting country to the entities of the importing country

The main sources of information for the audit of export operations are the following: legislative acts and regulations governing exporters' relations with foreign economic entities, banking institutions, government bodies; commodity accompanying documents (certificates of quality); warehouse documentation, invoices; customs documentation, technical documentation, arbitration documentation, contracts, as well as contractual and organizational documentation. It should be noted that during the audit, the auditor may need to obtain additional information from other sources. The audit of export operations is conducted on the basis of an audit plan approved prior to the start of the audit by an audit organization and agreed with the audited entity.

Information contained in various sources on export operations is the main object of export operations audit (Fig. 1). The auditor may use special methods such as: questioning, comparison, physical and documentary verification, transfer, sample research when checking export transactions.

In modern business environment, conducting audits is necessary to improve the efficiency of the business, which in turn may include services to improve the state of accounting and reporting at the enterprise. Undoubtedly, this toolkit is an audit activity, which includes the processes of analysis, evaluation and provision of independent opinion, but only after conducting a thorough review of accounting

reports regarding foreign trade operations and internal activities, in order to express an opinion about the reliability and accurateness of such information.

AUDIT OF EXPORT OPERATIONS

Purpose: ensuring the data accuracy regarding the accounting and taxation of export operations, as well as providing recommendations on the elimination of detected deviations in order to ensure the futher rational usage of resources involved into the field of export activities

The task of export operations audit

verification of the transactions reflection on financial accounts as a whole, and by the operational stages;

verification of the reflection reliability of sales revenues in the accounting of export products, as well as the reliability of the formation of financial results;

accuracy verification regarding the display of transactions in primary documents (correctness of registration of banking, customs, tax and accounting documents);

fixed points regarding the transfer of ownership of the goods in the contract; compliance with INCOTERMS 2010 rules;

checking the correctness of the calculation of transactions` taxation (calculation and payment of duties, customs duties, excise tax, value added tax).

confirmation of the legality and correctness of the fixed assets transactions display in financial accounts.

Sources:
legislation and regulations governing exporters' relations with foreign economic entities, banking institutions, government bodies; commodity accompanying documents (certificates of quality); warehouse documentation, invoices; customs documentation, technical documentation, arbitration documentation, contracts, as well as contractual and organizational documentation.

MAIN STAGES OF THE EXPORT OPERATIONS AUDIT

I. Preparatory stage

II. Direct audit implementation (on-site work)

III. Systematization of audit materials in the audit documentation

IV. Accuracy verification of the export transactions displayed in the report

V. The finishing stage.

VI. The final stage.

Figure 1. Model of export operations audit organization
Source: developed by the authors using [7, p. 271-277]

Developing a program for the audited entity is the auditor's primary task. Such a program must include the following aspects:

- checking the correctness of accounting records made by the accounting department in order to eliminate the causes of indebtedness and ways of its decreasement;

- legality verification of existing receivables and payables and their timely repayment.

In order to solve these problems, to ensure the accuracy of the transactions, as well as their correct reflection in the financial reports, the auditor uses the methods of export transactions verification (Table 2).

Table 2

Methods for auditing export transactions

Method	The content of this method
Documentary	Verification of documents and records regarding transactions in accounting registers (formal, logical and arithmetic verification method is used)
Special verification	Applies if there is a need to involve an expert into the verification process
Counter verification	It is carried out in order to verify the compliance of the audited accounts with the established requirements

Source: developed by the authors using [8]
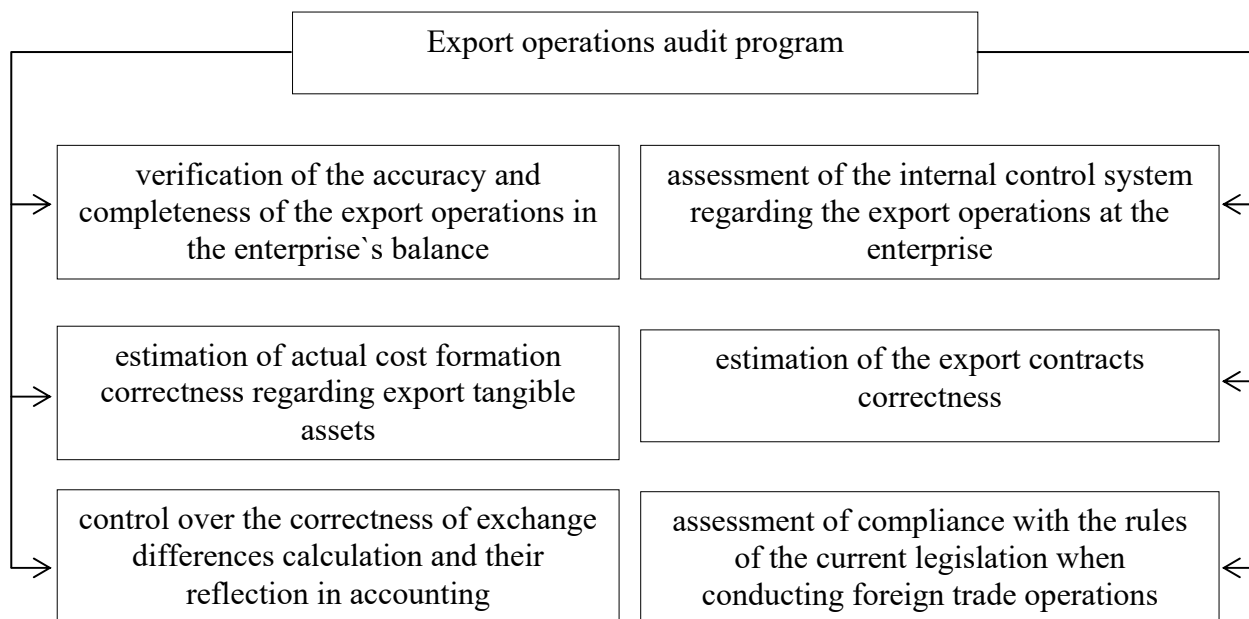
Figure 2. Export operations audit program
Source: developed by the authors using [5, p. 233-237]

The main task of audit is to obtain and find enough evidence in order to express the opinion that the financial reporting are undoubtedly performed in accordance with standard practice and do not contain any deficiencies and inaccuracies, as well as misrepresentation. However, in the course of the audit, the audit risk may arise, a situation where the auditor makes an unqualified audit

conclusion. An audit is effective if it is organized rationally. In any case, the requirements of current accounting and auditing legislation are always taken into account during the development of the audit methodology [1, p. 3-11].

It should be noted that the program for the verification of export transactions includes the following directions (Fig. 2).

Nowadays, audits use international auditing standards which are focused not only on determining the reliability of the financial reports, but also on a thorough analysis of the specifics of the enterprise, its compliance with the law, as well as economic efficiency. Increased attention of the state to the activity of an enterprise involved into foreign trade activities, as well as the specifics of the legislation governing export operations and the variety of export operations forms, all these are the basis for the development of special audit toolkit [12, p. 156]. Currently, the activity of audit organizations is complicated by the shortage of a methodological basis for the development of audit activity in Ukraine, despite the fact that international standards of audit are being introduced gradually, but still there are some complexities of both practical and theoretical nature in the work of audit, which require further development of a conceptual approach to auditing.

Conducting an audit of export operations also includes a thorough economic analysis of the processes related to the sale of goods (works and services) on the foreign market, as well as determining the accordance of the conducted operations with international standards and regulatory requirements.

Audit includes all directions and sections of accounting and that is why, the auditor needs special knowledge in such areas that will help to understand the process of displaying foreign trade operations professionally. The following types of knowledge should be distinguished: the elements of the legal regulation of international commercial contracts and the features of international trade turnover; knowledge of the forms and procedure of international payments; customs, currency and tax legislation; accounting methodology and peculiarities of international accounting [6, p. 201-209].

The correctness of the exchange differences calculation is payed special attention during the audit process. The exchange differences are calculated at the date of the transaction (receipt of revenue) as well as at the date of reporting for the period.

According to the results of the audit based on the detected deviations, as well as the reliability of the financial statements of the company, the auditor formulates the conclusion and independent opinion. In order to improve the quality of audits, as well as to reduce the time and expense of audit organizations, it is necessary to develop internal company auditing standards, which contain a classification of typical accounting errors allowed by exporting organizations, as well as to develop the ways to identify and correct them.

Moreover, in order to have a comprehensive understanding of the subject and object of the audit, the auditor or group of auditors must have the appropriate qualifications, which will also allow them to carry out audit in accordance with current standards. Thus, after studying the works of scientists on the export

operations audit and summarizing their advices and suggestions regarding its conduction, we consider it advisable to create an internal audit department for the constant control over the export operations at the enterprise. The advantage of establishing such a department at an enterprise can be proved by the fact that it will allow the management to carry out effective control over individual units, identify the production reserves and the most promising directions of development, as well as to give recommendations to the financial-economic and accounting departments for improving the results of their work. In order to sum up everything mentioned above, it should be noted that auditing export transactions is a difficult and time-consuming process. The proposed audit program will reduce the audit time and risks, also it will increase the effectiveness of the audit by ensuring the consistency of methodological and organizational approaches.

Conclusions

The export audit process involves a thorough economic analysis of the processes involved into the formation and sale of goods (works and services) at the external market. The state of export operations must meet market needs as well as international standards. Therefore, the purpose of the export operations audit is to identify the nature and content of the exporter's business activity, to evaluate the prospects of export operations development, as well as to identify the areas of possible mistakes in reporting and to evaluate the fulfillment of contractual obligations under the export agreement.

The sphere of audit activity has expanded due to the development of audit services, especially in the field of foreign economic activity, but the issues of export operations audit require further improvement and coordination due to market needs, imperfections of the used methods, complexity and contradiction in many aspects.

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THEORETICAL FUNDAMENTALS OF THE BALANCED TERRITORY ECONOMIC DEVELOPMENT STRATEGIC MANAGEMENT CONCEPT

Abstract. *The article is devoted to substantiation of the balanced territory economic development strategic management concept. Approaches are summarized that generalize the target direction of regional development: functional-resource, system, behavioral, cluster, strategic, scenario. The own concept of strategic management of balanced territory economic development where the basis is a substantiation of introduction of methodical bases of strategic management system through application of functional modeling is resulted. It is determined that the process of strategic management will solve problems related to: identification of imbalances and difficulties that distort the functioning of the region; establishing the reasons for the deterioration of the regional economic system; formation of the program of actions of realization of the strategy connected with restoration of functions of management and territorial structure of national economy; implementation of a plan of control measures to implement the strategy of balanced economic development. The principles of balanced territory economic development strategic management within the concept are substantiated.*

Keywords: *economic development, balanced development, strategic management, balance, concept, principles.*

Introduction

Modern development of the national economy is accompanied by the significant transformation processes, reforming the territorial and sectoral structure of the economy of the regions and unstable changes of socio-economic nature. The need to solve pressing problems of the state, improving the quality of life of the population causes the emergence of new challenges in finding effective tools to ensure balanced economic development of the territories. On the other hand, the effective functioning of territories in Ukraine also becomes possible on the basis of the formation of effective state management mechanisms that will be able to ensure the sustainable development of territories. After all, the quality and speed of administrative changes in the country, restoration and development of territories depend on their availability. In this situation, one of the effective tools is the strategic management of economic development of territories, which contributes to the achievement of proportional parameters of economic potential of the main production and production infrastructure. All these necessitate the development of a methodological basis, methodological support and practical recommendations to ensure a balanced economic development of the country. Thus, the development of key provisions of the concept of strategic management of territories balanced economic development should be considered as an urgent task.

Literature Review

Numerous foreign scholars, such as A. Goncharov, D. Endovitsky, O. Yergunova, M. Porter, N. Sirotkina, and others, dealt with the study of economic development at the regional level. Among the Ukrainian scientists such scholars as O. Berdanova, V. Vakulenko, G. Vasylchenko, B. Grechanyk N. Hrynchuk, M. Kanadets, M. Maksymchuk, Y. Malenkov, L. Slutskin, Y. Surmin, O. Yankovy should be singled out. Emphasis on strategic development management in their researches was placed by: O. Berdanova, V. Vakulenko, I. Valentyuk, V. Petrosyants, A. Tkachuk, D. Baker, J. Bryson, S. Haines, R. Stacey, D. Griffin. In view of this, the issues of overcoming the existing problems by finding new tools to stimulate the economic development of the territories in the country and taking into account the idea of a balance are becoming timely and relevant. Therefore, substantiation of the theoretical basis, conceptual provisions, principles and approaches to the management of balanced economic development of territories is a necessary task today.

The purpose of the article is to summarize the existing approaches to understanding the essence of a balanced economic development of territories and to formulate the provisions of the concept of its management.

Results

Science has long studied the phenomenon of development, clarifying the meaning of this concept and its structure, but the emphasis in the study of economic development has been placed in accordance with the existing theories of economic development. A large number of well-known foreign and domestic scientists have devoted their work to the study of scientific and theoretical positions and applied bases on the development of territories. Thus, Yu. Surmin defines development as qualitative transformations of the substrate, structure, connections and functions of the system, which are carried out under the influence of both internal and external factors. This confirms the statement that it is important in the context of the study of territorial development to substantiate the factors influencing it. Other Ukrainian scientists (O. Berdanova, V. Vakulenko, N. Hrynchuk) emphasize that the peculiarity of regional development is the effective and rational use of the potential of national and local human, institutional, financial and material resources. At the same time, B. Grechanyk, G. Vasylchenko and M. Kanadets agree that the development of the region is a mode of a regional system functioning that provides positive dynamics of quality of life characteristics due to a sustainable and balanced reproduction of social, economic, resource and environmental potentials. In the context of systemic and targeted approaches O. Ergunov gives the definition to development according to which development always has a direction, which is determined by a goal or a system of goals. In this case, if this orientation is positive and socially useful, then it indicates progress; if it is negative – it means regression or degradation. In turn, M. Porter in his scientific article explores the basic facts about regional economic development, the structure of regional economies and the role of clusters in the US economy. He notes that the development of regional economies is largely determined

by the strength of local clusters, viability and the number of innovations. Despite the considerable number of scientific publications in this field, there is still a variety of approaches to understanding the nature and content of the territory development.

In the scientific literature you can also find the definition of regional development as a progressive change in its internal socio-economic structure. But this interpretation does not allow to determine what changes will be considered progressive and what criteria should be used. It should be noted that it is not possible to answer these questions unequivocally, due to the lack of unity of opinion among economists and the distinctive features of each region both in terms of economic and social structure and the scale and vectors of its development. Under territorial development, the Russian scientist O. Ergunova understands the most general approach to the state tasks of development management, based on system-structural ideas about the integrity of the country. This definition is given in a more generalized form, if we detail it, we have the following interpretation: "development of a single scheme of territorial development of the country in combination with the tools of business activity, increasing social capital and centralized state intervention in the spontaneous process of spatial restructuring" [6].

It should be noted that modern interpretation of the development of the territory differs in many aspects from the previously dominant approach, when the development of the territory was identified with the development of productive forces of a region. Production growth is certainly important and necessary in the context of ensuring social and living standards and quality of life, but if it is accompanied by environmental degradation, disruption of socio-demographic proportions and other manifestations of economic, social, environmental and demographic imbalances, such growth cannot identify with the development of the territory.

Therefore, it is necessary to emphasize that in modern scientific and practical environment there are several approaches to the development of territories. The analysis of scientific literature confirmed the existence of many approaches to the development of territories in modern scientific and practical environment, but each of the presented scientific approaches does not refute each other, but rather complements the content of the category with a new qualitative understanding of economic nature of a territory. Thus, the functional-resource approach involves the optimal use of the whole set of different types of resources necessary for the development of a territory. The behavioral approach focuses on the improvement of the processes of renewal and decision-making through an effective management of population culture. The most popular approach to the development of territories is strategic one, because it involves the formation of strategy as prospects for the territory development in the current conditions of economy.

The cluster approach to the territorial development not only allows to build a strategic dialogue between the authorities and the professional community, but also serves as a tool to stimulate innovation at the regional level, which increases the effectiveness of public policy through comprehensive support programs and connects development institutions. The cluster approach in intensifying the development of the

territory is more justified in the national Ukrainian realities, given the importance to a modernization and the desire for innovative growth of domestic economic complex.

It should be noted that today a large number of scientific and practice-oriented works have been published on the issues of positive development of clusters within the territorial boundaries of the regions. Thus, the ancestor of a cluster theory is considered to be M. Porter, who described a cluster as "a geographically limited group of companies, suppliers, service providers and associative institutions in the field, related by relationships of different types" [13, p. 109]. Developing M. Porter's theory, M. Enright introduced into scientific circulation the concept of "regional cluster", considering it as one localized in space, within one city and surrounding areas, including almost all links, as well as a wide range of participants in one chain of value creation.

Examining the application of the cluster approach at the regional level, one should agree with M. Porter's position that regions should focus on increasing the productivity of all clusters in which they have a significant position rather than trying to migrate to more "desirable" clusters. At the same time, regional authorities should focus on the analysis of barriers to the implementation of cluster initiatives and opportunities to eliminate them, funding on the principles of public-private partnership projects for the development of regional clusters, especially in the development of scientific and educational cluster, cluster integration approach to regional strategies, programs and projects.

For many areas of application this cluster approach intensifying the development of territories allows to combine organizational and economic efforts of elite leaders in the region, business community and the interests of the population involved in enterprises and research organizations and the population consuming regional products. At the same time, in each territorial entity there are industries that act as leaders in this process, and industries that are known and "catch up" with them, helping to bring the economy of the territory to a new level. One of the main attitudes of business development based on the formation of clusters in the region is the formation of favorable conditions for business competition, which involves a combination of effective cooperation, often providing a synergistic effect.

It should be noted that in the scientific literature there are also other approaches to the development of territories. Among others we can distinguish: systemic, effective, scenario. Thus, without the use of a systematic approach to study the meso-level systems, which include regions, is meaningless. The application of a systems approach allows to provide planning structures with such information that is necessary for making managerial decisions both in time and space. This, in turn, ensures consistency of decisions among themselves in areas and resources, which allows to achieve the implementation of innovative development programs of the territories with the greatest efficiency. The interpretation of the development of territories in the framework of an effective approach is carried out in the context of assessing the level of development territories. It is secondary and more clarifying. It is better and more correct to focus on the combined option, which combines

functional-resource, system and effective approaches, which allows to reflect both the state of development and the effectiveness of its action.

In order to achieve sustainable development, it is very important to mobilize all the resources already available in a given territory, and to find new resources-sources to improve the functioning of the economic system. In this regard, it seems necessary to achieve a balanced system of economic interests as a tool for a sustainable development and stability of social interactions.

The problem of a balanced development of the regions is among the most discussed, and even in sources belonging to the same historical and temporal period, balanced development is considered from different points of view. Thus, often balanced development is identified with sustainable development, which is not entirely correct, because stability involves maintaining a given state, and balance – the compliance with the established proportions, ensuring a balance between the current and given situation. Other scientists consider balanced development as a certain relationship between a set of factors, with different researchers establishing a special variety of factors that affect the achievement of a balanced state system. Also, balanced development is defined as a result, a target setting to be achieved [8]. Note that, given the complexity of quantifying the degree of impact on the balanced development of the region of various factors, the most accurate and close is the position according to which the balanced development of a region is considered as a target. Such an understanding of sustainable development reveals an excellent opportunity to apply a set of effective methods and tools, such as indicative planning, project management, program-targeted approach in the management of the economy at the middle level. However, for a more objective assessment, the balanced development of a region should be considered in all three (temporal, structural and target) aspects simultaneously [11].

Pluralism of views is also observed in the interpretation of factors influencing the balanced development and determining its conditions. Russian scientists D. Endovitsky, N. Sirotkina, A. Goncharov understand the balanced development of a region as "conditions for the realization of opportunities most effective in the dominant sectors, and competitive entities of the regional economy, able to support subsidized and socially significant areas" [5]. Balanced development of a region is a coincidence that is very well organized taking into account the dualism of economic interests of regional development stakeholders.

The choice of tools to overcome the problems of regions functioning is a difficult task, because each administrative territory has its own specifics. Thus, in some cases, the unevenness or asymmetry of the distribution of productive forces is the cause of slowing down the economic development of territories. However, asymmetry also has positive consequences, and it is this feature that should be taken into account when planning measures to ensure balanced economic development of territories. After all, taking into account the positive consequences and preventing the negative ones, or at least reducing their impact, will allow to implement the planned measures more efficiently and with less losses.

To ensure a balanced development of territories, the main focus should be made on the regional level, where, taking into account the peculiarities of the socio-economic system of the region, it becomes possible to make profound structural changes, balance supply and demand for resources, involve the population and implement environment protection measures. Balanced development of territories, which is aimed at improving the investment climate and socio-economic conditions in a given area, is one of the key tasks at different levels of government.

It should be noted that balance characterizes the coherence (coordination of resource opportunities), which allows the region to accumulate and retain in its structure all the necessary elements that are organized in a certain ratio and interact to achieve the stated goals or the desired results. Such coherence is based on maintaining a certain level of economic activity, able to balance internal inconsistencies through the unity of use of enterprise resources, identifies success factors and focuses on internal economic, production, technological, structural and market opportunities of enterprises.

Thus, balance is important, because in the context of economic development of territories, several goals are possible simultaneously, according to the ratio of functions and resources of a region. The implementation of the principles of sustainable development in the process of strategic management of the territory should be based on the activation of all actors, all stakeholders, representatives of various associations and groups. To do this, it is advisable to choose and rationally use certain tools. It is the mechanisms of involvement of local community [1] and its representatives that are of further scientific interest.

It should be noted that the concept of balanced economic development has emerged as an alternative to modern development. Developed on the basis of scientific study of a large array of empirical material, in-depth analysis of practice and synthesis of new knowledge, it has become a scientific, theoretical and political basis for further development of human civilization.

Thus, the transition to the principles of sustainable development necessitates the improvement of state and regional strategies in order to take a constructive approach to the scientific basis of economic development management.

The analysis of scientific literature on strategic management allows us to identify a certain conceptual reserve for the development of analytical framework for the structures and processes of management in dynamic regional economic systems. According to D. Baker and S. Haynes, strategic management in these complex systems is to manage flexible relationships between stakeholders in creating system capacity for common needs, knowledge exchange, production and distribution of social values [1; 7]. In turn, the work of R. Stacey and D. Griffin provides a basis for reflection on the creation of institutional conditions to support strategic management [12].

It should be noted that the main goal of strategic management is to form a constant commitment to the mission and vision of a particular area (city or region), fostering culture that will maintain a disciplined focus on the strategic order of decision-making processes. According to J. Bryson [4], strategic management is to

analyze the current situation in the region, clarify its focus (priority goals) and determine its capabilities (use of available institutional, financial and human resources). Therefore, to stabilize production and economic sphere at the regional level, it is necessary to intensify the strategic approach to management.

It should be emphasized that the development of the territory, regardless of its scale, largely determines the effectiveness of changes in the national character and affects the development of the state as a whole. And a quality plan for such growth is a prerequisite for making the most constructive decisions. Therefore, the issue of strategic management of regional development in Ukraine has become especially relevant in connection with the decentralization of power and public administration reform. These measures provide for the transfer of authority and appropriate financial resources for the development of territories to the local level, which necessitates the improvement of methodology and tools of strategic management at both national and local levels.

Therefore, strategic management of territorial development involves the systematic adoption of decisions focused on the needs of territorial communities, and the solution of the most pressing local problems, taking into account the optimal allocation of available resources. Strategic management of territorial development not only helps to overcome the disproportionate economic development of territories and improve the welfare of the population, but also strengthens trust in the system of relations "government - business - civil society".

The advantages of strategic management of regional development include the following [3, p.78; 14]: creating preconditions for effective interaction and open dialogue between government, business and community; the ability to solve the problems of regional development, based on its competitive advantages; ensuring the rational use of resources; use of opportunities for the development of territory; providing the ability to control events; preparing the area for possible changes related to the external environment. In addition, the availability of regional development strategies and their further development confirms the importance of a strategic approach to managing the economic development of a region.

Thus, the application of a strategic approach to the development management contributes to a more appropriate placement of productive forces, rational division of labor within the territories, integrated development of territories, equalization of levels of socio-economic development of territories and so on. At the same time, it is important not to forget about the conditions of territorial organization in the conditions of modern development of regions, among which there are: effective development and optimal use of components of development potential of territories; ensuring the ecological safety of territories; application of economic advantages of the international division of labor with the improvement of economic relations of territories; ensuring economic security, which involves the formation and development of territories competitiveness.

Based on the described approaches to understanding the essence of economic development, the need to take into account the balance and identify the features of strategic management, we offer our own concept of strategic management of a

balanced economic development. The purpose of the concept is to determine the main strategic directions of a balanced economic development of the territories, taking into account environmental factors. The concept of sustainable development management should be interpreted as a system consisting of subsystems, ideas and principles that determine the synergistic effect of improving all its components.

In the course of the research it was proved that the most expedient principles of strategic management of a balanced economic development of territories are defined the following: general (system, adaptability, optimality, scientificity, interconnection and interdependence and information security) and specific (harmonization, flexibility, efficiency, complexity, rationality, openness). to innovative transformations, efficiency, control). However, it should be noted that all these principles need to be implemented in the activities of the regions only if the specific principles of governance in general are followed.

The basis of the concept of strategic management of a balanced economic development of territories is the substantiation of introduction of methodical bases of strategic management system through the application of functional modeling. With the help of this conceptual approach it becomes possible to create a system of territory management, which is able to establish the optimal relationship between the individual components of development to reach a new quality of management. The process of strategic management will solve problems related to: identifying imbalances and difficulties that distort the functioning of a region; establishing the reasons for the deterioration of the regional economic system; formation of the program of actions to realize the strategy connected with restoration of management functions and territorial structure of national economy; implementation of a plan of control measures to implement the strategy of balanced economic development.

Formed conceptual provisions for strategic management of balanced economic development of territories provide for the assessment of strategic alternatives and the selection of the optimal development strategy. In this regard, it is important to analyze the problems, as well as to implement the strategy of balanced economic development through regional action programs.

Therefore, the essence of the strategic approach within the proposed concept is as follows:

a certain territory is considered as an organizational system, the external environment of which becomes no less important than the internal. After all, the external environment of a region is characterized by uncertainty and variability, incomplete information, needs to take into account threats and challenges;

It is important to reduce the uncertainty and risks of the external environment to form a strategic vision of a particular area, its mission and development goals. At the same time, the goals are correlated with the resources, opportunities and potential of a region;

the behavior of a region as a certain territory is not aimed at eliminating the consequences and adapting to the environment, but at anticipation and the possibility of implementing preventive actions;

the region provides not just economic growth, but qualitative changes I.e. economic development.

It should be emphasized that the content of strategic management of a balanced economic development within the concept is determined by the need for the developmental, proactive behavior of government in both external and internal environment.

Conclusion

Thus, the preconditions for the formation of the concept of a balanced economic development of territories are analyzed. The purpose of the proposed concept is to determine the main strategic directions of a balanced economic development of the territories, taking into account environmental factors. This will allow the systematical addressing the goals of ensuring the region's competitiveness in the long run, its stability and development. The practical significance of the developed concept lies in the possibility of forming and implementing a strategy of a balanced economic development of the territory as an effective management system, which will provide timely and gradual improvement of economic, organizational, technical, technological, managerial, environmental and other components of this system.

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FACTORS AFFECTING ECONOMIC GROWTH IN CHAD: A REVIEW PAPER

Abstract. *The objective of this paper is to review the factors affecting economic growth of Chad. Economic growth is defined as the increase in the overall percentage output in an economy designated as a region, a nation, or a municipality. For example, economic growth is closely related to income distribution, the structure of an industry, as well as the demographic aspects of the economy. According to the United Nations, more than half of the world's economies have experienced accelerated economic growth between 2017 and 2018. And the rate of growths in several countries have increased closer to their potential. More often, economists have used both theory and empirical research to explain the cause of economic growth. Among the factors affecting the economic growth of Chad, the present study review gives a clear idea based on economic growth, clearly show a gap from previous reports and literature that the country need the most. Thus these challenges give a clear insight that Chad has made regional integration contribution of its growth strategy. Additionally, the paper highlighted recent trends of economic growth of CEMAC countries in line with the main theories and determinants of economic growth. In short, despite the lack of a unifying theory, the study highlighted the existence of several partial theories discussing the role of various factors determining economic performance and growth.*
Keywords: *factors, affecting, economic growth, regional integration.*

Introduction

The issue of economic growth has long been globally discussed among scholars and policy makers. Yet, more than half of the world population are confronted to continuing high level of subsistence activities (as well as no access to social protection). This problem has further pushed the target level of decent jobs creation to be achieved. For example, the United Nations (2019) stressed that low income growth can jeopardize sustainable development goals due to low infrastructure and inadequate health improvement. On the other hand, unemployment rates in many developed economies have declined to historical lows. As such, developed economies have faced expansion of steady state of 2.2 % during both years, and the overall global economic growth appears to be robust projected to reach a steady state of 3% in both 2019 and 2020. Among the developing economies, East

and South Asia regions steadily remain relatively strong and have significant growth line of between 5.8 and 5.6 % in 2018. In the meantime, economic growth in Africa needs to increase to double digit levels in order to reach the poverty reduction target level as one of the UN objective of millennium development (Bangura, 2019).

Chad has played a tremendous role through the contribution to development of regional integration infrastructure such as electricity interconnection, including the preservation of the Lake Chad Basin, a fibre optic backbone project, as well as the interconnection between Algeria-Niger-Nigeria-Chad trans Saharan road (African Development Bank Group, 2019). Shortage of recent studies and researches related to the topic are still under research infancy stage (e.g. the African Development Bank & African Development Fund, 2015; Danquah & Ouattara, 2014).

Literature review
Economic growth

The Library of Economics and Liberty (2019) defines economic growth as an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Shaerer (1961) argued in his book of "the concept of economic growth" that for measurement purposes, economic growth of a nation can be defined as a sustained increase in its population and product per capita. Similarly, according to Paul Baron, economic growth is defined as an increase over time in per capita output of material goods where growth of gross national output or per capita output is an indicator of economic growth (Saxena & Bansal, 2019). It firstly leads to an (i) increase in national product towards growth in money value of goods and services, which is not sufficient for a nation's economy as it simply increases the price of goods and service. Here, growth is considered in physical term where therefore, the production of different goods and services must increase in an economy.

Secondly, (ii) an increase in per capita output whereby under the growth process, not only the total volume of production increases, but simultaneously total population will also increase. Thus, capital output will also increase over time to maintain the same growth rate. It often helps to solve the problem of physical output of goods and services per capita in any economy. As a result, economic growth can be attained from either the increase in the total output, population by ensuring that the capital formation therefore lead to increase in entrepreneurship (Novickytė, Rabikauskaitė & Pedroja, 2016; Fotune, 2018; Feldstein, 2020). Even though product per capita is not simply an approach towards an increase in aggregate output as the criterion of growth, but necessitate total output to increase with no change in the population size. Kuznets argued that the definition of economic growth must therefore reflect common experience. For Kuznets, common experience reflects the sustained increase in per capita product combined with secular stagnation or decline in population. Therefore the operating definition of economic growth must involve the evaluation of the economic activities in a country in terms of its contributions to the glow of welfare generating want-satisfactions (Acemoglu, 2008).

Indicators of Economic Growth

The most common used measure for the economic growth of a country is the change in *gross domestic product (GDP)*. The production of these goods and services generates households' primary incomes, and another method of measuring GDP is therefore the sum of the incomes generated (Grasjã & Arvemo, 2011). Beside, a wide range of empirical studies investigated the causal factors of economic growth using different conceptual and methodological point of views. These studies have also placed attention on different set of explanatory parameters by offering a number of various insights to the sources and factors affecting economic growth (e.g. Ndambiri, Ritho & Ng'ang'a, 2012; Hassan, Sanchez & Yu, 2011; Bullard, 2017; Susic, Stojanovic-Trivanovic & Susic, 2019). For example, *human capital* is an important indicator of economic growth. As human capital refers to the skills and know-how of the workers through education and training. Hence, majority of studies and literatures have employed proxies related to education such as school enrolment rates, tests of mathematics and scientific skills among others to determine the measure of the quality of human capital. Therefore, empirical evidence from previous studies suggest that educated population is the key determinant of economic growth (McCracken et al., 2017).

Results

Research and Development (R&D) is another important indicator of economic growth because it plays a major role in the economic progress by promoting increase in productivity and growth in an economy (Hall, 2009). For instance, R&D contribute to the promotion of to the continuous use of technology towards the introduction of new and superior products and processes leading to innovation. A robust economy would instigate a different trading strategy compared to a weak economy (Marone, 2012).

Meanwhile, among the other indicators, a number of *strong employment* in terms of workforce and job creation lead to the proliferation in GDP. This can occur through an increase in consumer expenditure as well as the increase in the product produced. As such, the level of disposable income (purchasing power parity) can determine consumers demand for goods and services. This also implies that *unemployment rate* is a very significant indicator of economic growth as it clearly shows how strong an economy is (Marone, 2012). For example, when the rate of unemployment is high, and or when there are redundancies, people may have less money to spend on goods and services which can imply a weak growth. Also, less demand for products and services also means that more companies will struggle and fewer investment leading to a decline in GDP.

Furthermore, *a desired and stable level of inflation* indicates strong growth (Abou-Zaid et al., 2016). Usually the desired level of 2% or 3% inflation is consistent with the economy. For instance, Shahid & Mahbuba (2013) emphasized that when inflation is too high, household expenditure become less as their purchasing power will reduce due to the increase in cost of living. As a result, GDP growth will hinder as consumers do not have the ability spend (Melina & Portillo, 2019). While a lower

inflation can also explain lower economic growth (Asongu & Odhiambo, 2019). For instance, when unemployment or low consumer confidence drive low demand leading to a suppression in prices to rise.

Increasing interest rates are significant indicator of economic growth. When interest rate is high, it implies that the economy is recovering. Meanwhile, when interest rate is kept lower to stimulate the economy, borrowing become easier for consumers (Blanchard, 2019). Thus, lower rate of interest means household expenditure increases and it also encourage businesses to borrow more money and invest in their businesses (García-Schmidt & Woodford, 2019). However, the economy tends to hinder when the rate of interest is higher as it become costly for households and businesses to borrow for consumption and for investment on the other hand (Keynes, 2018).

Among the other indicators, *wage growth* is necessary for economic growth as it contribute to consumer demand. Nevertheless, this expenditure power is directly related to household income (Keynes, 2018), but demand alone cannot increase if consumer do not possess sufficient disposable income expenditure. For instance, both Pigou and Keynes explain that when productivity increases, wages growth can increase as well without increasing the real cost of labour for firms. Meaning that a stronger economy is followed by more investment and production after productivity increases with wage growth (Pigou, 2017). Meanwhile an economy is facing lack of demand for goods and services due to lower wage rate growth, the country is hindering economic growth.
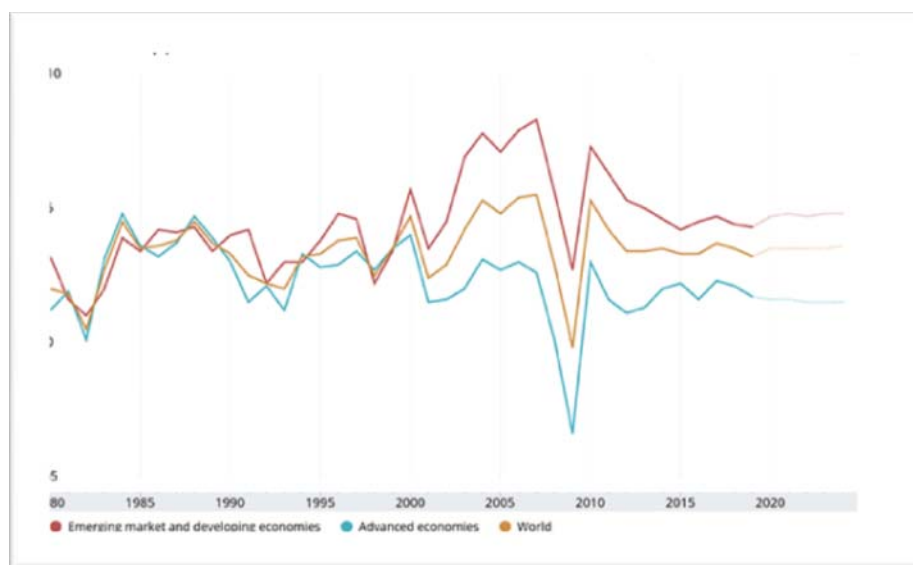
Figure 1. Real GDP growth (Annual % change)
Source: Adapted from Ndambiri, Ritho & Ng'ang'a (2012)

At the same time, according to the Global Economy.com (2018), *higher industrial production* is a good indication of a strong economy. As manufacturing production data provide important indicator about a nation's economic output. For instance, an increase in industrial output indicates economic growth due to the

increase in goods and services. *Consumer demand is among the variables which drives a strong GDP growth.*

Among the emerging markets and developing economies, advanced economies, and the overall world real GDP between the year 1980 projected to 2020, Figure 1 shows that these nations have achieved sustained and robust GDP growth. Ethiopia, Turkmenistan, Mongolia, Uzbekistan, China, India, Laos, Rwanda are among close to 200 routinely surveyed by the IMF (Ventura & Pham, 2019). For instance, Rwanda, with its extensive economic development and poverty reduction programs, shows that an efficient and democratic political institutions have improved the country's growth.

Factors Affecting Economic Growth

For centuries, economists have been questioning about what really determine economic growth in order to predict the future economic expansion (Platteau, 2015). More simply, economic growth consists of an increase in the inflation-adjusted market value of the goods and services produced by an economy over time, which is most cases a year (Van, 2016). Hence, there are various factors affecting economic growth in every nation.

Population growth

Malthus, an economist of the late 18th centuries predicted the expanding population growth together with limited resources and declining productivity resulted in only a subsistence income (Millington & Cleland, 2017). According to the World Population Review (2019), the average population growth of Chad is 3% per year and is expected to continue to growth further despite the country faces unstable economic growth, which slow down the country's economy (World Population Review, 2019). Hence, in order to maintain balance with the rising population and to regain sustainable recovery from the recession, some 600 million new jobs need to be created globally by 2030. For instance, the 8th sustainable development goal aims for higher economic productivity and at least 7 percent annual GDP growth in the least developed countries (Millington & Cleland, 2017).

Technology

According to Malthus, the agrarian slow growth era seemed quiet impossible for the land to provide for everyone with abundant plenitude to satisfy household needs and wants. Hence, in order to explain why over long periods economic growth appears to be accelerating, as well as why some countries growth faster than others, the endogenous growth literature arose of the desire to explain these scenarios. As a result, with the technological progress over the last centuries, the issue of the traditional land alternative for abundance is no longer a non-resolvable phenomenon. As new products appear to generate other products, technology seems to be advancing at every increasing rates (Gould & Ruffin, 1993). The neoclassical growth was introduced by Ramsey and Solow in 1956 (Jones, 2016). Assuming exogenous technological change, constant returns to scale, substitutability between capital and labour, and diminishing marginal productivity of capital (Kónya, 2018). There are

three main important claims in the neoclassical growth models. Firstly, increase in the investment and saving ratio (capital-to- labour ratio) is the key source of economic growth. They assume that economies will eventually reach a state where no new increase in capital-to-labour ratio (investment and savings ratio) is the key source of economic growth (Elryah & Qian, 2015). Secondly, economies will eventually reach a certain level where no new increase in capital will create economic growth (steady state), unless there are technological improvements enabling production with fewer resources (Freeman, 2013). Thirdly, the neoclassical model also emphasizes that for the same amount available, the less advanced economies would grow faster than the more advanced ones until steady state is reached, and thus such economic convergence is to be achieved (Inglehart, 1997; Ishiaka, 2015).

Innovation and research and development (R&D)

Innovation and research and development (R&D) activities can play a major role in economic progress in increasing productivity and growth. This role has been stressed by various endogenous growth models with the strong relation between R&D and economic growth being empirically affirmed by many studies (Gujrati, 2015; Elryah & Qian, 2015). The endogenous growth theory pioneered by Romer and Lucas, indicate that the introduction of new accumulation factors, such as knowledge and innovation, will induce self-sustained economic growth, leading to contradictory growth patterns (Romer, 1990). The crucial property of these models is constant as the causal effect of increasing returns to capital is induced by the endogenous character of production technology.

Human capital

A large number of studies such as Boianovsky & Hoover (2009); Alataş et al. (2016); Papakonstantinou (2017); McCracken et al. (2017); Ali, Egbetokun & Memon (2018); have found evidence suggesting that educated population is a key determinant of economic growth. In developing countries, the focus of human capital as one of the key drivers of economic growth has led to undue attention on school attainment (Ahcène & Paksoy, 2018). For instance, this result has shifted attention to issues of the quality of school education which implies that developing countries have been less successful in closing the gaps as compared to developed countries. Despite the significant progress made towards the years, developing countries still failed to improve the quality of school education which have made difficult for these countries to improve their long run economic performance. Meanwhile, scholars have often questioned the findings regardless of the importance of human capital as a substantial determinant of economic growth (Piketty, 2015). For example, Nickolas (2018) found a strong correlation between human capital and economic growth since investment tend to boost productivity. For example, the process of educating a workforce is regarded as a type of investment. But instead of capital investment such as equipment, the investment is in human capital (education). He suggested that human capital affects economic growth and can thus help to develop an economy towards expanding knowledge and skills of its people.

Economic policies

In recent decades, economic policies and macroeconomic conditions have also attracted much attention as determinants of economic growth. Besides, economic policies can affect several aspects of an economy through investment in human capital, infrastructure, as well as the improvement of political and legal institutions. This is because these economic policies and macroeconomic conditions can set a framework where economic growth takes place. For example, stable macroeconomic environment can favourite growth through the reduction of uncertainty. Whereby on the other hand, macroeconomic instability may have a negative impact on growth through productivity and investment. Several macroeconomic factors with impact on growth were recently identified in the literature concerning inflation, fiscal policy, budget deficits and tax burdens (Spiegel, 2007; Gujrati, 2015; OECD Economic Outlook, 2018).

International trade

A country open to international trade may also experience faster technological progress and increased economic growth because the cost of developing new technology falls as more high-tech goods are available (Johnson, 1958). Besides, trade is an important element increasing growth since it allows the availability of greater variety of products and technology (Chanthunya & Murinde, 2019). Among the factors affecting the economic growth in Africa, a study investigated by Anyanwu (2014) on the determinants of economic growth in the north and Sub Saharan Africa using an Africa-only sample with five non-overlapping averages of three years cross sectional data between 1996 and 2010. The study also collected data for China from 1980 to 2010. The results suggested that domestic investment, net official development aid (ODA) inflow, education, government effectiveness, urban population, and metal prices all have positive and significant effect on the economic growth of Africa.

According to the World Bank this is due to the fact that developing countries such as those in the CEMAC sub region are progressively adapting to the decrease in commodity prices. For example, a country like Chad moves from -3.5% in 2016 to -0.3% in 2017, with forecasts predicting 4.7% and 6.3% in 2019 (Fouthe & Ndedi, 2017). On the other hand, the author also highlighted that among the empirical papers of growth in developed countries, factors such as education and technology improvements have a positive relationship with economic growth which is not the case for developing and under developing countries like Sub Saharan African countries which import more goods than exporting them. As a result, in slow economic growth in the region (Wahiba & Weriemmi, 2014). Similarly, the relationship between income inequality and economic growth in Tunisia have grabbed the attention of scholar such as Wahiba & Weriemmi (2014). The empirical study employed data collected from the period of 1984 to 2011 where the results shown that variables such as economic growth, and openness exchange constitute the major factors of inequalities. Inequalities were found to negatively affect economic growth due to the failure of income redistribution policies; while human capital and

financial development appear to contribute to alleviate the major factors of inequalities by promoting growth in the country (Wahiba & Weriemmi, 2014).

Income per capita and output per worker
As the term growth refers to the quantitative aspect of economic progress of a country, there are also very large differences in income per capita and output per worker across countries nowadays. For example, countries at the top of the world income distribution are more than thirty times rich as those at the bottom. For instance, in 2000, GDP (or income) per capita in the United Sates was over $33000. In the contrary, income per capita is much lower in a number of other (developing and under developing) countries. For instance in Mexico GDP per capita was less than $4000, followed by China with less than $2500 in India; while Nigeria has only about $700, and far much lower in some other sub-Saharan African countries such as Chad, Ethiopia, and Mali (Acemoglu, 2008).

Economic growth in Chad
Ever since Chad has joined the list of oil producing countries in 2003, the economy has been heavily dependent on oil. Most importantly the greatest challenges include shortage of skilled labour forces as one of the major obstacles to investment. As a result, the government continues with plans to diversify the economy as 75% of the working population rely in agriculture, which constitutes the primary sector of employment of Chad (The Heritage Foundation, 2019).The economy of Chad grew at 1.5% year on year in 2018 and to 3.8% in 2017, as the output of the country rebounded for primary activities illustrated in Figure 2.
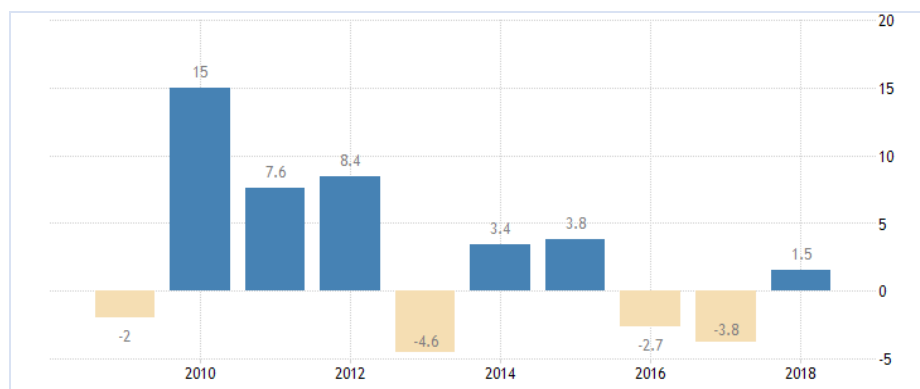
Figure 2. GDP Growth of Chad (2010-2018)
Source: Adapted from Trading Economics (2019)

On the contrary, declines were seen in both secondary (-1.5% versus 7 %) and the tertiary (1.9% versus -4.9 percent) sectors. While the annual GDP growth rate in Chad averaged to 3.07% in 1961, and -21.44% in 1979 representing the lowest record of the country; and an all-time higher record of 34.30% in 2004. Overall, the growth rate of Chad averaged 3.07% from 1961 until 2018. The fiscal balance was an estimated surplus of 0.1% of GDP, up from a deficit of 0.8% in 2017, as a result of

increased revenue (mainly from oil), budget support and control of total expenditure, particularly salaries (down 6%) (International Monetary Fund, 2014).

The economic growth in Chad (Table 1) is evaluated from the overall gross domestic product of the country. For instance, in 1961, the growth rate of GDP was -3.80% which slightly improved in 2018 to 1.5%. For instance, Upreti (2015); Nwala (2018) conducted research to identify the factors affecting economic growth within CEMAC countries using high volume of exports, abundant natural resources, longer life expectancy, and higher investment rates as variables shown positive impacts on the growth of per capita GDP for developing countries.

Table 1

Chad GDP at Annual Growth Rate (Between 1961-2018)

Chad GDP	Last	Previous	Highest	Lowest	Unit
GDP Annual Growth Rate	1.50	-3.80	34.30	-21.44	percent
GDP	11.30	9.98	13.92	0.31	USD Billion
GDP per capita	813.30	816.70	960.40	405.70	USD
GDP per capita PPP	1746.50	1753.80	2062.30	991.60	USD

Source: Bank Central of African States (2019)

As the scope of existing research is limited due to a lack of reliable data, the authors (Fouthe & Ndedi, 2017) suggested the need of further research in order to distinguish the causes of growth in developing countries. Similarly, Gilbert, Orfé & Kamajou (2020) conducted a study to assess the simultaneous impact of public and private investments on economic growth in the CEMAC region between 1984 and 2017. The results show that contrary to economic theory, private sector investments have positive and significant effects in the short term. However, the impact of public investments is negative and significant in the process of sustainable growth.
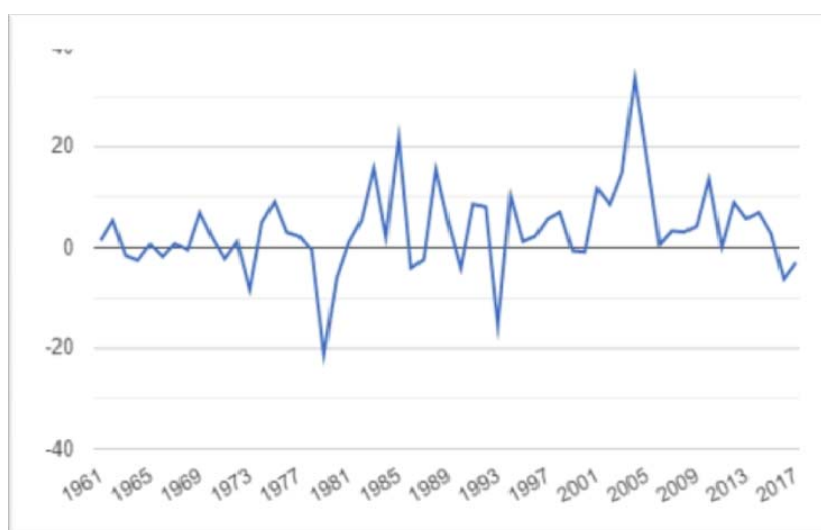
Figure 2. The rate of Change in real GDP of Chad
Source: Adapted from The Global Economy.com (2018)

Figure 3 illustrates the economic growth of Chad measured from the rate of change in real GDP from 1961 to 2017. The data collected from the World Bank indicate the average value of real GDP is 3.49% in 2017 and -21.44% in 1961 which show an improvement in the country's growth over the years. According to the Global System Mobile Association (GSMA), the mobile sector is a key contributor of the economic growth of Chad.

The contribution of the mobile sector to state tax revenues in Chad, including all tax and royalty payments, is more than four times its share of GDP. For example, in 2015, mobile services generated market revenues of USD 300 million (XAF 117 billion), which is 2.7% of Chad's GDP (GSMA, 2016).

Conclusion

The paper raised important factors affecting the growth of countries around the World and the growth of Chad in particular. The country's overall growth increased by 0.6 %, with improvements in labour freedom, fiscal health, and monetary freedom exceeding a decline in the freedom of the business sector and trade freedom. This implies that Chad is ranked 36th among 47 countries in the Sub Saharan African region, and its overall score is well below the regional and the world averages (World Population Review, 2019). Although the developing countries have made significant progress in closing the gap with developed countries in terms of school attainment, yet recent studies have raised the issues concerning the importance of cognitive skills for economic growth (Hanushek, 2013).The contribution of the mobile sector accounting for less than 3% of GDP, the sector generated 12% of the government's total tax revenue in 2015 (GSMA, 2016). Alongside, the country is experiencing greatest challenges driven by lack of industrialization strategy. The secondary sector of the country account a GDP of less than 15%. The deficit of infrastructure remains very pronounced with an index sector of only 7.23 out of 100 resulting in a rank of 51 out of 54 countries in 2018. This implies that the economic growth of Chad is still critical.

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DIAGNOSTICS OF INVESTMENT AND INNOVATION ACTIVITY OF ENTERPRISES: METHODICAL BASIS STRATEGIS DEVELOPMENT OF THE REGION-LEADERS

Abstract. The process by which the activity of investment and innovation entities is stimulated increases competition between firms and regions of the country in the international financial arena and economic growth. In the end, after the work was carried out, a result was obtained that indicates the development of a global tool for evaluating investment and innovation activities of economic entities at the regional level and which is indicated by multilateralism, the lack of complex calculations and the simple designation of basic statistics. Realization of the offered method which basis is the method of expert estimations, causes: 1) the definition of the basic stages and making a component of investment and innovative activity of a business environment of region; 2) ranging a component of investment and innovative activity of subjects of economic relations on corresponding indicators and definitions of its level of display for the certain period; 3) a substantiation and working out of a scale of estimation in which it will be allocated low, average and high levels of investment and innovative activity. A condition and dynamics of investment and innovative activity of subjects of managing of a region, as a basis of strategic development of regions-leaders, is investigated. The essential problems of the development of investments and innovations in the Black Sea region were investigated and identified with the help of economic research methods.
Key words: assessment, investment and innovation activity of the region, methodological approach, index, ranking, component, business entity.

Introduction

The increase in the speed of global and technical transformations, decentralization of state management greatly influences the increase in the positions

of national areas, independently designing and implementing their own idea of Genesis, and their acquisition of other qualities implies a complication of competition at the interregional level for leadership in the socio-economic genesis of improving the use of financial, innovative, human capital and so on. The basis of the financial formation of any socio-economic system in the new format of market modifications is the implementation of the investment and innovation model of becoming a state, for example, and a regional economy. The study of trends and peculiar symptoms of the development of socio-economic systems of developed countries in retrospect determines the strategic vector of realization of state / regional political figures of persistent development, in particular, based on "smart specialization". In turn, for developing, specified provides for the purpose — realization of positive technological transformations of a national economy, in particular through processes of stimulation of investment activity, and investments should be combined with innovations, as in the technological model of the expanded reproduction. There is little attention paid to the issues of stimulating investment and innovation activity in Ukraine. Therefore, the research of problems of stimulation of investment and innovative activity as sustainable development preconditions represents considerable scientific and practical interest (Mamontova, 2015).

Investment and innovative activity act as one of the major factors of increase of competitiveness of the enterprises and regions in the world market, their steady economic growth. The urgency of introducing innovative technologies, which, in fact, permits the production of high technology products for the purpose of expanded reproduction, necessitates auxiliary recruitment of funds. However, strengthening of investment activity of subjects of economic relations can become a basis for an expansion of innovative processes in the future. Without innovation activity, there is no investment and vice versa, so these categories should be considered in a relationship.

Ignoring the scientific skill of studying investment and innovation activity as separate economic entities, for example, and the regional business environment as a whole, we strongly ask for improvements in the nuances of comprehensive diagnostics of the regional investment and innovation component, developing an effective theoretical and methodological inventory of investment and innovation vigor economic entities, as a methodological basis for the strategy of sustainable development of leading regions.

Literature review
A great sense in the new situation of intensification of globalization processes and technological modifications is obtained by studying the qualities of industrial and innovative development in a regional dimension, the assessment of interregional differentiation of subjects in the context of industrial innovation development, the development of assignments to optimize the fundamentals of its economic and administrative adjustment (Honta, 2015; Vertakova, Plotnikov 2016). Thus, researches of innovative processes cause working out of techniques which allow revealing and involve administrative and organizational factors in the development of

innovative activity, to raise adequacy of the information, at the acceptance of administrative decisions in comparison with standard systems of estimation and the analysis of innovative activity (Gadzevich, Matviychuk 2017).

In turn, other category of researchers focuses the attention on directions and mechanisms of a regional investment policy, especially in definition of problems of the organization of investment activity in regions and vectors of formation of strategic reference points of regional investment development (Zakharin, 2016), as a key factor of steady economic development at the present stage, high investment activity, actions of its stimulation (Mamontova, 2015; Skupskyi, Zubkov, Shapovalova, 2018), in particular in agrarian food sphere (Mantsevych, Skupskyi, Melnychuk, 2016).

Modern trends in the socio-economic development of land establish fresh requests for a comprehensive study of the relationship and interdependence of investment energy and innovative work of business entities with regional policies of socio-economic development. Taking this into account, methodological considerations for assessing organizational and economic incentives for implementing investment and innovation policy makers of the country have received particular relevance in financial practice, due to the use of statistical tools to study the dynamics of changes in the quantitative characteristics of innovative and investment energy of companies and the development of their investment and innovation potential (Raevneva, 2012; Grishko, Koleshchuk, Lesik, 2011; Skupskyi, Zubkov, Shapovalova, (ICSEAL) 2018).

There is an offer of an interesting technique of estimation of investment activity in symbiosis with innovative to estimate the quality of structure of investments on them innovativeness (progressiveness). The interrelation of investments and innovations in one indicator, thus, allows to consider it as an integrated indicator of activity both in the beginning and on the termination of an innovative process (Mikhalev, 2011).

However, researchers, in their own publications, little consider the existing state of investment and innovation work in the case of industrial companies, in particular, through the quantitative expression of the value of such work due to the magnitude of unused probabilities for its activation. The forecast of the present basis for assessing the investment and innovation potential of companies allowed us to note 3 leading trends. (Grishko, Koleshchuk, Lesik, 2011): the first approach provides the realization of an estimation of investment and innovative potential through the analysis of its separate making (indicators of liquidity, solvency, profitability, business activity and financial reliability of the enterprise); according to the second approach, the assessment is based on the calculation of a generalizing (integrated) indicator characterizing the investment and innovation capabilities of the enterprise; the third approach provides realization of such estimation on the basis of calculation of rational volumes of investments which are expedient for enclosing now in development of the given enterprise, to particular in manufacture of innovative kinds of production and so forth.

In its own turn, the fresh challenges of the innovation and investment development of the land section are focused on the development of theoretical, methodological and practical grounds for assessing the performance of innovative and investment work of land companies. A similar assessment basis is considered a test of homogeneity (typology) of the companies under study on the basis of the symptom "Results of innovation and investment activity" (cluster analysis method) using the "STATISTICA7" software package. The result is the total amount of changes in economic productivity, profits of subjects of innovation and investment work, scientific and technical progress in the agricultural and food sector. With this study of the economic activities of land companies, it is possible to differentiate the moments of an innovative provision of systemic transformations of companies according to innovation and investment symptoms and the degree of energy (Zaburanna, Zorgach, 2015).

Marketing estimation of directions of investment and innovative activity of the enterprises (Krasnyak, 2018; Gryshova, Yanchuk, Shestakovska, 2016) is carried out in interrelation with studying of the basic tendencies of development of investment and innovative activity, in particular subjects of world market of food vegetable oils, for the purpose of a substantiation of approaches to formation of modern marketing investment and innovative strategy of the processing enterprises.

An attraction of investments and introduction of innovations are actual problems as in science, and as in practical activities of state bodies and local government on formation and realization of actions of an are innovative-investment policy (Kozak, Blishchuk 2013). Considering it, the substantiation and an authentic analytical estimation of innovative and investment activity of the enterprises in the region, in particular with the use of a factor of quality for the definition of the qualitative level of innovative activity is actual. In general, the offered approach should be entered both on state, and on regional levels that will allow to improve an estimation of an innovative-investment activity, to improve a condition of such work, to provide efficiency growth, economic growth and a population standard of living in whole (Gryshova, Voronzhak, Shestakovska, 2017).

Problem statement. Improving methodological approaches to assessing the investment and innovation vigor of regional subjects of financial relations, as the methodological basis of the strategy for the steady development of leading regions. Study and justification of the urgent tasks of the investment and innovation formation of the Black Sea area.

Methods

In order to optimize the methodological basis of the strategic persistent development of leading regions, improve the methodological tools for evaluating investment and innovation vigor of regional economic entities in the case of the Black Sea area, which would be distinguished by universality, the absence of difficult calculations and the simplicity of identifying initial statistical characteristics. The source of information is the data of the State Statistics Service of Ukraine and other official sources for the relevant stage.

The implementation of the task (the method of expert assessments) takes into account: 1) the study of the business environment of the area and the definition of the leading frontiers and elements is a component of the investment and innovation vigor; 2) ranging components of investment and innovative activity of subjects of economic relations according to corresponding indicators and definitions of its level of display for the certain period; 3) the reasoning and development of a rating scale, in which the low, average and high levels of investment-innovation activity will be distinguished.

To investigate a condition and dynamics of investment and innovative activity of regional economic entities, as a basis of strategic development of regions-leaders. To define the basic problems of investment and innovative development of the Black Sea region and so forth by dint of methods of the analysis and synthesis, expert estimations.

Results and discussion

The dynamism of steady regional development in modern conditions of market transformations and its formations reasonable ("smart") of specialization demands the presence of universal toolkit of diagnostics of investment and innovative activity of regional subjects of economic relations. The carried out monitoring of scientific works in which the specified problematic was investigated, shows an absence of the uniform base methical approach to definition and applications of a concrete technique of an estimation. A considerable set of such available offered estimation techniques is directed on a definition and the analysis separately investment, or separately innovative regional activity. At the same time, the prevailing share of methodological approaches is not universal and is too complicated, both during the implementation of calculations and at the initial stage of distinguishing the output statistics.   In turn, it specifies in low efficiency of this methical toolkit at its practical use by subjects of managing in real market conditions.

In general, the analysis of factors influencing the current level of investment and innovation activity of enterprises, first of all, should provide the following tasks: 1) the identification of such factors and their grouping; 2) development of a system of quantitative characteristics for assessing the current value of investment and innovation regional activity; 3) the study of the variability of moments of the micro and macro environment, acting on the degree of investment and innovation potential of companies, their relative test and the identification of the grounds for these changes; 4) analysis of influence indicator degree of quantitative evaluation of factors determining the level of investment-innovation activity of enterprises, on the magnitude of this level, and ranking of these indicators by their degree of influence (Grishko, Koleshchuk, Lesik, 2011).

According to the results of the studies, the universal methodology of an all-encompassing assessment of the investment and innovation vigor of regional business entities (in the case of the Black Sea region) is assigned. Realization of the offered method which basis is the method of expert estimations causes the following stages:

Stage I. A substantiation of the basic investment and innovative activity components of a regional economic entity and their indicator definition.

The critical analysis and generalization of the public figures of the official statistics service of Ukraine have resulted in determining the following components of regional business investment and innovation activity environment, in particular:

1. Financially-innovative component of industrial activity (FICIA)
2. Skilled-innovative component of industrial activity (DICIA)
3. Organizational-innovative component of industrial activity (OICIA)
4. A technological and innovative component of industrial activity (TICIA)
5. Scientifically-innovative component of industrial activity (NICIA)
6. Capitally-investment component of branch activity (CICIA)
7. Foreign investment a component of economic activity (FICIA).

In view of this, in order to carry out a practical assessment of these components in the dynamics, we suggest using the information (data), in particular, with a section:

• financially-innovative components of industrial activity — the statistical data on the general annual sums of expenses on sources of financing of innovative activity of the industrial enterprises of the region on investigated period, thousand UAH;

• components of industrial activity are basing on the volume of expenses for researches and workings out, including as on realization internal, as the attraction of external research workings out, thousand UAH is skilled-innovative.;

• technologically innovative components of industrial activity are basing on the indicator «Acquisition of cars and the equipment, the innovations are connected with an introduction», thousand UAH acts.:

• organizational-innovative components of industrial activity are basing on the relation of the sum of the general expenses on «Acquisition of new technologies», thousand UAH is defined.;

• components of industrial activity are basing on the total amount of expenses (all in the actual prices) on the performance of scientific and scientific and technical works in the Black Sea region of Ukraine for the investigated period, thousand UAH is scientifically-innovative.;

• capitally-investment components of branch activity are reference point act the general capital investments on financing sources, thousand UAH;

• investment and innovative making economic activity are dynamics of foreign investments into region economy, in the given context of the Black Sea region for 2011-2017, mln. dollars USA.

In connection with the fact that the calculation of the indicator "Dynamics of foreign investment in the economy of the Black Sea region for 2011-2017." is provided in millions of US dollars, and all other indicators are carried out in thousands of hryvnias, the figure "million. dollars USA" lead to the hryvnia equivalent, multiplied by the official average annual exchange rate of the US dollar according to the National Bank of Ukraine.

Stage II. Assign relevance of the investment and innovation activity components of the regional business environment. To this end, we suggest justifying the impact of each component on investment-innovative regional processes.

The financial and innovation component of industrial activity is characterized by the fact that financing of innovation activity of each regional structure enterprise depends on it, combining various financing mechanisms, starting from own funds, funds from both domestic and foreign investors and other sources of financing. In this regard, we determined the weight of this component as 0.1 shares of the total investment and innovation activity index of the regional business environment.

Research and innovation component of industrial activity (0,2 shares of an index) directly defines the level of the general innovative activity of regional subjects and penetration of new technologies into the structure of regional industrial sphere for researches and the workings out which are carried out at the level of areas.

The research and innovation component of industrial activity (0.2 shares of the index) directly determines the level of general innovation activity of regional actors and the penetration of new technologies into the structure of the regional production area through research and development carried out at the regional level.

As the technologically innovative component of industrial activity defines level acquisition of the newest technologies and volumes of the perfection of the technological process of manufacture regional environments us it is appropriated specified making weight at the level of 0,1 shares of an index of the general investment and innovative regional activity.

The scientific and innovative component of industrial activity is based on the financial indicators of fundamental and applied research, development, and scientific and technological services in the middle of the regional environment. This component affects the effectiveness of the scientific level and applied environment of the innovative basis of the regional-spatial environment. For this component, the weight will be 0,12 share of the index of all regional environment investment and innovation activity components.

The capital and investment component of sectoral activity (0.2 shares of the index) is a rather significant component of the total investment and innovation regional activity. Its structure includes capital investments by types of economic activity, such as capital investments in agriculture, forestry and fisheries , industry construction wholesale and retail trade, warehousing, postal and courier activities, temporary placement and organization of food, information and telecommunications, financial and insurance activities, real estate operations, professional, scientific and technical activities, activities in the field of administrative and auxiliary services, public administration and defense, compulsory social insurance, education, health care and providing social assistance, arts, sports etc.

As a weighty criterion for the overall regional investment and innovation business activity, the foreign investment component of economic activity (it is defined as 0.15 share of the index) determines the dynamics of attraction of foreign direct investment into the regional economy and territorial development, reflects the degree of development of foreign economic activity of enterprises and cross-border cooperation, priority directions of further investment, etc.

Stage III. Definition of a value of the investment and innovative activity of region everyone components. Value the component of investment and innovative

activity of subjects of managing of the region is defined by weight multiplication (an index share) by each component on value above the specified corresponding indicators.

Table 1

Differentiation component of the investment and innovation vigor of the subjects of the Black Sea area during 2011-2017, index

Region	Components							Integral index of the level of investment and innovation activity
	Financial-innovative component of the industrial activity	Research and innovation component of the industrial activity	Organizational-innovative component of the industrial activity	Technological-innovative component of the industrial activity	Scientific-innovative component of the industrial activity	Capital-investment component of the sectoral activity	Foreign-investment component of economic activity	
1	2	3	4	5	6	7	8	9
2011								
Mykolaiv region	3	3	2	3	3	2	3	2,71
Odesa region	2	1	3	2	2	3	2	2,14
Kherson region	1	2	1	1	1	1	1	1,14
2012								
Mykolaiv region	2	3	2	2	3	2	1	2,14
Odesa region	3	2	3	3	2	3	3	2,71
Kherson region	1	1	1	1	1	1	2	1,14
2013								
Mykolaiv region	3	3	2	3	3	2	1	2,42
Odesa region	1	1	1	1	2	3	3	1,71
Kherson region	2	2	3	2	1	1	2	1,86
2014								
Mykolaiv region	3	3	3	2	3	2	2	2,57
Odesa region	2	1	2	1	2	3	3	2,00
Kherson region	1	2	1	3	1	1	1	1,43
2015								
Mykolaiv region	3	3	3	2	3	2	2	2,57
Odesa region	2	1	2	3	2	3	3	2,29
Kherson region	1	2	1	1	1	1	1	1,14
2016								
Mykolaiv region	2	3	3	1	3	3	2	2,42
Odesa region	3	1	2	3	2	2	3	2,28
Kherson region	1	2	1	2	1	1	1	1,29
2017								
Mykolaiv region	3	3	2	2	3	2	2	2,42
Odesa region	2	2	3	3	2	3	3	2,57
Kherson region	1	1	1	1	1	1	1	1,0

Source: the material compiled and calculated by the authors

Stage IV. Ranking of regional investment and innovation activity components of economic relations subjects in the Black Sea region according to the relevant indicators.

Accordingly, the assessment scale will have the following form: 7-10 points poor situation of investment and innovation activity, 11-15 points is an average investment and innovation activity, 16-21 points is a high level of investment and innovation activity.

A comprehensive study of regional investment and innovation processes in the 2011-2017 phase. Permitted to display the administrative-territorial rating of any of the Black Sea area regions by the elements of the investment and innovation vigor of the subjects. Taking this into account, the high indicator of investment and innovation vigor of business entities of the Mykolaiv region deserves interest., which is 2011 and 2013-2016 was marked by the maximum indicators, where its aggregated level fluctuated within the limits of 17-19 points (Table 1 and Figure 1), and the integral index is 2.42-2.71. Slightly lower indicators at the level of medium-high value of the investment-innovation activity. There are 12-19 points and the index of 1.71-2.71 respectively, the Odesa region was noted, while the crisis was markedly marked between 2013 and 2014. Regarding Kherson region, it should be noted that the poor situation of the investment and innovation activity of its subjects of economic relations in the specified period with the aggregate indicator in the range of 8-13 points and the integral index is 1,0-1,86, although in 2013-2014 there was a certain intensification of its regional investment-innovation activities to the average level of 10-13 points (index 1,43-1,86), etc.
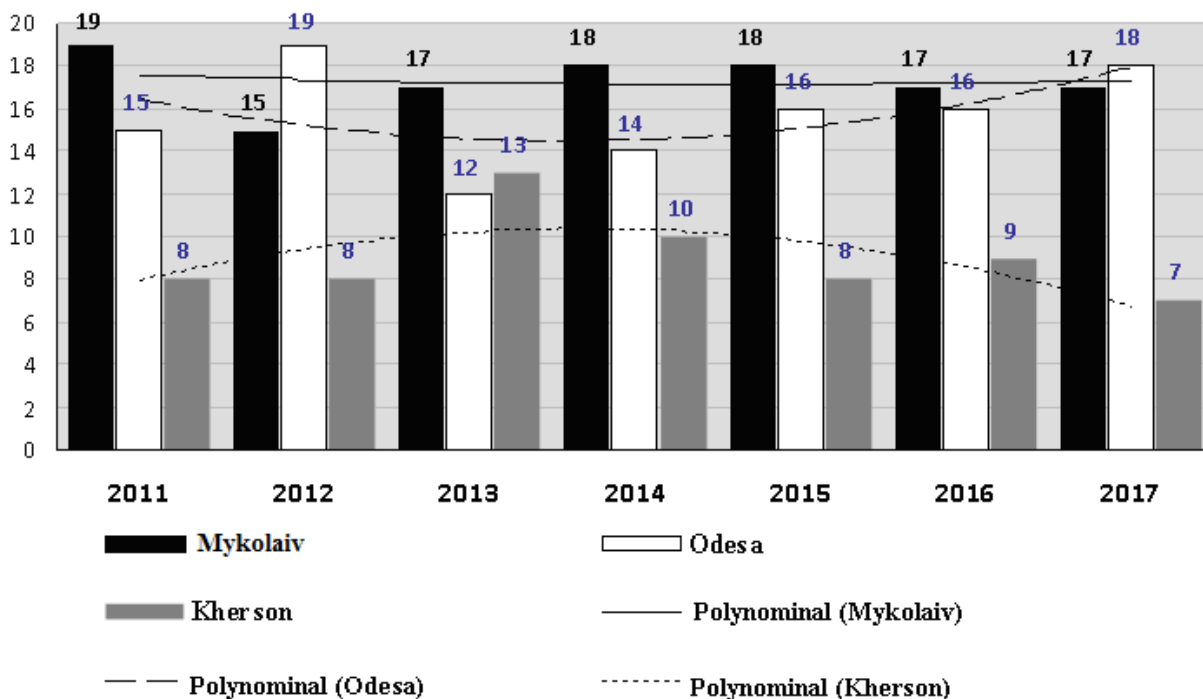
Figure 1. The aggregated level of investment and innovative activity of areas of the Black Sea region during 2011-2017

Source: author's working out

The relative test of investment and innovation vigor of territorial entities in recent years (Fig. 1, 2) allowed for the 2017 stage to qualify an inherent focus towards a minor slowdown in investment and innovation processes, in particular for the Mykolaiv region. This state marks the trend line of a polynomial curve, which is described by the equation: $y = 0,0357x^2 - 0,3214x + 17,857$, the magnitude of approximation $R^2 = 0,0152$.

The intensification processes marked the intensification of regional investment and innovation activity in the Odesa region since 2013, where its growth is observed in 1,5 times ($y = 0,2976x2 - 2,131x + 18,286$, $R^2 = 0,2749$).

Critical analysis of the components of the investment and innovation activity dynamics of the Black Sea region from 2011 to 2017 (Figure 2), allowed to substantiate the following conclusions:

- a reducing the level of technological and innovative components of the industrial (TICP) and foreign investment components of economic activity (IKEEA) to 2 points for the Mykolaiv region;
- for the Odessa region, vice versa, there is an increase to the maximum value of the foreign investment component of the economic activity (FICA) and research and innovation component of industrial activity (RICA), especially the latter by 2 points;
- the depressive state of changes in the components of regional investment and innovation activity for the Kherson region.

The implementation of the sustainable development strategy of Ukraine until 2030 as a whole and its individual areas leads to the consolidation of active business entities in intensifying the recruitment of investment funds in the development of the production and socio-economic sphere in order to stimulate its innovative work (Skupskyi, Zubkov, Shapovalova, 2018).

Researches of the leading positions of the Black Sea region areas in terms of the manifestation of the components of investment-innovation activity on average for 2011-2017 (Table 2) have stipulated the statement of a promising investment and innovation development of Mykolaiv and Odesa regions in comparison with the Kherson region. Mykolaiv region is an undisputed leader in the implementation of financial and innovation measures (FICA), research and innovation (RICA) and the scientific-innovative component of industrial activity (SICA) (integral index 2.86-3.0). Thus, in 2017, the share of enterprises in the region that implemented innovations was 23.7%, etc.

In turn, in recent years the Odesa region is characterized by a prominent manifestation of the effective implementation of measures of regional investment policy. Its fact is indicated by the average for 2011-2017 the integral indices of the capital investment component of the sector (CICA) and the foreign investment component of economic activity (FICA) at the level of 2.86. In 2017, the total volume of capital investments by types of economic activity amounted to UAH 9983.5 million, while the share of own funds of enterprises and organizations was noted at the level of 63.9% while the volume of foreign investments in the region's economy reached 1671, $ 7 million USA.
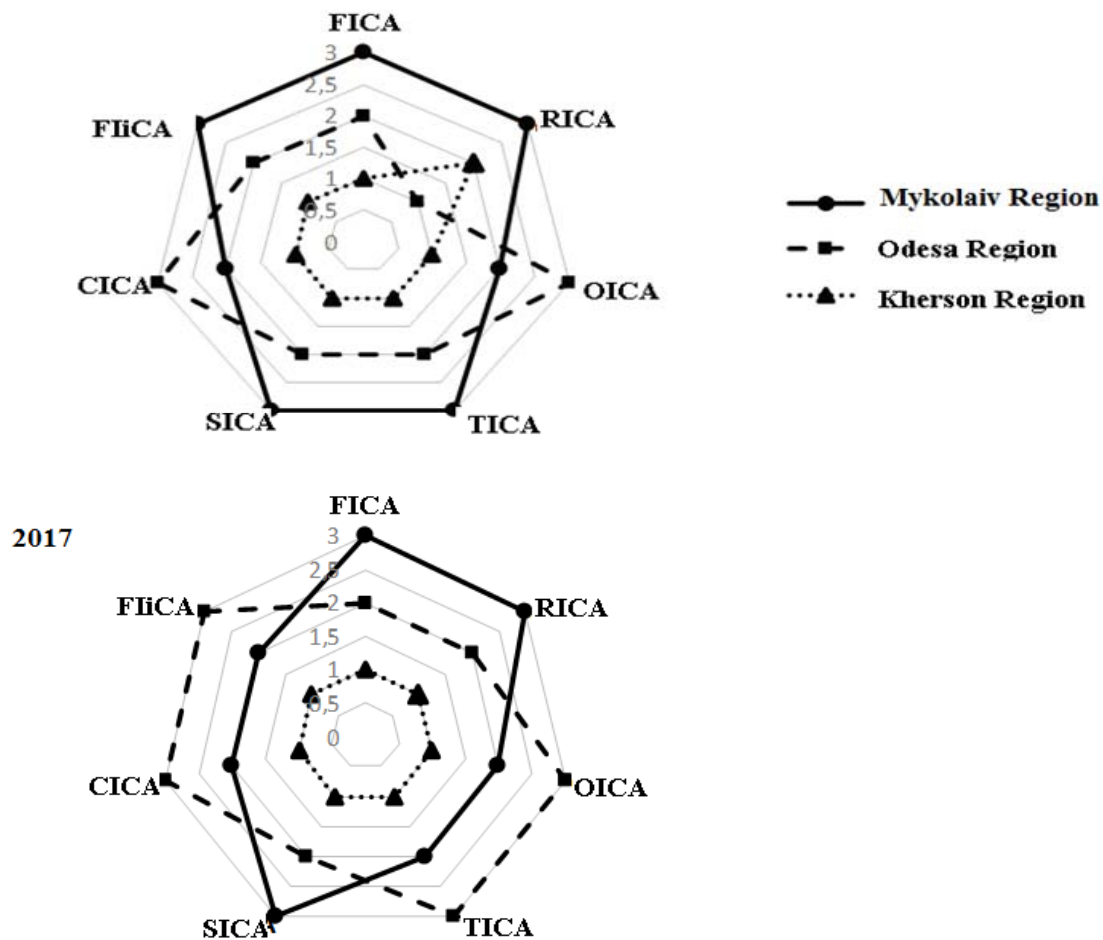
Figure 2. Dynamics of change of investment and innovation activity of regions of the Black Sea region by years

Table 2

The leadership of the Black Sea region areas in terms of the components of investment and innovation activity on average for 2011-2017, index

Component	Administrative regions		
	Mykolaiv region	Odesa region	Kherson region
Financial-innovative component of the industrial activity	2,86	2,0	1,14
Research and innovation component of the industrial activity	3,0	1,14	1,71
Organizational-innovative component of the industrial activity	2,42	2,29	1,29
Technological-innovative component of the industrial activity	2,14	2,29	1,57
Scientific-innovative component of the industrial activity	3,0	2,0	1,0
Capital-investment component of the sectoral activity	2,14	2,86	1,0
Foreign-investment component of economic activity	1,86	2,86	1,29

Source: compiled and calculated by authors

The average level of investment-innovation regional activity (with indexes within the range of 2.14-2.42) over the period under review in terms of organizational

innovation (OI) and technological and innovative components of industrial activity (IAC) is characterized of Mykolaiv and Odesa regions at the same time.

Concerning the Kherson region, the indicated region is characterized by a low level of implementation of investment and innovation potential and processes of investment and innovation activity stimulation of subjects of economic relations during the specified period, although, a little bit better tendencies of implementation on average have research and innovation (RICA) and technological and innovative components industrial activity (TICA) (index 1.57-1.71).

Research of investment and innovative activity decrease tendencies, worsening of investment activity indicators in the regions of Ukraine allowed highlighting a number of main investment and innovation development problems in the Black Sea region:

1) low investment and innovation activity, as a result of a high level of fixed assets depreciation and a shortage of own current assets for their renewal and modernization;

2) limited production specialization of the region and a low volume of products and services with a high share of value added through the raw material orientation of regional enterprises export activity;

3) the formalization of the development and declarative nature of most developed development strategies and programs that do not meet the existing needs of regional development and resource potential;

4) the presence of contradictions regarding the directions and priority of regional socio-economic development between state administrations, territorial councils and groups of influence at the local level;

5) a low level of investment in the scientific research sphere, development and introduction of innovations in comparison with real needs of the region, accompanied by the uneven and unbalanced distribution of investments of regional development. As a result, is a low investment efficiency, uneven implementation of innovations, extremely low social effect from investment and innovation activity;

6) the absence of the regional innovation system formation, which determines the failure to effectively implement the strategic priorities of innovative regional development;

7) a lack of proper regulatory and institutional basis of regional investment and innovation policy, underdevelopment of organizational and economic tools for its implementation (Skupskyi, Zubkov, 2017; Zubkov, 2018).

Conclusion

• Studying the state of investment and innovation work of regional business entities and methodological layouts for its assessment on the case of the Black Sea area in the 2011-2017 stage. Allowed to arrange the appropriate conclusions:

• The implementation of the proposed method of an all-encompassing assessment of regional investment and innovative vigor of economic entities, the basis of which is considered to be a method of expert assessments, leads to 4 steps:1) The justification of the main components of investment and innovative activities of

regional economic entities and the definition of their indicators; 2) the assignment of weight to components of the regional business environment investment and innovation activity. Basing on a critical analysis of the impact of each component (components) on investment-innovative regional processes, the greatest significance was attributed to the research and innovation component of the industrial, capital-investment component of the branch and foreign investment component of economic activity, and their structural features were determined; 3) the value determination of each regional investment and innovation activity component; 4) the ranking component of regional economic entities investment and innovation activity according to relevant indicators and a scale of assessment of the levels of manifestation of investment and innovation processes;

• The analysis of regional entities investment and innovation activity demonstrated a lack of stable change dynamic in the main indicators of territorial investment and innovation development and allowed to form the rating of each administrative-territorial units as components of investment and innovation activity. Thus, for the researched period, the high level of investment and innovation activity of Mykolaiv region deserves attention, which is 2011 and 2013-2016 was marked by maximum indicators, where its aggregated level fluctuated within 17-19 points, and the integral index was 2.42 -2.71. The indicators at the level of medium-high value of investment and innovation activity somewhat lower. They account for 12-19 points and the index of 1.71-2.71 respectively. The Odesa region was noted, with the particular crisis being noted for 2013-2014. At the same time, the Odesa region shows an increased investment and, for the most part, the average level of innovation activity. While the Mykolaiv region is characterized by a rather high level of activity for sustainable long-term development;

• In recent years, for the Mykolaiv region, it is the tendency to a slight decrease in the processes of investment and innovation activity in the period of 2017 is characteristic. There is a decline in particular in the level of technological and innovative components of the industrial (IC) and foreign investment components of economic activity (FIC) to 2 points. The intensification processes are marked by the regional investment and innovation activity intensification in the Odesa region since 2013, where its growth is observed in 1,5 times. It deserves attention to the increase in the maximum value of the foreign investment component of the economic (FIC) and research and innovation components of industrial activity (RIC), especially the latter by 2 points, as compared to 2011.

• Studying the unfavorable trends in the formation of investment processes and the innovative work of the subjects of financial relations in the ranges, made it possible to point out a number of urgent tasks of the investment and innovative development of the Black Sea area in market modifications, which were identified as highly unsatisfactory investment and innovative vigor of business entities as a consequence of the highest value depreciation of leading funds and the lack of personal reverse assets for their renewal and modernization; the limited production specialization of the region and low volume of products and services with a high share of value added through the raw material orientation of export activities of

enterprises in the region; formalization of the development and declarative nature of regional strategies and development programs that do not meet the existing needs of socio-economic development and raw material resource potential; the presence of contradictions regarding the directions and priority of regional sustainable development between state administrations, territorial councils and groups of influence at the local level; low level of investment in the sphere of scientific research, development and introduction of innovations in comparison with real needs of the region, etc.

The relevance of the comprehensive methodological measurement of the investment and innovative vigor of regional subjects of financial relations determines the need to optimize the active methodological foundations and the range of its criteria characteristics of the methodology of state statistics. The identified tendencies necessitate the development of new effective mechanisms for intensifying the investment and innovation development of the Black Sea region through the provision of a stable high level of investment-innovation activity of regional economic entities which are equivalent defined strategic priorities, and so on.

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JEL Classification: G21

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PECULIARITIES OF THE ENTRY OF MODERN UKRAINIAN REPERTORY THEATERS IN THE CREATIVE INDUSTRY

Abstract. *The paper proves that the modern Ukrainian repertoire theater can count on successful entry into the creative industries only if it shows entrepreneurship in all spheres of its life and acting as a kind of industry corporation.*
Keywords: *repertoire theater, creative industries, entrepreneurship, spectator relationship management*

Introduction

A certain echo of the global success of the creative economy, which generates value added over the year worth $ 2.3 trillion [1, p.681], we can accept the Law of Ukraine "On Amendments to the Law of Ukraine "On Culture" to define the concept of "creative industries" [2], adopted in July 2018, and the order of the Cabinet of Ministers of Ukraine dated 24 April 2019 under No.265-r "On approval of economic activities that belong to the creative industries" [3]. These laws and regulations have actually formed a new approach to the activities of theaters, recognizing the latter as a full-fledged source of growth of gross domestic product (GDP) of the state. These regulations refer to creative industries as economic activities that have cultural (artistic) and/or creative expression and are aimed at creating: (1) added value, (2) jobs, (3) products and services, which is the result of individual creativity. The analysis of such an activity reveals a high level of its efficiency, which is determined by the scale of the industry. While acquiring industrial characteristics, theatrical business should "generate" significant income (or profits). In modern Ukrainian repertory theaters, there is a kind of "limiter" in the form of the provision declared by the Law [3] on their non-profitability. The latter is the result of the government's demand for the accessibility of theatrical performances for society. Under these conditions, the management of repertory theaters must find these organizational and economic forms of entrepreneurship that would simultaneously meet all regulatory requirements.

Literature review

The first definition of the creative industries has been documented by the Department for Culture, Media and Sport (DCMS) of the United Kingdom in 1997. It has been argued that creative industries have their source in the individual creativity of a person, skill and talent, and the potential for job creation and wealth creation through the production and exploitation of intellectual property (ie the presence of a certain level of entrepreneurship).

Almost immediately, the new policy of the British received an international resonance: the governments of many countries immediately began to look for ways to adapt British strategy to the realities of their own national economies and cultures. In Ukraine, the creative industries have gained recognition through the efforts of the British Council [4].

In Western countries, it is assumed that actors (firms and individual creators), as well as products of cultural industries, are included in state cultural policy, being under control and carrying an ideological burden, which most often means engagement and a lesser degree of freedom of expression, if necessary, to correspond to ideas about high art and the intrinsic value of the results of such activities. At the same time, cultural industries receive state financial, informational, and administrative support, which reduces the role of market mechanisms in the functioning of these cultural actors. Creative industries (which include cultural), on the contrary, are aimed at economic indicators of profitability, focus on commercial and private financing, are not limited to the list of cultural areas, and are largely tied to the local and regional level [42, p.43].

Results

The basis of industrialization (as always) is the principle of rational division of labor. The processes of industrialization of culture (which has always been considered subsidized) are aimed at individualization, the maximum segmentation of the mass consumer. At the same time, the most relevant is the creation of communities and community orientation, which is expressed in the allocation of narrow target audiences and product specifications for these audiences.

The author of the work [6] proposed the following definitions:

1) *creative industries* - are network structures that are organizations that accumulate creative and creative human potential and cultural capital to create a commercially successful product;

2) *cultural industries* are network structures, which are represented by organizations that accumulate creative human potential and cultural capital to *create a product that has symbolic value and/or educational potential;*

3) *creative industries* - are organizations that have the ability and capabilities *to create a small series of unique creative product*, using their own knowledge, skills, and abilities. Given the nesting of these industries in each other, they can be represented as a "matryoshka doll" (Fig. 1).

To determine the essence of the cultural industry for the modern Ukrainian repertoire theater, it is necessary to distinguish the concept of cultural goods, methods of measuring the volume and value of its production, and so on. For repertory theaters, it should be about the number of performances created by the theater team over a period of time, the number of performances of each of them, the number of seats sold in auditoriums and sales revenue. For the cultural industry, to which theaters need to be involved, these indicators should be large enough. Of course, it is necessary to take into account the costs [7, p. 39]. As a rule, in most cases, the conditional fixed costs associated with the creation of performances are large, and the conditionally variable costs that go to the performances are significantly lower.

The basis of activity in the cultural (creative) industry is creative work with appropriately tuned thinking. It is clear that creative work, unlike physical work, cannot be replaced by machines or computer work. As a result of creative work, a unique product appears, the value or cost of which is extremely difficult to establish. But no one canceled the exchange of goods, and artists also want to live with dignity, therefore "satellites" of industrialization such as specialization, rationalization, and standardization that "work" on pricing for creative goods and services must inevitably appear.
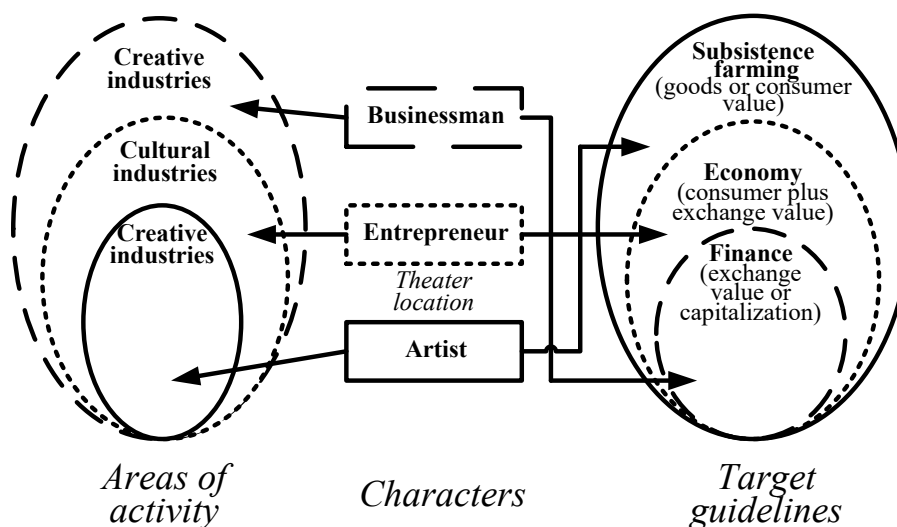

Figure 1. The relationship of "creative", "cultural", "creative" industries and the place of theater and actors among them (author's development)

The question arises about the contribution of repertoire theaters to the "industrialization and educational" process. A natural basis for this can be such signs of repertoire theaters as thoroughness and stationarity (according to location) of activity, preservation of the best repertoire achievements, formation, and development of a highly professional troupe, multidimensional activity (which, according to John Galbraith [8], is inherent only in corporations), and the like.

The above is seen as a certain "platform" for the development of the high quality role models. The totality of the latter can be transformed into the standards of theatrical business. Thus, the development of standards in the theater business should become the responsibility of repertory theaters. After all, it is they, as it is known [9, p. 24], who creatively and on a regular basis perform important socio-economic functions: (1) entertainment (2) epistemological or cognitive (3) regulatory (regarding people's behavior), (4) formation of the social consciousness, (5) formation of aesthetic taste (6) playful (7) compensatory, which allows a person finding peace of mind in himself (herself), (8) sign or semiotic, which allows learning to understand all the subtleties of stage speech, (9) communicative, (10) stratification, (11) socialization, (12) axiological or evaluative (provides an answer, for example, to the Socratic question: "What is good?"), (13) job creation, (14) paying taxes, (15) restaurant support of the restaurant-hotel-tourism and other types of business

providing various associated services, (16) recreation of human capital (or potential), (17) to be the center of infrastructure clustering, and so on.

A cultural (or creative) industry can emerge and exist only if there is a certain industry base. According to statistical data, 113 theaters of state and municipal ownership are operating in Ukraine today; in addition, there are about 300 (according to experts) private theaters in the country, more than 100 of them are located in Kyiv [10, p. 124]. The history of the emergence of repertoire theaters, for example, in the United States [11, p. 10] shows that most of them originated as self-employed, where all the staff was not paid any money. The results of the development of amateur theaters became a kind of springboard for entering the professional stage. Amateur or private theaters can be a specific field that "feeds" repertoire theater groups. For example, in some resolutions of the Kharkiv Academic Theater of Musical Comedy (and this is a repertory theater), actors are invited to work on private stages. The effect of professional enrichment is mutual. At the same time, the creative industry is strengthening, which is forming, to which all theaters are assigned and which can be considered as a single creative and production community, which is included in the socio-economic system called the "national economy".
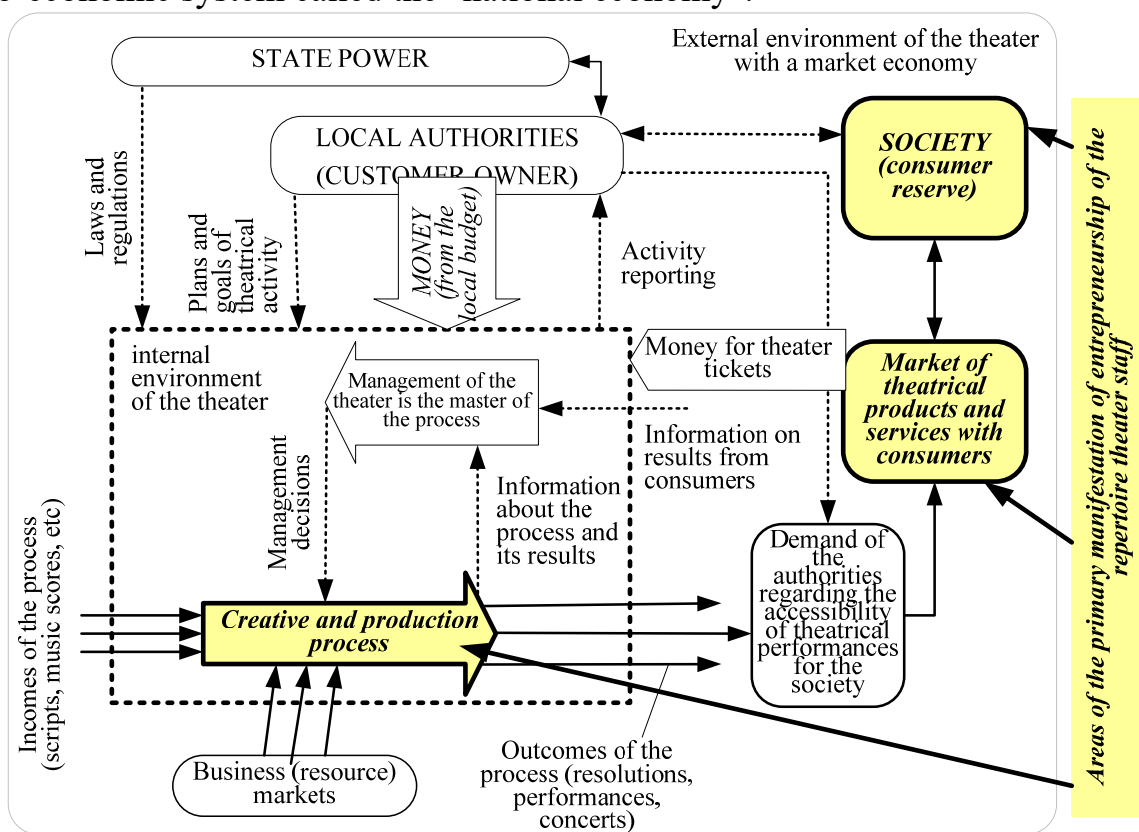
Figure 2. Areas of manifestation of entrepreneurship of repertoire staff of Ukrainian theater (author's development)

Specialists in the development of creative industries believe that the sustainable development of theatrical business in order to create an appropriate cultural industry can only occur through the innovative (entrepreneurial) activities of repertory theaters in all spheres of their existence [4, p. 73]. The implementation of these activities is impossible without the use of drivers or mechanisms necessary for the intended

purpose, which consist of a complex of organizational and economic ways, methods, levers, standards, indicators, with the help of which the planned goals or results are achieved. All this should take place under the supervision of a professionally minded link in the theater management system. The latter believes that the areas of entrepreneurship of the repertoire theater personnel should be the spheres of their life, indicated in Fig. 2, which are more sensitive to this.

Above all, it is advisable to focus on the direct relationship between theater and audience, which will undoubtedly require innovative, entrepreneurial action on both sides. And this is the essence of marketing the theater's relationship with the audience, which is determined by at least three imperatives [12]: (1) changing the role of the spectator in the market of theatrical products (2) creating the value of the performance jointly with the spectator and (3) formation of business networks of modern Ukrainian repertoire theater.

This marketing should focus on long-term mutually beneficial relationships with individual viewers or groups of viewers, the consistency of general and personal interests of all actors involved in this marketing (as it is known, marketing is interpreted as the ability to trade or reconcile socio-economic interests in the system "producer/consumer").

Conclusion

Thus, the modern Ukrainian repertoire theater can count on successful entry into the creative industries only if it shows entrepreneurship in all spheres of its life and acting as a kind of industry corporation.

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JEL Classification: M15, M41

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THEORETICAL BASES OF ACCOUNTING AND ANALYTICAL SUPPORT OF ECONOMIC SECURITY OF BUSINESS PROCESSES OF A TRADE ENTERPRISE

Abstract. The article systematizes scientific views on the essence of the concept "accounting and analytical support of economic security of business processes of a trade enterprise" and on this basis summarizes various approaches to this definition. The author's proposed updated definition of the term "accounting and analytical support of economic security of business processes of a trade enterprise". On the basis of the systematization of research and experience in the context of the structural approach to understanding the functional areas of accounting and analytical support economic security of business processes of trade enterprises are defined subsystems: accounting, analysis and control, as well as problems which they have.

Keyword: accounting and analytical support of economic security of business processes of a trade enterprise, accounting subsystem, analysis subsystem, control subsystem

Introduction. Intensification of integration processes in our country, increased competitiveness of business entities of various forms of ownership contribute to formation of a new management concept, and creation of methods to ensure the economic security of enterprises. Dealing with the problem of conformity of accounting and analytical support to the needs of business management implies fundamental improvement of the theoretical and organizational principles of economic security. Therefore, amid the formation of information infrastructure that would meet the needs for useful business information of users who have different interests, timely provision of objective, reliable, unbiased information to stakeholders, strengthening control functions of accounting, improving analytic property, operational responsiveness of accounting information, as well as applying information flows to make informed management decisions to ensure the economic security of business processes, reduce costs and increase profitability of business entities, ensure preservation of their property and interests, increase in cash flow, strengthen financial stability, solvency, and improve business activity, and increase in competitiveness become more relevant.

Literature Review

The theoretical insights into issues related to accounting and analytical support of managing the activities of enterprises were made by T.M. Bezrodna (2008), H.L.

Hnylytska (2011), S.F. Holov (2003), A.H. Zahorodnii (2007), A.O. Kasych, R.M. Tsyhan (2017), I.N. Kyrylov (2014), T.Yu. Melnyk (2016), A.A. Pylypenko (2007), N.A. Tychynina (2009), A.M. Shtangret, L.P. Stetsiv (2017), P.V. Altukhov, N.V. Predeus, J.W. Predeus (2019), and other scholars.

Acknowledging the scientific and practical value of the works of these scholars, it should be noted that national and foreign literature still lacks an adequate representation of some important aspects of economic security, namely when forming accounting and analytical support of economic security of business processes of a trade enterprise.

The aim of research is to substantiate the essence of accounting and analytical support of economic security of business processes of a trade enterprise from the perspective of system, process and structural approaches, and development of theoretical bases for the organization of its formation.

Methods

Analysis of academic publications on the essence and main characteristics of accounting and analytical support shows that this concept is widely used in relation to various objects of management and areas of activity of the enterprise. For example, the definitions suggested in works [Bezrodna (2008); Kasych, Tsyhan (2017); Pylypenko (2007)] correspond to the process approach, and in the works (Hnylytska (2011); Holov (2003); Zahorodnii (2007); Kyrylov (2014); Tychynina (2009)) to the system approach, according to which accounting and analytical support is treated as a unity of accounting, analysis, and audit systems, combined by information flows to manage economic processes, or as a data collection system that provides grouping of accounting information in the appropriate context for management needs, and preparation of financial statements.

Researchers provide definition for the concept of "accounting and analytical support" from the perspective of process and system approaches, which make it possible to consider it as a complex process that requires a clear organization, and in the general system of management decisions based on accounting and analytical and control information. In our opinion these approaches do not contradict, but complement each other. It is the combination of process and system approaches that provide an understanding of support as a set of interconnected elements, which is the result of consistent actions aimed to create the conditions for the implementation of targets by type of business processes and functional areas of activity.

Results

The study of foreign and national experience of the use of accounting and analytical information for management decisions in modern conditions shows that their effectiveness is contingent upon a set of specific manifestations of support (personnel, financial, informational, regulatory, technical support and other types of support).

Therefore, we suggest treating the accounting and analytical support of economic security of business processes of the enterprise as a set of interrelated procedures for accounting, analysis and control of economic security of business processes, which reflect all aspects of operation and development of the enterprise.

Streamlined and well-integrated system of accounting and analytical support, and, therefore, proper information support, ensure informed management decisions regarding the security of the trade enterprise.

The competitive advantages resulting from the use of high-quality accounting and analytical information are undeniable: it contributes to the most effective management decisions, which, in turn, leads to increased profitability of enterprises and, hence, significant economic benefits for external and internal users of reporting. Thus, the development of a system of accounting and analytical support of business processes with some automation adapted to the specifics of the operation of a particular enterprise ensures meeting the information needs of the objects of security, i.e. forming an information base for making relevant management decisions.

Based on the organization of the process of accounting and analytical support of economic security, suggested by the author (Melnyk (2016), p.8), it is proposed to consider this process in three stages (accounting, analytical and control) in terms of economic security of business processes as a continuous, sustainable process of information flows, which contains a set of stages and corresponding phases for the collection, transformation, distribution, access, storage and transmission of information (Fig. 1).
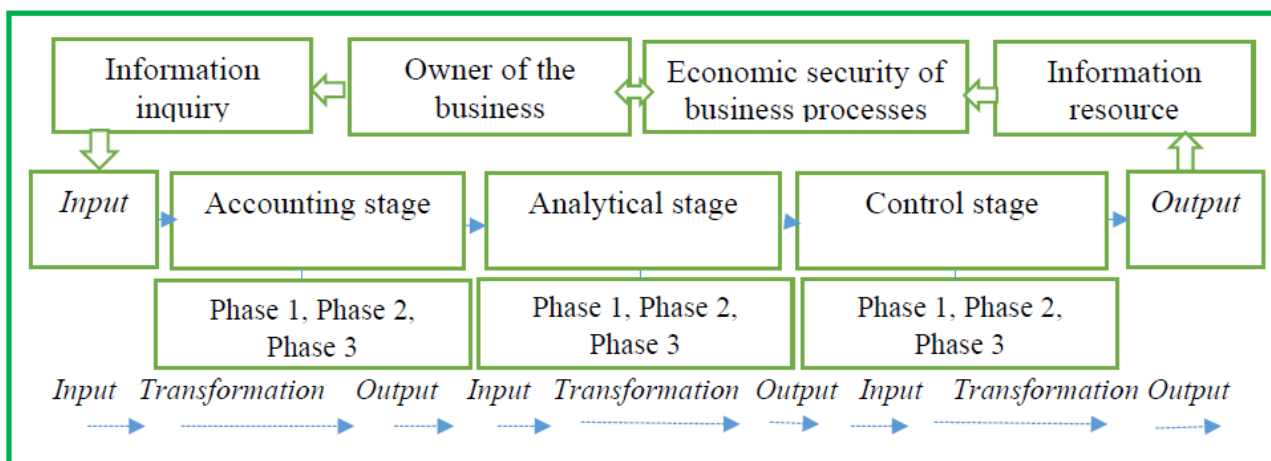
Figure 1. Organization of the process of accounting and analytical support of economic security of business processes of the enterprise
Source: completed by the author using (Melnyk (2016))

Information on the formation of information flows to ensure the economic security of the enterprise, moving from source to users, passes accounting, analytical and control stages, which provide a description of the objects of control (business processes) and meet the information needs of the subjects of control (owners and consumers of business processes).

Based on the research of some authors (Zahorodnii (2007); Kasych, Tsyhan (2017); Shtangret, Stetsiv (2017)) and own developments in the context of a structural approach to understanding the functional area of accounting and analytical support of economic security of business processes of trade enterprises three main

subsystems may be defined: accounting, analysis and control and tasks solved within them:

1) the accounting subsystem must be focused on the organization of accounting procedures to ensure the economic security of business processes of the trade enterprise. It includes:

• data collection of various types of accounting (management, financial, accounting for tax purposes, strategic, and others) in terms of business processes conducted at the enterprise;

• development of accounting documentation (primary, current, final) by its types;

• ensuring all types of accounting, and integration of the same;

• formation of a system of qualitative and quantitative (financial and non-financial) indicators in the reporting of the enterprise;

• distribution of information between owners of business processes in the enterprise.

2) the analysis subsystem must ensure the formation of complete information to ensure the economic security of business processes of the enterprise. It includes:

1. processing of accounting and reporting data using modern methods and models of analysis, aimed to ensure the safe operation of the enterprise;

2. selection of methodological approaches and criteria, indicators, indicators for assessing the level of economic security of business processes of the trade enterprise;

3. selection of methods of information processing to determine the level of economic security of business processes of the enterprise;

4. formation of analysis results in order to protect commercial secrets;

5. use of analytical tools in the activities of the business entity;

6. monitoring the current level of economic security of the enterprise as a whole, in terms of business processes and the main functional components;

7. meeting the information needs of the objects of security (internal and external).

3) the control subsystem must provide constant control over the key parameters for assessing the economic security of the enterprise, and monitoring of the same. It includes:

– control of initial goals and strategies of business processes;

– selection of procedures and means of control for the purpose of timely adjustment;

– development of a set of indicators that ensure an unbiased estimate of the quality and maturity of business processes of the enterprise;

– allocation of powers between existing structures to ensure the economic security of business processes, as well as periodic reallocation of responsibilities between them in order to avoid abuse and increase efficiency;

– risk identification, development of preventive safety measures, etc.;

– technology of inspections and procedure for documenting the identified discrepancies, detecting the causes and conditions of these deviations;

– use of tools to detect and correct errors (distortions) of information;

– providing information support in making management decisions aimed at the secure operation of the enterprise;

– development of management decisions to ensure economic security at the enterprise.

The proposed structure of the system of accounting and analytical support of economic security of business processes of the trade enterprise is shown in Fig.2.
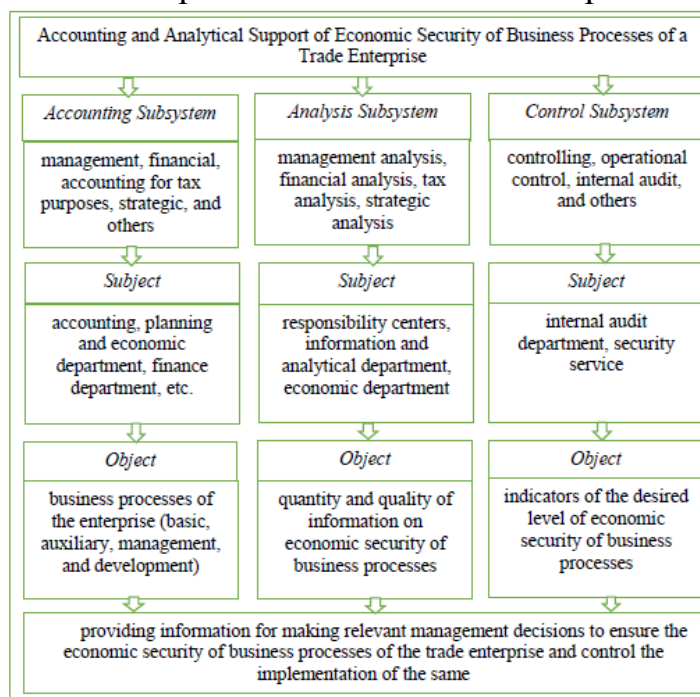
Figure 2. The structure of the system of accounting and analytical support of economic security of business processes of the trade enterprise
Source: authoring

Therefore, the level of consistency of accounting, analytical and control processes is essential for economic security of business processes of the trade enterprise, and hence, it is expedient to consider them cross-functionally, which is an important factor in improving the economic viability of business and its efficiency. Engaging personnel designated for business processes economic security (accountants, analysts and employees of the enterprise security service) implemented at the enterprise in the accounting and analytical support should help improve the economic security system and ensure a more flexible and adequate response to changes in the business environment, forming a safe basis of operation and development of the business entity. Moreover, to ensure efficient and safe organization of its activities, the company faces the challenge of adequate selection of information technology, hardware and software products for automation of the accounting and analytical process, which will satisfy its requirements to the greatest possible extent and take into account the peculiarities of modern business environment.

Conclusion

Formation of accounting and analytical support of economic security of business processes of the trade enterprise constitutes the ground for development, implementation and control over the implementation of relevant management decisions, which ensure the efficiency and stability of the enterprise, creating conditions for further development by means of timely detection and prevention of external and internal threats and dangers. The system of accounting and analytical support of economic security of business processes of trade enterprise must combine through the information flows the accounting, analysis and control subsystems to provide the most comprehensive representation of the actual level of economic security, determine the causes of change and potential negative consequences. Based on the systematization of academic understanding of the essence of the concept of "accounting and analytical support of economic security of business processes of the enterprise", we find it necessary to provide a redefined definition: a set of interrelated procedures for accounting, analysis and control of economic security of business processes representing all aspects of operation and development of the enterprise. Based on the authors' researches arrangement and own developments in terms of a structural approach to understanding the functional area of accounting and analytical support of economic security of business processes of trade enterprises, the following main subsystems have been identified: accounting, analysis and control, as well as tasks solved within them.

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MODERNIZATION OF APPROACHES TO HUMAN POTENTIAL MANAGEMENT IN THE DIGITAL ECONOMY

Abstract. *Global shifts and changes in the condition of the new economy are causing competency transformations at all levels of economic regulation occurring under the influence of the rapid introduction of innovative technologies all over the world and particularly in Ukraine. The tendency of the new economy is manifested in unexpected competence shifts, which require new knowledge and information, constant improvement in order to remain competitive and economically efficient during mobilization; make responsible management decisions promptly; create high technologies, etc.*

Current competency gaps are impeding the development prospects of the new economy in Ukraine during the introduction of HRM-technologies. The article will try to sufficiently explain the facts and assumptions that HRM-technologies can reduce the competence gap between technology, people, business, society and government bodies in the system of signs of the new economy. Having explored the needs of the labor market, the real situation and opportunities focusing on future changes, the article offers ways how to overcome competency gaps at the meta-, macro-, and micro-levels. The necessity to deeply transform popular competencies and digitalization of HRM-technologies, increase IT-competencies of HR-specialists, all subjects of labor relations, and transform the HRM-competencies of linear management is demonstrated in the article as well.

__Keywords:__ human potential, digital HR, digital economy, new economy, HRM-technologies.

Introduction

The topic of the study is quite relevant given the global shifts and changes occurring in the world due to the rapid introduction of innovative technologies and digitalization.

The competence and competitiveness of a worker in the modern world are determined by several key components: worldview, knowledge, abilities, and teamwork skills. People are doomed to live in a world that is constantly changing. Development and change are integral attributes of human's existence. Human society is forced to constantly change (Melnyk, 2018). The competencies of a modern leader, businessperson, manager, or administrator could quickly transform only by flexible thinking, high levels of adaptability and socialization. The tendency of the new economy involves unexpected competency shifts that require new knowledge and information, continuous improvement to be effective in conditions of mobilization and making rapid management decisions.

The main hypothesis of the given research is a reasonable assumption that HRM-technologies in the system of new economy can reduce the competency gap between technology, people, business, society, and government. After all, recent research shows that man is not evolutionarily ready for such rapid transformations. Based on the latest research, scientific facts and scientific theory data, the paper will try to sufficiently explain the facts in the framework of digitalization and transformational changes in labor and employment.

Literary review

Let us consider the main features and trends of the new economy. The key productive forces (value sources) in the new economy are human capital as a leading factor of production and business space, which has tangible and intangible components in its structure. It represents computer technology, information and digital technologies, artificial intelligence, robots and mechanisms, intellectual property, brand, organizational knowledge, able to make a profit with a much higher rate than physical capital.

Information as a universal leading asset in the new economy is changing the production relations of the post-industrial mode of production. There are following shifts in the sectoral structure of social production: capital and labor move from the industrial sector to the services sector, within which the share of intellectual services (education, training, science, consulting) is also growing. In property relations, more and more attention is paid to intellectual property on intangible assets: literary, artistic, audio, video items, computer programs, databases, maps, photographic products; objects of industrial property rights (inventions, utility models, industrial designs, innovative proposals, trademarks); brand and commercial names; geographical indications; plant varieties and animal breeds; topography of integrated circuits; trade secrets, etc.

In the field of money circulation, the role of intangible money and non-cash transactions is also growing, the value of virtual digital currencies (cryptocurrencies) is increasing. The information concept of pricing (founder - D. Bell) prevails in the

new information economy, which explains the key role of systematized information (knowledge) in the practical processing of existing production resources. The main source of value in XXI century is not the psychophysical efforts of a worker, but, above all, his or her intellectual potential, knowledge and experience. Modern theories of value and price are based on the ideas of optimization, and in the course of solving optimization problems, evaluations of products and the factors used for their production appear. The alignment of these estimates in the market leads to the emergence of so-called equilibrium prices, which are formed under the condition of free redistribution of products and factors between economic agents. This establishes an efficient allocation of resources - between companies and products - between households (Lobza & Yurchenko, 2015). The distribution of public goods in the new economy occurs based on the analysis of a huge amount of data, both structured and unstructured Big data on real consumption, income and expenditure of households. Radical changes in the new economy are also happening in consumption relations. In the consumption of material goods and material production resources there are more and more tendencies for the thrifty use of resources and individualization of consumption based on data-driven (data analytics for purposeful decisions and actions). Consumption of the main source of value - information and knowledge means that they are becoming the property of more and more people, that is, their consumption is identical to self-growth. Information and knowledge are phenomena that can be consumed in the production process in an unlimited number of reproduction cycles: the acquisition of certain amount of knowledge does not reduce their amount in the owner (Chyrka, 2016).

Results

Thus, information, knowledge and necessary competencies (digital, socio-behavioral and cognitive) are universal values of the new economy. The 2025 set of competencies are transforming, becoming much broader, deeper and more flexible. Experts from the World Economic Forum estimated that, as a result of the rapid digitization and integration of digital technologies and human labor, more than a third of the skill list valued in the labor market today may change again in a few years. A 2017 study by Deloitte «Consulting International Trends in Human Resource Management», which was featured by more than 10,000 respondents from 140 countries, noted a significant gap between technological changes in companies' operations and productivity growth, resulting in income inequality, lack of wage growth, social and political problems all over the world. Former drivers of net profit growth do not work in the new environment, as the market valuation of companies in the stock market over the past two decades depends on advances in intellectual property and services, rather than on the production of real goods or means of production. Deloitte experts attribute the reasons for this gap to the development of human capital strategies - ways of organizing, managing and developing business, as well as coordinating the activities of employees within working process (Rewriting the rules for the digital age, 2017).

According to Eric ("Astro") Treller, head of Alphabet's Google X division, the introduction of new technologies is ahead of the human ability to adapt to them, which is growing linearly. Moreover, if people adapt quickly enough to new technologies as users, companies have to make a lot of efforts to create information and technological breakthroughs in business. An even more bigger gap is emerging in the sphere of public administration: the dynamics of public policy in relation to income inequality, unemployment, immigration and trade are irrelevant to the challenges of the new economy and digitalization. These problems, which complicate the work of enterprises due to strict government regulation, high tax rates and strict legislation, are being addressed even more slowly than other legislative and policy changes on issues such as minimum wages, trade tariffs, immigration and education, as they are just starting to form after years of public debate.

In turn, the needs of the labor market, focusing on future changes, are recognized by leading scientists in the field of HRM as key factors for successful personnel management in general. And HRM-technologies in the system of signs of the new economy could reduce the competency gap between technology, people, business, society and government. The unique role of HRM-technologies includes: helping managers and organizations adapt to new technologies and constant change, employees - using new working models and making a successful career, and companies - adapting to changes in society, regulation and public policy.

HRM-technologies in the new economy are a set of innovative methods and tools of staff management, regulated by procedures, principles, technical and personal means of their implementation, which reliably ensure the achievement of results in human resources management during the process of solving current business problems according to the development strategies. Improving the level of HR-competence of modern administrators, economists and managers, as well as the effective use of HRM-technologies is necessary for solving problems in the labor market and certain business issues.

Back in 1998, Dave Ulrich, a professor at the University of Michigan, included two new roles in the HR manager competency model: organizational structure management (reengineering and optimization of HR business processes: "collective service") and change management (transformation management: proactive support for change processes). We define HR-competence as an ability to effectively perform specific functions of human resource management: attract, train and develop, organize working activities, evaluate, motivate and stimulate staff to achieve goals, develop corporate culture, and so on. The formation of HR-competencies in managers at all levels, administrators and economists is an important task of their training, both in the system of corporate learning and in the system of higher education. However, the variability of generations of employees, nature of work, improvement of HR-technologies will require constant updating of HR-competencies of line managers. Modern successful organizations use end-to-end management and information technologies in HR management (Rewriting the rules for the digital age, 2017; Spyrs, Bolton, 2019).   Our proposed definition of HRM technology provides methods of automation / digitization as integral components of HRM technology, while IT

competence is one of the most essential competencies of the current century. This is required due to following factors:

- digitalization of HR-technologies and almost all business processes;

- change of generations in the labor market - the entry into the market of the "digital generation", born with gadgets in their hands;

- development of behavioral sciences, discoveries of which are actively used in the creation of IT technologies and improvement of artificial intelligence;

- volatility of changes and uncertainty of the future.

Thus, in order to modernize the competencies of personnel management entities, it is necessary to increase the IT competence of HR specialists on the one hand and raise the HRM competence of line management on the other.

Since the accumulation of human capital involves both society in the form of state and civil society, enterprises (consumers of human capital) and people themselves as the bearers of human capital, the measures should be comprehensively developed at three management levels: macro (state), meta (professional communities, public organizations), and micro (enterprises and organizations).

Let us comment on the proposed ways to overcome competency gaps in the development of HRM-technologies in the new economy.

According to the Recommendation of the Council of Europe on key competencies for lifelong learning, digital competence is a confident, critical, responsible use and interaction of digital technologies for learning, work and participation in social activities. I.O. Kravchuk identifies the following digital competence clusters of a personnel manager (Kravchuk, 2018):

1. Computer and platform literacy, which are the basic skills of digital competence.

2. Data design and data-ethics, which includes the ability to present data by modern digital means of visualization and ethical handling of personal, financial, marketing, as well as other kinds of data.

3. Analytics as a tool for data processing and professional analysis.

4. Social intelligence as an understanding and use of social tools, including social networks.

5. Innovative thinking (Kravchuk, 2018).

Such a classification, in our opinion, although relevant in terms of the possibility and necessity of their formation in HR-specialists, still needs to be clarified in more pragmatic and special terms of such broad concepts as social intelligence, which is not necessarily formed and manifested in digital interaction, and innovative thinking.

According to HR managers, the main obstacles at the initial stage of transformation in HR services, which are only implementing or have already implemented initiatives in the field of digital transformation, are professional skills (51%) and staff potential (43%). Most CIOs also cite the level of staff qualification as a major barrier, with 65% of respondents surveyed in 2018 citing a "shortage of skilled professionals" as a major factor slowing the pace of change in their IT companies (Spyrs & Bolton, 2019).

Fig. 1 - Ways to overcome competency gaps in the development of HRM-technologies in the new economy

Volatility of changes and uncertainty of the future

Development of behavioral sciences

Generation change in the labor market

Digitization of business processes

Modern requirements for the competencies of staff management entities

Linear managers

HR specialists

HRM-competence

IT-competence

Formation and development measures

Improving managerial training programs

Modernization of labor legislation in the direction of synchronization with digital opportunities and the changed nature of labor and labor relations

Extensive promotion of HRM technologies, flexible teams, interaction with different generations

Massive Open Online Courses (MOOC) in HR management

Corporate programs for the development of HRM competencies

Knowledge portals, distance learning, chatbots of corporate communities

Self-education

Transformation of the education system in the direction of ensuring the formation of digital skills

National programs for digitization of public services, education, medicine, transport, ecology, etc.

Extensive promotion of digital skills and STEM education

Massive Open Online Courses (MOOC) on digital skills

Corporate programs for developing digital skills

Training by software and digital product providers

Knowledge portals, distance learning, chatbots of corporate communities

Levels of regulation

Macro level: state

Meta level: Professional communities, public organizations

Micro level: Organizations

We consider it necessary to adhere in the definition of digital competence to the definitions and clusters of 21 digital competencies of the future, prescribed by the European framework Digital Competence (DigComp 2.0), which will be discussed below.

The principal influence of the state on the formation of IT competencies in the population as a whole, including future managers, HR professionals could be:

- direct - improvement of general education programs in the direction of intensification and modernization of computer science teaching.

- indirect - creating a favorable environment that encourages and interactively develops people's IT competencies.

In the process of implementing the «New Ukrainian School» project, changes were implemented to the State Standard of Primary School, which ensured the withdrawal of computer science from the integrated course "I explore the world" into a separate subject. However, the formation of digital literacy or "digital intelligence" requires the implementation of a combined strategy of measures to reform formal education (from primary to higher) and non-formal education.

In particular, the project «Digital agenda 2020», developed by the Hi-Tech Office Ukraine, provides for the following principal tasks in terms of digital literacy and skills in the public educational segment:

• Situation analysis. Conducting an independent qualitative and quantitative research on the availability of digital skills in different groups (civil servants, teachers, students, young workers, the unemployed, people with disabilities, retirees, representatives of small and medium businesses), determining criteria for influencing the development of digital skills, the major obstacles to the use of digital technologies and specific tools;

• Based on this research - developing a list of digital skills and competencies for target audiences in individual industries by line ministries;

• Development of quality educational materials, revision and updating of training programs for advanced education and training of civil servants, educators and unemployed people;

• Development and promotion of publicly available online and offline digital literacy courses, including blended learning to cover a large number of people from different walks of life based on the adopted European Digital Competence Framework (DigiComp 2.0.);

• Measurement and certification of digital skills. Adaptation of the methodology of measurement and implementation of independent certification of the level of digital skills in accordance with the needs of the labor market;

• Harmonization of the regulatory framework governing the certification of digital skills in civil servants, teachers, other segments, according to international requirements, as well as the regulatory framework for additional accruals to salaries where digital competencies are confirmed;

• Introduction of mandatory digital competencies for civil servants, education workers, scientists (by analogy with knowledge of English), unemployed categories;

• Promoting the relevance of digital literacy among citizens («Tsyfrova adzhenda Ukrainy – 2020», 2016).

The Ukrainian Institute of the Future has developed a strategy for country's economic development with the principal strategic direction - digitalization of the economy, namely the transformation of existing analog (sometimes electronic) products, processes and business models of the organization based on effective use of digital technologies. Implementation of the strategy, according to its developers, would increase Ukraine's GDP by 8 times, ensuring the share of the digital economy in GDP by 65% and the creation of 700 thousand new jobs. To do this, the government and the business should take the following steps:

1) implement projects for the construction of solid infrastructure:
- develop a fixed broadband infrastructure;
- develop mobile Internet infrastructure;
- develop radio infrastructure (LoRaWan, etc.) for Internet of Things projects;
- develop public infrastructure for Wi-Fi access;
-develop computing infrastructure (so-called cloud, or virtualized infrastructure);
- create cybersecurity infrastructure.

2) create soft infrastructures - identification and trust infrastructure (citizen ID, mobile ID, bank ID), open data infrastructure, public services (e-government), interoperability, e-commerce and e-business, transaction-processing infrastructure, life support infrastructure, geoinformation infrastructure, blockchain infrastructure.

3) initiate and implement digital transformation projects, integrate these initiatives into local, regional, national development projects (Ukraina 2030 E — kraina z rozvynutoiu tsyfrovoiu ekonomikoiu, 2018).

At the *meta level*, development of 21 digital competencies of the future, which are defined by the European framework Digital Competence (DigComp 2.0) could be implemented through professional and public communities: the ability to process information and digital content; ability to communicate and interact in the digital environment; ability to create digital content and write program code; ability to safely use and dispose of digital technology devices, protect personal data and intellectual property; ability to solve technical problems and use ICT creatively (Systema tsyfrovykh kompetentnostei 2.0., 2019).

STEM education is a favorable environment for the formation of IT competencies. The uniqueness and suitability of STEM education for the formation of skills of the future lies in the organic combination of exact, natural sciences and arts with information technology. For example, musicians in STEM education are taught not only to make music, but also to use computer programs to create musical products (Systema tsyfrovykh kompetentnostei 2.0., 2019). At the *micro level*, individual companies can create corporate programs to develop digital skills of employees. This is now becoming relevant for enterprises in the post-Soviet space. The latest studies of the corporate education market in 2019 show the largest shortage of qualified staff in the field of IT/digital technologies.

Table 1

Curricula fields of corporate universities in Ukraine

	Academy DTEK	Academy Deloitte	Business Academy E&Y	ArselorMittal University in Ukraine	Metinvest University	Academy of of Continuing Education DNIPRO[M]	Business School Nova Poshta	ATB Training Center
Product training						+		
Effective sales, customer focus	+		+	+	+	+	+	+
Marketing		+		+			+	
Management skills,	+	+	+		+	+		+
Public speeches	+		+			+		
Development of personal effectiveness, coaching	+	+	+			+		
Business etiquette and communications, negotiations	+	+	+		+	+		
Getting to know a company for new employees						+		+
Production management, labor protection				+	+			
Business processes, operational management			+		+		+	
Strategic management		+	+					
Project management	+	+	+					
Financial management		+	+	+	+		+	
Resource management, supply, accounting	+	+	+	+				+
Change management	+							
Risk management			+	+				
HR-management	+	+		+			+	+
Coaching and mentoring	+	+	+					
Informational technology		+ (MS Excel)	+	+				
1C System								+
Digital communications							+	
Research and development				+				
Law				+				

Source: compiled by the authors using the sources: (Akademiia «Deloit», 2019; Korporatyvne navchannia,2019; Akademyia DTƎK. Trenynhy,2020; Shkola biznesu Nova Poshta, 2020; Kariera Metinvest, 2020; Lytovchenko,2017; Universytet ArselorMittal v Ukraini,2020; Uchbovyi tsentr ATB, 2020).

A review of Ukrainian corporate university programs revealed several interesting tendencies. First, many corporate universities, which were successful in the 2000, have ceased to exist. For example, the Ukrainian Agricultural School "Mriia" disappeared with the restructuring of the holding company and the change of ownership, Privat University "Privatbank" transformed into an online internship program, UMC-University also disappeared in the process of acquisition by Vodafon. Only corporate universities of vertically integrated mining and metallurgical giants have survived - DTEK, ArcelorMittal, Metinvest and branches of international consulting companies Deloitte, E&Y. Table 1 presents the analysis results of curricula presented on the official websites of these universities and training centers, by areas.

As can be seen from Table 1, the most complete training package is presented at corporate universities of multinational corporations ArcelorMittal, Deloitte, E&Y and the Academy of Continuing Education DNIPRO. However, the names of the training programs of the last training center are more pragmatic and aimed at developing middle management competencies, while open programs in Deloitte and E&Y are aimed at the formation of competencies of top management and professionals with a high level of qualification in the field of finance, audit, HR-management. However, special courses on digital skills development are presented only at ArcelorMittal University in Ukraine (as a specialized Academy of IT users, which offers a training system for Microsoft Office software products: Word, Excel, Access, PowerPoint, Outlook and functional modules of the integrated enterprise management program SAP), Deloitte, E&Y academies (as aspects of leadership training). A separate thematic module on digital communication skills is presented in the program of Business School «Nova Poshta». It can be concluded that most in-house training centers of Ukrainian companies do not plan to develop digital skills of their employees. At the same time, open programs for the development of digital skills by software developers and web designers are actively offered by large IT companies: SoftServe, Epam, Luxoft, NixSolution, etc. Almost all IT companies have in-house professional courses.

Many companies in this sector create joint courses with information technology departments for students who learn programming and computer science for their future employment. Thus, one of the leading players in the Ukrainian IT services market - Ciklum - has been a partner of the Ukrainian Catholic University since 2016 in a master's course in computer science and Data Science. The international IT company GlobalLogic now cooperates with 15 Ukrainian technical universities. Every year, more than 2,500 and 1,000 students from the Ukrainian offices of EPAM and Luxoft participate in educational programs («Laboratorna robota», 209). However, the above-mentioned courses are not connected with digital literacy, which is necessary for any person to live successfully in the information economy, but professional courses for obtaining an IT specialty and employment in this field.

Thus, organizations aiming at digital breakthroughs in the new economy also need to pay attention to overcoming the competency gaps of employees in the field of digital literacy. This need is already being felt by companies in developed countries:

it is defined as one of the HR trends of 2020, and according to ABI research: the market of VR (virtual reality) training programs will reach 6.3 billion dollars by 2022 (Meister, 2020).

Existing competency gaps can also be resolved through the organization of training by software and digital product providers, which is offered as an additional after-sales service. Yet, this way of overcoming digital incompetence is limited both in terms of educational content and staff coverage.

In terms of optimizing staff costs, it is important to use distance learning methods to overcome digital illiteracy. Chatbots have significant potential for overcoming gaps in IT competencies. Interaction with a bot in the learning process creates skills of digital literacy.

Similarly, to overcome the competency gaps in line managers regarding HR competence, measures have been developed at the macro, meta and micro levels (Fig. 1): improvement of managerial training programs; modernization of labor legislation in the direction of synchronization with digital opportunities and the changed nature of labor and labor relations; wide promotion of HRM-technologies, flexible teams, interaction with different generations; Massive Open Online Courses (MOOC) in HR management include: corporate programs for the development of HRM competencies; knowledge portals, distance learning, chatbots of corporate communities; self-education; creating conditions for the active acquisition of the necessary cognitive and digital competencies, staff retraining, assistance in the adaptation of personnel to the changing environment, etc.

Conclusions

The conducted reviews of technological and digital changes allow to draw conclusions about the further deep transformation of the necessary competencies and digitalization of HRM-technologies. It is proved that in order to overcome the competency gaps of the subjects of labor relations it is necessary on the one hand to increase the IT competence of HR specialists, all staff members; on the other hand – improve the HRM-competence of linear management.

Also, in the context of the given research, we propose the definition of HRM-technologies as a set of innovative methods and tools of staff management, regulated by procedures, principles, technical and personal means of their implementation, which reliably ensure the result achievement in human resource management during the process of accomplishing business objectives according to the targeted development strategies. The proposed definition envisages ways of automation / digitization as an integral component of HRM-technologies, while IT competence is one of the indispensable competencies of the current century.

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