UDC 005.95/.96:[331.522.4:658](045)
DOI: 10.15587/2312-8372.2018.141066

Voloshyna S.

FORMATION OF A MULTILEVEL SYSTEM OF HUMAN CAPITAL MEASUREMENT INDICATORS

Об'єктом дослідження є вимірювання людського капіталу підприємства. Виступаючи початковим етапом управління даним капіталом, процес вимірювання у нинішньому вигляді характеризується наявністю суттєвих наукових прогалин. Серед основних – вузьке коло елементів людського капіталу для вимірювання, обмеженість характеристик за окремими елементами капіталу, вибір останніх без належного обґрунтування, ототожнення процесів вимірювання та оцінювання тощо. Встановлено, що збереження відзначених прогалин загрожує бізнесу прийняттям необґрунтованих управлінських рішень, наслідком чого виступатиме уповільнення розвитку людського капіталу при погіршанні якісних характеристик або навіть його втрата.

Визначена необхідність чіткого розмежування змістовності і результатів вимірювання та оцінювання людського капіталу як суміжних процесів єдиного управлінського контуру. Представлена класифікація показників вимірювання людського капіталу підприємства, що у комплексі відображає завдання даного процесу та потребує формування системи відповідних показників. Визначено вимоги до системи показників вимірювання людського капіталу підприємства та її рівні, їх відповідність стадіям відтворення даного капіталу. Доведена доцільність виокремлення окремих підсистем за елементами людського капіталу підприємства та засобами забезпечення функціонування цих підсистем, що відповідає архітектоніці даного капіталу та об'єктам управлінського впливу.

Обґрунтовано наповненість підсистем вимірювання людського капіталу підприємства за елементами «капітал освіти», «капітал заохочення», «капітал мобільності», «капітал здоров'я», «капітал культури» та у розрізі засобів забезпечення функціонування відзначених елементів. Запропоновано процедуру вимірювання людського капіталу підприємства за комплексними і загальними показниками його стану та показниками ефективності його використання.

Реалізація на практиці розроблених пропозицій дозволяє послідовно і поглиблено ідентифікувати стан людського капіталу підприємства, розвиток засобів забезпечення функціонування його окремих підсистем, ефективність використання сукупного людського капіталу. На відміну від аналогічних відомих методів запропоновані підходи створюють підґрунтя для подальшого комплексного оцінювання як характеристик людського капіталу, так і важелів управління ним.

Ключові слова: *людський капітал підприємства, багаторівнева система показників, засоби забезпечення функціонування.*

1. Introduction

The success of Ukraine in the implementation of social and economic development tasks and its integration into the world community depends to a decisive degree on the decision of all subjects of economic relations to effectively manage human capital. The latter in the conditions of spreading the knowledge economy around the world is considered the main criterion of the country's economic development and competitiveness, a priority factor in the economic activity of business entities and the comprehensive development of the individual. Low development of human capital as a result of poor management of it is the reason for the low level of wages, its significant differentiation, rapid labor migration, social tension in society and other problems, well-known Ukrainian.

Therefore, the study of issues related to ensuring a targeted impact on the characteristics of human capital and the conditions for its effective use, in a condensed version, reflects the main task of management, is an extremely topical direction of scientific research. The urgency of overcoming the problematic aspects in the management of human capital is growing at the micro level, which is formed by enterprises and workers, who respectively are consumers and bearers of human capital. Meanwhile, the enterprise itself is mainly a place for direct interaction of these economic entities and the realization of their interests. Therefore, the question of studying the processes of human capital management, the main ones of which are measurement, assessment, planning and control, are extremely important for the enterprise, form the basis of the national economy. Moreover, management effectiveness is ensured at each of the above stages, requires perfection of the scientific and methodological approaches used, their understanding by business and its compliance with its tasks.

2. The object of research and its technological audit

The object of research is the measurement of human capital. Acting as the initial stage of managing this capital,

ISSN 2226-3780

the measurement process in its current form is characterized by the presence of significant scientific gaps:

– a narrow range of elements of capital for measurement;
– limited characteristics of individual elements of capital;
– choice of the latter without proper justification;
– preferential application of cost indicators;
– identification of measurement and evaluation processes like that.

Preservation of these gaps in methodological approaches threatens business by adopting unjustified managerial decisions, which will result in a slowdown in the development of human capital with deteriorating quality characteristics or even its loss.

3. The aim and objectives of research

The aim of research is development of scientific and methodological approaches to measuring the human capital of an enterprise based on the rationale for a multi-level system of indicators of the given managerial process. Achieving this goal implies the solution of the following tasks:

1. Define the requirements for the development of a system of indicators of measuring the human capital of an enterprise, its content and hierarchical composition.

2. Prove the fullness of the metrics subsystems with the selected levels.

4. Research of existing solutions of the problem

Human capital is a reflection of man's productive abilities to work, which bring income to its owner and other economic subjects involved in its reproduction. However, at present there are no unified approaches to its measurement and further evaluation through the operation of a number of factors. These include: the complexity of this category, the diversity of opinions on the elemental composition and results of use, the multiplicity of measurement procedures and the like.

For a long time, scientific controversy has continued about the priority and importance of approaches to measuring human capital. So, in work [1] the importance of the income approach on the basis of definition of a monetary estimation of workers on the sizes of the capitalized incomes is marked. However, such an assessment is based on a generalized characterization of the qualities and properties of an employee.

The author of [2] expanded methodological approaches to the evaluation and measurement of human capital by natural indicators. However, the author's measurement procedure is reduced to establishing the most perfect natural indicator, which recognizes the educational potential.

Work [3] is devoted to the value of human capital, calculated on the basis of its profitability, taking into account the qualifications and capitalization of employees' income. In practice, this proposal was not confirmed, since the analysis of human capital is limited to assessing the staffing, training and income of employees.

Supporters of the cost approach in [4–6] advocate the need to structure human capital in terms of the costs of reproduction of labor, considering their composition in different ways. At the same time, the author of [4] approaches the task through the definition of the dependence of wages on the costs of education and training, as well as the development of personal abilities of a person. In this formulation of the problem, the research is focused on the measurement of personal human capital, which do not coincide with the tasks of the development of human capital.

The paper [5] presents a limited composition of costs for the reproduction of labor (education, health care and mobility), does not correspond to the modern tasks of human capital development.

The author of [6] additionally includes the costs of training, motivation, improvement of working conditions and costs associated with disloyalty of staff in the labor costs. With this allocation of costs, the content of the characteristics of human capital is lost, and their replacement by investment directions.

In work [7] questions of measurement of return from investments into the human capital, which the author connects mainly with the added economic cost are considered. Single-formatting results of the use of human capital simplify research and limit the flow of information for managing it.

Many proposals in the scientific community express the need to use a combination of approaches to measuring human capital. Thus, in [8] the expediency of combining the income component of the evaluation of the results of labor activity and the cost of money for the reproduction of an employee is proved, but the composition of the latter is limited by the costs of education.

The authors of [9, 10] emphasize the importance of a balanced approach to the measurement of human capital and note the inconsistencies in the methods, indicators and information base of this process, without offering suggestions for overcoming existing problems.

In general, an analysis of scientific thought on approaches to measuring the human capital of an enterprise showed the following:

1. In modern research, the approaches, methods and indicators of measurement are gradually being expanded and the process of assessing human capital and the scope of their application followed in the management contour. This applies to the use of combined approaches to research on the basis of a combination of different methods, as well as the increasing use of natural indicators. The latter directly reflect the characteristics of human capital and are always on a par with the value indicators in the system of indicators. In turn, a specific combination of measurement methods is determined by the goals and objectives of the research program.

2. The procedure for measuring and evaluating human capital is applied to a relatively narrow range of elements of this capital.

3. The number of indicators in most cases is limited and does not reflect the full or about the completeness of the content of the productive abilities of workers. So, relative to each element of human capital, an average of 2 to 5 characteristics is investigated. And the choice of indicators for measurement does not contain a deep justification, which, first of all, should be based on the content of the characteristics of human capital, which are combined into a certain element of it.

4. Despite the complex nature of scientific research on the management of human capital, its reproduction, development, investment, etc., the measurement and evaluation tools are narrow. The most common methods are the production function model, correlation-regression analysis, life cycle model, matrix model, etc.

5. In most studies, the concept of «measurement» is identified with the «evaluation» concept. The existence of such scientific gap creates the ground for a superficial study of human capital, the possibility of obtaining a significant error in the results and causes the probability of making irrational managerial decisions.

5. Methods of research

The theoretical and methodological basis of the research is the theory of human capital and general scientific and special methods:

– system approach – to determine the essence of the system (subsystem) of indicators of measuring the human capital of the enterprise, to develop a hierarchical composition of a multilevel system of indicators;

– typologies – to determine classification characteristics and differences in indicators, the formation of a system and subsystems of indicators, establishing the essential links between indicators;

– analysis, synthesis, comparison, generalization – to identify scientific gaps in the study, the formation of subsystems of indicators, evaluation of research results, the formulation of conclusions.

6. Research results

The adoption of management decisions of any kind is logically preceded by measurement and evaluation procedures. This approach is related to the requirements of the principle of objectivity of scientific research, which assumes the validity, accuracy and reliability of the information base in combination with scientific arguments. It is generally possible to express the famous American proverb «only what is measured and estimated is performed».

According to the modern encyclopedia «measurements are actions that are performed in order to find numerical values of any value in the accepted units of measurement» [11]. So, measurements are necessary to formalize the description of the investigated phenomena and processes. And the most important components of the research object are to be measured, and its general properties should be reflected. In turn, the evaluation (evaluation) is interpreted, in particular in the dictionary-reference of the terms of scientific and technical documentation, as «a systematic determination of the degree by which an object satisfies the established criteria» [11]. And also in the Accounting dictionary – «as the establishment of quality someone, degree, level of something; expression of opinion, judgments about the value or significance of someone» [11]. Based on the above, it can be argued that evaluation is the logical continuation of a measurement that provides a qualitative characteristic of phenomena and processes. It is carried out by comparing the results of measurement with the accepted criteria or on the basis of judgments of specialists. In view of the above issues, it is proposed to improve existing scientific approaches to measurement and the associated process of assessing the company's human capital based on:

1. A clear delineation of the measurement and evaluation processes in accordance with the nature of these terms, with the following results:

– for the measurement process – numerical values of a certain value;

– for the assessment process – the compliance degree of the level of indicators, obtained as a result of the measurement, the established criteria (norms or normal restriction) and/or the desired direction of the changes, as well as qualitative professional estimates.

2. Formation of a multi-level system of indicators, with the use of which it becomes possible to sequentially identify:

– state of the human capital of the enterprise;

– development of means for ensuring the functioning of its individual subsystems;

– effectiveness of the use of aggregate human capital that simultaneously answer the author's developed architectonics of the given capital [12], proposals for a narrow (collapsed) chain of its reproduction [13] and the requirements of the principles of system, complexity, concreteness, hierarchy. In general, the proposal is presented in Fig. 1.

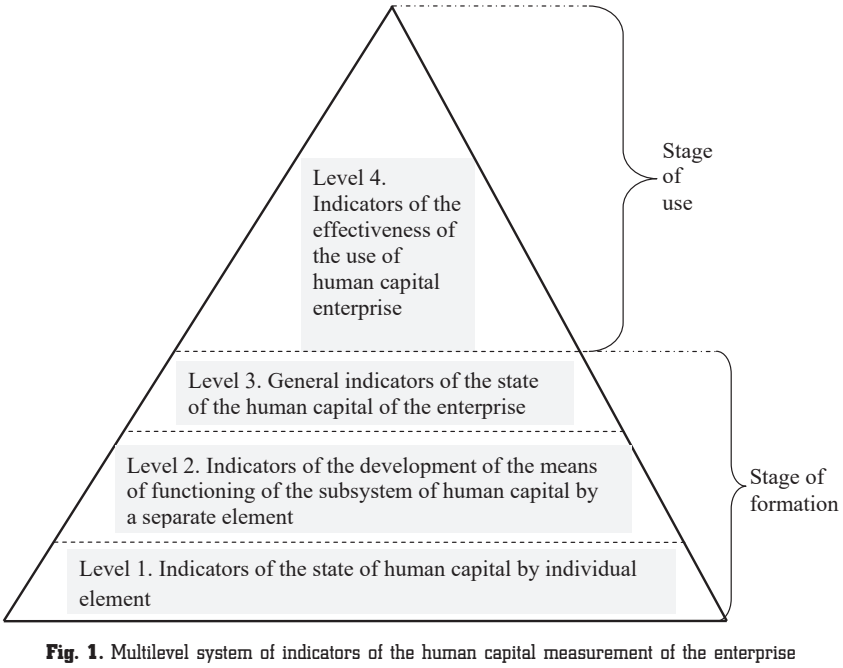

Fig. 1. Multilevel system of indicators of the human capital measurement of the enterprise

ISSN 2226-3780

Separately, attention should be paid to level 2, the indicators of which expand the traditional analysis of the human capital of the enterprise, as it creates an opportunity for further integrated assessment of both the characteristics of human capital and its management levers.

3. Classification of indicators of the human capital measurement of the enterprise (Table 1), which in a complex reflects the tasks of this process and puts forward the requirement of forming a system of indicators.

Table 1

Classification of indicators of the human capital measurement of the enterprise

Classification sign	Indicators	Assignment of indicators
In terms of coverage of characteristics (elements) of human capital	a) partial (single) enlarged and detailed	a) to display one characteristic (quality) in expanded and collapsed form
	b) complex (group)	b) for simultaneous display of several characteristics or measurement of an element as a whole
	c) general (integral)	c) to determine the human capital of the enterprise as a whole
By time of submission	a) static	a) for measurement within one period
	b) dynamic	b) for comparison over several periods
According to the form of expression	a) natural	a) to reflect in a physical and conditional meters a certain characteristic of human capital
	b) labor	b) to determine, through the number of staff and working hours, individual characteristics of human capital and the effectiveness of its use
	c) value	c) to determine the size of an individual element or the size of the aggregate human capital
According to the calculation method	a) absolute	a) to display the size of the value of a single characteristic or human capital in general, without referring to other indicators
	b) relative	b) to find the level, average values, determine the dynamics, as well as the effectiveness of the use of human capital
	c) specific (structural)	c) to determine the significance of a particular characteristic (element) in the aggregate human capital or group, and also to assess their formation
According to economic content	a) quantitative	a) to display the size and changes of human capital
	b) quality	b) to display the essential features of human capital and determine the effectiveness of its use
If possible, measure the cause-effect relationship	a) productive	a) to determine the impact of several factors, among which there are those that characterize human capital
	b) factorial	b) to determine the reasons for the change in human capital or its impact on the result of the activities of the enterprise
According to the formation conditions	a) planned	a) to reflect the conditions of the future period
	b) reporting	b) to display conditions of the period that has passed

Under the system of indicators of the human capital measurement of an enterprise, one should understand such set of them, in which each separate indicator carries a certain semantic load, not duplicating other indicators. In combination, this leads to the possibility of obtaining a detailed comprehensive characterization of the object of research and, in general, creates an information basis for making adequate managerial decisions.

4. Development using a multilevel approach to the formation of a system of human capital metrics for detailed subsystems.

The subsystem of indicators of measuring human capital is a part of its general system that performs a local task of determining the content characteristics of an individual element, means of formation, or a separate stage of reproduction of a given capital. In the subsystem all indicators are placed in a certain logical ordering.

In Table 2, the subsystem of indicators of the human capital measurement of the enterprise behind an element «the capital of formation» is presented. The filling of this subsystem is based on the fact that the capital of education includes the knowledge, skills and abilities of the employees of the enterprise. That is why the partial indicators of measuring the capital of education should reflect:

– the level of ownership by employees of the enterprise with certain concepts, theories, phenomena (understanding of knowledge), which is determined by the educational structure of the staff;
– practical actions that are performed for a long time by employees at their workplaces for the high-quality performance of assigned tasks (understanding of skills and abilities), determined by the categorical structure of staff;
– simultaneous possession of theoretical knowledge and practical skills and abilities, which are determined by the qualification level, the use of qualifications, the quality of work and the like;
– intellectual abilities as «mental characteristics of a person that manifest themselves in her ability to solve various tasks» [11], and therefore also represents a combination of knowledge and skills based on a higher level of mental qualities of their bearer and are inseparable from man. Let's suggest mapping this characteristic of education capital to the enlarged indicator «the level of realization of the intellectual abilities of staff»;
– cost form of education, which is represented by the costs of vocational training (education and special training).

Let's also proceed from the fact that each indicator of such subsystem should perform a separate function and be constructed in the best way both in the form of the expression and in the calculation method (Table 1).

So, the enlarged indicator «the composition and structure of staff by level of education» should be presented in the format of absolute and relative values of the qualitative characteristics of the potential of human capital. They are a reflection of the ability of the bearers of labor to generate new productive abilities necessary for performing tasks of varying complexity.

The indicator «enlarged educational structure of staff» should characterize the proportions in the qualitative characteristics of the potential of human capital in terms of performing general and special works. These proportions are subsequently taken into account when determining the sources of investment in vocational training and factors affecting the level of wages.

Table 2

The subsystem of indicators of the human capital measurement of the enterprise behind an element «the capital of formation» which components knowledge, skills and abilities act

Enlarged partial indicator			Detailed partial indicator
11. Level of general competence of the staff	1. Structure of staff by level of education, persons/%		1.1. Number (percentage) of employees with a full higher education. 1.2. Number (percentage) of workers with incomplete higher education. 1.3. Number (percentage) of workers with secondary special education. 1.4. Number (percentage) of workers with secondary general education. 1.5. Number (percentage) of workers with incomplete secondary education
	2. Enlarged educational structure of the staff is, %		2.1. Percentage of workers with general education. 2.2. Percentage of workers with special education
	3. Composition and structure of staff by category, persons/%		3.1. Number (percentage) of managers. 3.2. Number (percentage) of professionals. 3.3. Number (percentage) of specialists. 3.4. Chiselnost (percentage) of technical employees. 3.5. Number (percentage) of workers
	4. The categorical structure of the staff is enlarged, %		4.1. Percentage of the administrative and managerial staff (information workers) (AMP). 4.2. Percentage of workers
	5. The load factor for workers, AMS/100 workers		
	10. Level of professional competence of staff	6. Average qualification level of workers	
		7. Coefficient of using the qualifications of workers	
		8. Coefficients of labor quality	8.1. The coefficient of labor quality (by the number of omissions in the work). 8.2. The coefficient of labor quality (by the amount of deductions from wages)
		9. Row of realization of intellectual abilities of the staff	9.1 The number (percentage) of inventors and rationalizers, people/%. 9.2. Coefficient of rationalization of staff, rat. prop. for 1 thousand people
12. The capital of education in the cost-based approach (accepted for the costs of vocational training)			12.1. Capital education (investment in vocational training), c.u. 12.2. Average costs of vocational training, c. u./person. 12.3. Percentage of costs of vocational training in labor costs, %

The enlarged indicator «composition and structure of staff by category» is assigned the function of mapping the role and place of a person in the labor process, in the management hierarchy, as well as the possible nature of participation in the management of human capital. In turn, the enlarged categorical structure of staff should reflect the proportions in the possibilities of realizing human capital in the spheres of intellectual (creative) and physical labor.

The indicator «load factor for workers» may indicate the existence of a reserve to optimize the size of human capital on the basis of an estimate of the proportions between the enlarged categories of staff. The average qualification level of the workers will provide information on the level of knowledge and work skills that have been formed by the vast majority of workers.

The indicator «coefficient of using the qualifications of workers» will demonstrate the degree of conformity of the knowledge, skills and abilities of the staff to the requirements for the performance of the intended works. An addition to the above indicators is the labor quality coefficient, which can be expressed in two forms and which will indicate the level of knowledge, skills and realized skills. This determines the qualitative performance of work and the increase in the funds allocated to the reproduction of human capital.

The intellectual or creative component of the capital of education is inseparable from the employee, can be detailed represented by indicators that reflect the realized at the enterprise capacity of the mental abilities of the staff in the format of recognized inventors and rationalizers. The set of indicators that measure the degree of knowledge, skills and abilities, including the level of realization of intellectual abilities, their use by workers in professional activity, is proposed to be defined as an aggregate indicator «the level of professional competence of the staff». After adding to this set of indicators that characterize the overall level of knowledge, let's obtain an aggregate indicator «the level of overall competence of the staff».

The enlarged indicator «capital of education in cost-based approach» reflects in the monetary form the accumulation of the productive abilities of workers (knowledge, skills and abilities) due to education and special training and is adopted at the level of costs for vocational training. The basis for determining the importance of the capital of education and other elements of human capital is the cost of labor or the cost of labor. In work [14] it is defined as «the size of the actual expenses of the employer for the maintenance of labor», corresponds to the result of measuring human capital according to the cost approach.

Table 3 presents the proposal to fill the subsystem indicators of measuring the means of providing capital education. During the development of the subsystem, they came out of the Law of Ukraine «On Professional Development of Workers». In it, vocational training is seen as «the process of targeted formation of special knowledge among employees, the development of necessary skills and realized skills...» [15]. Thus, the means of ensuring the functioning of the «capital formation» subsystem is vocational training.

The indicators, which are included in Table 3, are detailed by types of vocational training and enlarged categories of personnel and presented in a form suitable for making managerial decisions. In particular, the groups of personnel

ISSN 2226-3780

of various types of work, the periodicity of training, its duration, and costs should be considered objects of managerial influences in this process.

Table 3

Subsystem of indicators for measuring the means of ensuring the functioning of the «capital of education» subsystem

Partial indicator	The expedient expansion of the indicator
1. The number (percentage) of workers who have undergone primary vocational training, persons/%	–
2. The number (percentage) of workers who have been retrained, persons/%	including: 2.1. Workers. 2.2. AMP
3. The number (percentage) of employees who have improved their qualifications, persons/%	including: 3.1. Workers. 3.2. AMP
4. The total number (percentage) of workers, were covered by vocational training, persons/%	including: 4.1. Workers. 4.2. AMP
5. Periodicity of vocational training, year	including: 5.1. Workers. 5.2. AMP
6. The total number of hours for vocational training, persons-h.	including: 6.1. Workers. 6.2. AMP
7. Average number of hours for vocational training of an employee, h.	including: 7.1. Workers. 7.2. AMP
8. Duration (percentage) of holidays for training, which is paid by the enterprise, h./%	–
9. A part of employees who have passed certification, %	including: 9.1. Workers. 9.2. AMP
10. Specific costs for the professional training of the employee, c. u./h.	including: 10.1. Workers. 10.2. AMP
11. Expenses for vocational training, % to payroll fund	–

Note: developed on the basis of [15]

Table 4 presents proposals for filling the subsystem of indices of measuring the capital of promotion, which consists of material motivation (the function of moral encouragement mainly fulfills the capital of culture) [12].

Table 4

The subsystem of indicators of the human capital measurement of the enterprise behind an element «the capital of encouragement» in a part of material motivation

Enlarged partial indicator	Detailed partial indicator
1. Capital of promotion (adopted by the company's personnel remuneration fund)	1.1. Total wage fund, c. u.
2. Fund of remuneration of the personnel of the main activity, c. u.	2.1. The general fund of a payment. 2.2. Basic Wages Fund. 2.3. Additional Wages Fund. 2.4. Other incentive and compensation payments (excluding material assistance and amounts provided by the enterprise, labor and social benefits to employees and their families)
3. Average wages at the enterprise, c. u.	3.1. Average wage of one employee. 3.2. Average wage of one employee of the main activity personnel. 3.3. The average wage of one worker. 3.4. The average wage of one AMP employee
4. Percentage of labor costs in costs for employees, %	

Presented in Table 4 indicators are mainly valuable, because:

– in this form it is convenient to compare them with the value of consumer goods, the receipt of which is part of the system of the economic interests of the employee;

– in this form they are included in the expenses of the enterprise, which is connected with the realization of the economic interests of the enterprise as a business entity.

So the wage fund as the total wage and its average size are the incentive motive for economic and labor activity for all participants of economic activity and constitute the basis of the subsystem of indices of measuring the capital of promotion. The indicator «percentage of labor costs in labor costs» is relative and reflects the level of this capital.

At the same time, attention should be paid to the need to exclude from other incentive and compensation payments the amount of material assistance and benefits to workers entering the capital of culture (the «social protection» component). This makes it possible to avoid re-counting, since the main function of the above payments is precisely the additional protection of employees and is not related to the results of their work. Table 5 offers proposals for filling the subsystem of indicators for measuring means of providing material motivation.

They are based on:

– factors forming the wage fund, in particular the level of minimum and average wages;

– elasticity (sensitivity) of the average wage to changes in key performance indicators of the enterprise;

– structure of wages;

– taxes on personal income;

– arrears in payment of wages.

The developed subsystem of indicators is mainly built on relative indicators, which are presented on the basis of a different level comparison of wages indicators.

As a result of measuring material motivation as a means of providing capital, an information base should be developed in the form of appropriate indicators. Their use is aimed at adjusting the levels and structure of wages (minimum and medium) in the enterprise in such a way as to ensure the full realization of its basic functions (reproducing, stimulating, regulating and social).

The subsystem of indicators of measuring the mobility capital is presented in Table 6. In its development, the content of the term «mobility», which [11]:

– in the Great Encyclopedic Dictionary it is defined as «mobility, ability to move quickly, to act»;

– in the Financial Dictionary – as «a measure of the ability of the factor of production to move between spheres of use»;

– in the dictionary of geography – as «the state and the ability to be mobile. This term applies to people who readily change their place of residence or work in search of better earnings, or to a particular person and his household when the social and property situation changes».

In the context of the theory of human capital, they agree with the view that mobility is interpreted as «a person's ability to qualitatively improve and qualitatively change life...» [16]. With this broad position, it is advisable to measure the forms of mobility in the subsystem of indicators: external and internal.

Table 5

Subsystem of indicators of measuring the means of ensuring the functioning of the «capital of encouragement» subsystem in terms of material motivation

Enlarged partial indicator	Detailed partial indicator
1. The level of the minimum wage in the enterprise, c. u./%	1.1. Minimum wages in the enterprise, c. u. 1.2. The level of the minimum wage in the enterprise, % of the subsistence minimum of the able-bodied person. 1.3. The level of the minimum wages at the enterprise, % of the world's minimum wages (EU). 1.4. The level of minimum wages in the enterprise, % of the minimum wage in the country. 1.5. The minimum wages in the enterprise, % of the minimum wage in the industry. 1.6.The level of the minimum wages at the enterprise, % of its average wages
2. Level of average wages at the enterprise, %	2.1. The level of average wages in the enterprise, % of the world average wage (EU). 2.2. The level of average wages in the enterprise, % of the average wage in the country. 2.3. The level of average wages in the enterprise, % of the average wage in the industry. 2.4. The level of average wages in the enterprise, % of the average wage in the region
3. The index of real average wages in the enterprise	
4. The level of net (net) average wages in the enterprise, c. u./%	4.1. Net average wages in the enterprise, c. u. 4.2. The level of net average wages in the enterprise, % to the subsistence minimum
5. The level of net average wages at the enterprise, adjusted for the amount of debt, c. u./%	5.1. The average amount of debt for payment of wages (without taxes),c. u./persons. 5.2. Adjusted net average wages (without debt for its payment), c. u. 5.3. Level of adjusted net average wages, % to subsistence minimum
6. Structure of the payroll of the main activity personnel, %	6.1. Percentage of basic wages. 6.2. Percentage of additional wages. 6.3. Percentage of other incentive and compensation payments
7. Coefficient of elasticity of average wages for efficiency of activity	7.1. Elasticity coefficient of the average wages on labor productivity. 7.2. Elasticity coefficient of the average wages by expenditure. 7.3. Elasticity coefficient of wages on profitability of sales

Table 6

The subsystem of indicators of the human capital measurement of the enterprise behind an element «the capital of mobility»

Enlarged partial indicator	Detailed partial indicator
1. Structure and structure of personnel by age, persons/%	1.1. The number (percentage) of workers aged 15–34 (young people). 1.2. The number (percentage) of workers aged 35–49 years. 1.3. The number (percentage) of workers aged 50–54 years. 1.4. Number (percentage) of workers aged 55–59 years. 1.5. Charities (percentage) of working pensioners
2. Average age of staff, year	
3. Structure of personnel by total length of service, %	3.1. Up to 1 year. 3.2. 1 to 3 years. 3.3. From 3 to 10 years. 3.4. More than 10 years
4. Average total work experience of the employee, year	
5. Structure of personnel for the length of service at the enterprise, %	3.1. Up to 1 year. 3.2. 1 to 3 years. 3.3. From 3 to 10 years. 3.4. More than 10 years
6. Average work experience of an employee at a given enterprise, year	
7. Underemployment factor, %	
8. The coefficient of working time use	
9. Personnel movement indicators (external mobility)	9.1. Staff hiring turnover coefficient. 9.2. Staff firing turnover coefficient. 9.3. Total staff turnover coefficient. 9.4. Staff turnover coefficient. 9.5. Staff stability coefficient
10. Indicators of internal staff mobility, person/%	10.1. The number (percentage) of employees who are promoted to a position or qualification (AMP) and a higher rank (workers). 10.2. The number (percentage) of employees who are transferred to another equivalent place of work. 10.3. The number (percentage) of employees who are demoted or ranked (AMP) and reduced the level (workers)
11. The coefficient of elasticity of external mobility by factors of its change	11.1. Elasticity coefficient of staff turnover according to the adjusted net average wage. 11.2. Elasticity coefficient of staff stability by average costs for vocational training. 11.3. Elasticity coefficient of staff stability by average total health expenditure. 11.4. Elasticity coefficient of staff stability by average expenditure on the cultural sphere
12. The coefficient of elasticity of internal mobility by factors of its change	12.1. Elasticity coefficient of the number (percentage) of employees who are promoted and/or qualified (in the category) by the average costs of vocational training. 12.2. Elasticity coefficient of the number (percentage) of employees who are promoted and/or qualified (in the category) by average wages
13. The mobility rate in the cost-based approach (taken in terms of hiring and firing employees)	13.1. Total costs of hiring and firing workers, c. u. 13.2. Average costs of hiring and firing workers, c. u./persons. 13.3. Percentage of costs of hiring and firing workers in labor costs, %

ISSN 2226-3780

External mobility characterizes the movement of an employee outside the enterprise. Internal mobility is considered as a situation when an employee changes his workplace within the same enterprise, while receiving other professional tasks and other wages.

Indicators of «mobility» subsystem given in Table 6 consistently reflect the mobility potential, its form factors of impact (elasticity coefficients by forms of mobility).

Given the causal relationship between mobility and other elements of human capital, the means of developing mobility capital funds that also ensure the functioning of other subsystems (in particular, vocational training, material motivation, professional security, health care, etc.). A specific means of providing this subsystem should be considered information retrieval.

When developing a subsystem of metrics for measuring a given product, let's come out of the notion-base concept. Information is understood as «information that objectively reflects various aspects and elements of the environment and human activities. They are materialized in a form that is convenient for use, transfer, storage and/or processing by a person or by automated means» [11]. Thus, measuring the information retrieval process, which is designed to determine important characteristics of human capital, the revenue areas of its use can be reduced to determine the costs of its collection, transfer, storage, processing and consumption in the management process. By forms of expression, such indicators will be labor and value.

Work with information goes on constantly and is connected not only with the processes of hiring and firing, but what is most important – with the processes of use and development of personnel. Consequently, the costs of its search (including at the enterprise itself) should be considered on the basis of a broad approach. Therefore, this study constructed indicators of measuring the search for information on the basis of both the transaction costs for hiring and firing workers, and the total costs of the information sphere (Table 7).

Table 7

Subsystem of indicators for measuring the means of ensuring the functioning of the «mobility capital» subsystem in terms of information retrieval

Enlarged partial indicator	Detailed partial indicator
1. Expenditures on information personnel	1.1. Number (percentage) of workers in the information sphere, persons/%. 1.2. Size (percentage) of expenses for remuneration of information workers, c. u./% to the general fund of a payment. 1.3. Size (percentage) of administrative expenses, c. u./% to operating expenses
2. Expenditures on information technology, c. u./%	2.1. The size (percentage) of electronic computers, other machines for automatic processing of information, computer programs associated with them, other information systems, etc. in fixed assets
3. Capital/labor ratio in the information field, c. u./persons	
4. Productivity of labor in the information field	4.1. Productivity of labor, c. u./persons. 4.2. Productivity of labor (for administrative costs), c. u./c. u.
5. Expenditures on hiring workers	5.1. The size (percentage) of the costs of hiring workers, c. u./% to administrative (operating) expenses
6. The losses of the enterprise when firing employees	6.1. The size (percentage) of losses of the enterprise at firing workers, c. u./% to operating profit

When developing the subsystem of health capital metrics, let's start from the ability to display valuable physical abilities of the employees for the enterprise or the loss of these abilities. In this context, health is viewed as a separate element of human capital in terms of physical health, while aspects of mental health will be considered through the capital of culture.

When considering the total labor force (the staff as a whole) let's measure the health from the reverse, that is, taking into account the production injuries and diseases. The subsystem of indicators developed in such conditions is presented in Table 8.

Table 8

The subsystem of indicators of the human capital measurement of the enterprise behind an element «the capital of health» in a part of physical health

Enlarged partial indicator	Detailed partial indicator
1. Indicators of occupational accidents	1.1. The level of industrial injuries, injuries/1000 persons. 1.2. Finders of the frequency of fatal accidents, cases/100 persons. 1.3. The index of severity of injuries, days. 1.4. Duration of incapacity for work, days. 1.5. Level of losses, c. u./1000 persons. 1.6. The level of expenses for the prevention of accidents, c. u/1000persons
2. Indicators of occupational diseases	2.1. The level of occupational diseases, cases/1000 persons. 2.2. Duration of disability due to occupational diseases, days/1000 persons. 2.3. Duration of one case of occupational diseases, days
3. General indicators of morbidity	3.1. The level of the overall incidence of workers, cases/1000 persons. 3.2. Duration of temporary incapacity for work, days/1000 persons. 3.3. The total duration of one disease case, days
4. Percentage of persons who retired for disability, %	
5. Proportion of persons transferred to easy labor, %	
6. Incidence rate, %	
7. Health status, %	
8. Health capital in cost-based approach (adopted for total health expenditure)	8.1. General expenditure for health, c.u. 8.2. Average total expenditure on health, c. u./persons. 8.3. Percentage of total expenditure on health in labor costs, %

Note: developed on the basis of [17, 18]

The means of ensuring the functioning of health capital should be considered a unified system of occupational safety and health, consistent with the international standard «OHSAS 18001 Occupational health and safety management systems – Requirements standard», which is recognized by the International Organization for Standardization ISO. However, in the conditions of gradual transition of Ukraine to the requirements of this standard, it is advisable to consider as a separate means of a professional safety system (its base is the labor protection system) and a health protection system. The subsistence of the subsystem for measuring these means is shown in Tables 9, 10.

Table 9

Subsystem of indicators of measuring the means of ensuring the functioning of the «health capital» subsystem in terms of occupational safety

Enlarged partial indicator	Detailed partial indicator
1. Indicators of working conditions, benefits and compensation for work with hazardous working conditions and for the special nature of work	1.1. General level of working conditions. 1.2. Part of workers employed in jobs with harmful working conditions, %, including for harmful production factors (noise, vibration, severity of labor, labor intensity, etc.). 1.3. Percentage of employees who have been granted additional leave for harmful working conditions. 1.4. Percentage of employees who have additional leave for a special nature of work, %. 1.5. Percentage of employees who have a reduced working week, %. 1.6. Percentage of employees who are paid extra for working conditions, %. 1.7. Percentage of employees who are provided with free milk or other equivalent foods, %. 1.8. Percentage of employees who have established pensions by age on preferential terms, %.
2. Indicators of the level of labor protection	2.1. Safety compliance coefficient. 2.2. Coefficient of safety of technological processes. 2.3. Coefficient of technical safety of equipment. 2.4. Coefficient of safety of buildings and structures. 2.5. Security coefficient of personal protective equipment. 2.6. Provision coefficient for sanitation facilities. 2.7. Implementation coefficient of the plan of measures for labor protection. 2.8. Generalized coefficient of labor protection level
3. The integral indicator of occupational risk	
4. Expenditures for occupational safety (labor protection), c. u.	
5. Average expenditures on occupational safety (labor protection), c. u./persons.	
6. The percentage of expenditures on occupational safety (labor protection) in labor costs, %	

Note: developed on the basis of [17]

Table 10

Subsystem of indicators for measuring the means of ensuring the functioning of the «health capital» subsystem in terms of health

Enlarged partial indicator	Detailed partial indicator
1. Indicators of coverage by health insurance	1.1. Percentage of employees covered by health insurance, persons/%
2. Indicators of coverage by medical examinations	2.1. Percentage of employees covered by medical examinations, persons/%
3. Indicators of health workers' coverage	3.1. Percentage of employees, strengthened health in sanatoriums, dispensaries, rest homes, etc.
4. Expenditures on health care (without labor protection costs), c. u.	Including: 4.1. Medical insurance. 4.2. Sick leave. 4.3. Expenses for sanatorium-and-spa treatment. 4.4. Expenses for the maintenance of sports and health facilities
5. Average expenditure son health, c. u./persons.	
6. Percentage of expenditure on health in labor costs, %	
7. Expenditures for environmental activities, c. u.	
8. Average expenditures of environmental activities, c. u./ persons	
9. Percentage of expenditures on environmental measures in labor costs, %	

Note: developed on the basis of [17]

Let's pay attention to the fundamental difference between the occupational safety and health protection systems, consists in basing the first of them on the management of safety risks. If the measurement subsystem has been reflected in the relevant subsystem, in particular, in the integral indicator of professional risk in addition, to account for additional conditions. These are: the safety of technological processes, the safety of buildings and structures, the provision of personal protective equipment, and the provision of sanitary primitives. Thus, the basis for making managerial decisions on a much wider range of control objects is being expanded.

So, the professional safety system has a direction to reduce the level of occupational risk through the implementation of measures to prevent accidents and occupational diseases. And also the provision of compensation and benefits for harm caused by the working environment on the human body. The health system ensures the implementation of a wide range of preventive effects of the general for preventing the negative impact of a combination of factors of the production and household environment on the human body.

Measurement of the capital of culture must ensure that the requirements for the employee are reflected by the enterprise with respect to the possession of various creative, spiritual, moral, psychological and other abilities. Their manifestation in labor activity and social behavior contribute to the maximum effective performance of production vending. In developing indicators, let's proceed from the understanding of the term «culture» as «the aggregate of material and spiritual values, vital representations, patterns of behavior, norms, methods and methods

ISSN 2226-3780

of human activity» [11]. On this basis, let's also consider as integral means of securing the capital of culture:

– housing and communal services;
– social protection;
– cultural development.

Because of these, the social worker is socially active and protected, who is able to establish effective communications, be universal, flexible and the like.

Table 11 presents logically ordered proposals on the subsystem of indicators of measuring the capital of culture. Thus, the indicator «number and structure of personnel by group» characterizes the enterprise's potential for the development of the capital of culture, requires the availability of its own social infrastructure facilities and personnel for their servicing. The indicator «gender structure of personnel» should provide a socio-psychological portrait of the workforce as the potential for effective reproduction of human capital, the importance of the female component in this process, and the like. Indicators of social activity of personnel is a reflection of the approach to measuring the capital of culture using natural meters, whereas the cost dimension is spent on expenditures on the cultural sphere.

Table 11

The subsystem of indicators of measurement of a human capital of the enterprise behind an element «the capital of culture»

Enlarged partial indicator		Detailed partial indicator
4. Level of social competence of personnel	1. The number and structure of personnel by group, persons/%	1.1. Number (percentage) of personnel in core business. 1.2. Number (percentage) of personnel in non-core business
	2. Gender structure of the personnel, %	2.1. Women percentage. 2.2. Men percentage
	3. Indicators of social activity of personnel, %	3.1. Percentage of employees participating in cultural events. 3.2. Percentage of participating in sports events. 3.3. Percentage of employees participating in public and volunteer work. 3.4. Percentage of employees participating in enterprise management. 3.5. The general coefficient of the level of social activity of the staff
5. Capital of culture in cost-based approach (taken for total current expenditures on the cultural sphere)		5.1. The amount of current expenditure in the capital of culture, c. u. 5.2. Average current expenditure on culture, c. u./persons. 5.3. Percentage of current expenditure on culture in labor costs, %

Generalized above mentioned natural indicators are characteristic of the level of social competence of personnel. By it let's mean «the presence of communication and integration abilities, the ability to maintain relationships, influence, achieve one's own, correctly perceive and interpret the thoughts of others, express attitude toward them, conduct conversations, etc.» [11].

In Table 12 proposals on measuring the means of securing the capital of culture are summarized. The results of such measurement are structured by types of means and create a detailed information base for diagnosis and further activation of their action.

Table 12

Subsystem of indicators for measuring the means of ensuring the functioning of the «capital of culture» subsystem

Enlarged partial indicator	Detailed partial indicator
«Housing and communal services»	
1. Provision of employees with housing, %	
2. Indicators of the development of the material base of household use, %	2.1. Availability of places in preschool institutions, %. 2.2. Availability of public catering facilities, %. 2.3. Availability of consumer services, %
3. Current expenses for maintenance of housing and utility facilities (HUF)	3.1. The amount of running costs for the maintenance of HUF, c. u. 3.2. Average expenses for the maintenance of the HUF, c. u./persons. 3.3. The percentage of expenses for the HUF maintenance in labor costs, %
«Social protection»	
4. The cost of benefits to employees and their families	4.1. The amount of benefits to employees and their families, thousand. 4.2. The average size of benefits, c. u./persons. 4.3. Percentage of cost of benefits in labor costs, %
5. Material assistance to employees	5.1. Amount of material assistance to workers, c. u. 5.2. Average amount of material assistance, c. u./persons. 5.3. Percentage of material assistance in labor costs, %
6. Deductions to social funds	6.1. Amount of deductions to social funds, c. u. 6.2. Average amount of deductions to social funds, c. u./persons. 6.3. Percentage of deductions to social funds in labor costs, %
«Culture development»	
7. Indicators of the level of cultural development	7.1. Implementation coefficient of the plan for cultural events. 7.2. Implementation coefficient of the plan for sports events. 7.3. Implementation coefficient of workers with cultural objects. 7.4. Implementation coefficient of employee security of sports facilities. 7.5. Implementation coefficient for recreation facilities, %. 7.6. The general coefficient of the level of cultural development
8. Current expenditures for the maintenance of cultural objects	8.1. The amount of current expenditure on the maintenance of cultural objects, c. u. 8.2. Average expenses for the maintenance of cultural objects, c. u./persons. 8.3. The percentage of expenses for the maintenance of cultural objects in labor costs, %
9. Culture development expenditures	9.1. The amount of expenditures on cultural development, c. u. 9.2. Average expenditures on cultural development, c. u./persons. 9.3. Percentage of expenditures on cultural development in labor costs, %

The procedure for measuring human capital according to Fig. 1 continues in the format of calculation of complex and general indicators of the state of human capital.

The complex indicator of measuring human capital reflects its group characteristics, which can be obtained on the basis of:

– definition of the most significant characteristics of human capital, involves the use of expert methods. The results of such measurement are subjective in nature, where the probability of significant errors and the inclusion of non-essential characteristics in the sample is not excluded;

– by the method of partial indicators, it is rationally possible to implement the computer program «Statgraphics».

A full assessment of the human capital of an enterprise can be achieved by using a system of common measurement indicators, the proposals for filling it out are presented in Table 13. This proposal reflected the systematization of the basic approaches to the measurement of human capital, both within the framework of the investment (investment) approach considered by the author, and the alternative income approach.

Table 13

The system of general indicators of the human capital measurement of the enterprise

Group of indicators	Indicator
By cost (investment) approach	the value of human capital in production (investment in labor in production)
	the total cost of human capital (total labor costs)
	the average cost of human capital in production
	average total cost of human capital
By income approach	the value of human capital (profit from the use of capital, adjusted to the rate of interest)
	the future value of human capital by the method of discounting
	market value of human capital (comparison with industry average profitability)

Fig. 2 presents proposals for filling the system of indicators of measuring the efficiency of the use of human capital of the enterprise and methodological approaches to their calculation.

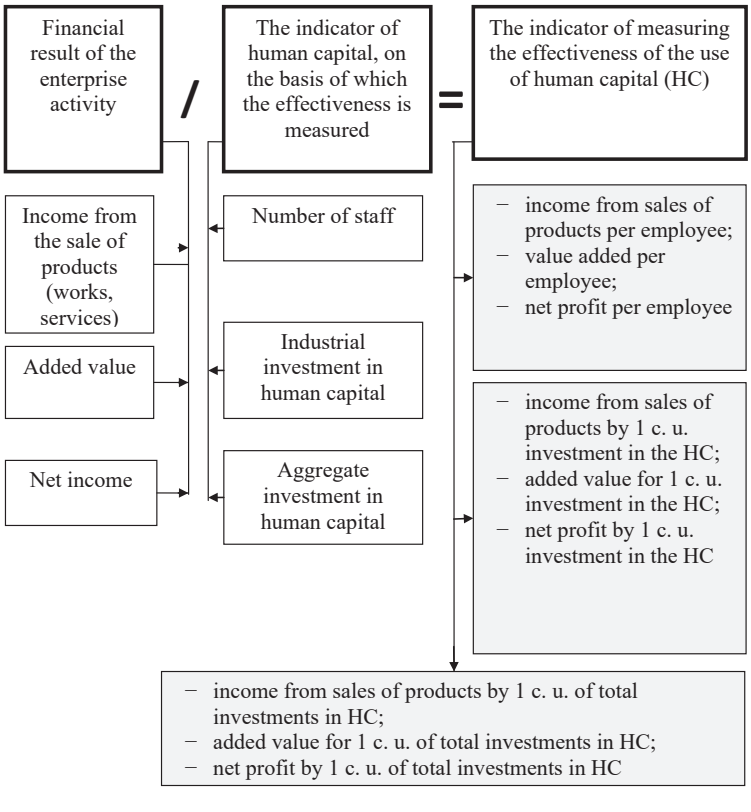

Fig. 2. System of indicators of measurement of efficiency of use of the human capital of the enterprise

Thus, the construction of a system of indicators measuring the effectiveness of the use of human capital is based on the main financial results of the enterprise. In addition, it is connected with the logic of the realization of its economic interests and a variety of investments that determine both the fulfillment of production tasks and realize the goals of human development.

In general, all the indicators that were included in the author's systems and subsystems of indicators of measuring human capital are chains of cause-effect relationships that integrate the goals of human capital development with the strategic and tactical tasks of the enterprise.

As a result of this measurement, the management of the enterprise will receive information for a comprehensive assessment of the characteristics of human capital, and therefore – for management. Thus, an approach to measuring and managing human capital has been developed: integrated measurement and evaluation helps to better manage capital, and effective management, on the other hand, helps to provide a more accurate estimate.

7. SWOT analysis of research results

Strengths. Strengths include:

– implementation of an integrated approach to measuring the human capital of an enterprise causes the possibility of a detailed diagnosis of the state and the effectiveness of its use, the definition of the levers of its management. This leads to the development, adoption and implementation of adequate management decisions with the optimal size of investment resources;

– proposal to include in the system indicators of measuring the development of the means of functioning of the subsystem of human capital by a separate element. It is aimed at increasing the effectiveness of the management process at the initial stage due to additional diagnostics of the means of influencing the development and efficiency of using this capital;

– formation of a system for measuring human capital, taking into account the proposal for a detailed classification of the relevant indicators, demonstrates additional possibilities for expanding the diagnosis. Expanding the forms of expression of indicators, taking into account the factor of time and other characteristics allows us to deepen both the evaluation of human capital and the establishment of priority factors of influence and its consequences.

Weaknesses. Weaknesses are:

– increase in the complexity of management operations, is overcome by proper information and application software;

– need for additional coordination of efforts on the part of specialists from various services who have different subordination. The obstacle is said to be overcome by creating a single coordinating center whose task will be to implement the full range of human capital management tasks;

– increase in the cost of the management of the enterprise as a whole for the totality of the above circumstances;

ISSN 2226-3780

– potential increase in the amount of investments in the human capital of Ukrainian enterprises due to the underdevelopment of the basic elements of their human capital to the level of world standards, causing an increase in the cost of production and changes in the policy of distribution of net profit. Meanwhile, only on the basis of the development of all components of human capital, Ukrainian business is able to create competitive products and to restrain the outflow of highly skilled labor, in the economic aspect, to mean obtaining a financial prize.

Opportunities. Further research in this subject area is associated with the development of approaches to assessing the company's human capital with the definition of the criterial values of the indicators obtained during the measurement stage. On the basis of the full theoretical results on the complex of problems of measuring and estimating human capital, an experimental study is proposed.

When implementing the research results, an increase in the level of controllability of production and social processes is expected. This becomes possible due to the purposeful improvement of the characteristics of human capital while maintaining the costs of its reproduction at a competitive level. The latter can be taken as the basis for optimizing the size of the aggregate human capital.

The results of the study may be of interest to researchers in other countries in an open economy, meaning the use of common approaches to managing human capital at all economic levels.

Threats. The threat of implementation of the results can come from:

– states in the event of deterioration in the parameters of its economic policy, the aspects of which directly concern the development of human capital;

– stakeholders of the enterprise in the event of a conflict of interest. To a greater extent, it refers to the position held by majority percentage holders, large investors, business owners who do not perform operational management and at the same time do not consider the task of managing human capital strategic tasks of the enterprise development.

8. Conclusions

1. To overcome scientific gaps in the subject area under study, a clear distinction is made between the content and results of measurement and evaluation of human capital, which act as adjacent processes in the composition of a single management contour. The classification of indicators of measurement of the human capital of the enterprise is developed, in a complex reflects tasks of the given process and demanded formation of system of corresponding indicators. It is determined that under the system of indicators of measuring the human capital of an enterprise it is necessary to understand such a set in which each individual indicator carries a certain semantic load without duplicating other porters. In combination, it leads to the possibility of obtaining a detailed comprehensive characterization of the research object and, in general, creates an information basis for the adoption of adequate managerial decisions. The hierarchical composition of the multilevel system of measurement indicators has been disrupted. It further allocates separate subsystems for the elements of the human capital of the enterprise and the means of ensuring the functioning of these subsystems. This approach corresponds to the architectonics of this capital and to the objects of management influence.

2. The substantiation of the completeness of the subsystems measuring the human capital of the enterprise on the elements «capital formation», «promotion capital», «mobility capital», «health capital», «capital culture» and in terms of means to ensure the functioning of the marked elements. The procedure for measuring the human capital of an enterprise based on complex and general indicators of its status and indicators of its effectiveness is proposed. In general, measurements under practical conditions of the human capital of an enterprise using the developed multilevel system allow to identify consistently and in-depth the state of the given capital, the development of means of ensuring the functioning of its individual subsystems, and the effectiveness of its use.

References

1. Petti V. Ekonomicheskie i statisticheskie raboty. Moscow: Direkt-Media, 2007. 324 p.
2. Antoniuk V. P. Otsinka ta zabezpechennia rozvytku liudskoho kapitalu Ukrainy: Abstract's Doctor of Economic Sciences thesis. Donetsk, 2008. 36 p.
3. Hadzalo A. Ia. Formuvannia ta vykorystannia liudskoho kapitalu v ahrarnii sferi rehionu Ukrainy: Abstract's PhD thesis. Bila Tserkva, 2010. 20 p.
4. Ricardo D. Principles of Political Economy and Taxation. Createspace Independent Publishing Platform, 2010. 220 p.
5. Mcconnell C. R., Brue S. L., Flynn S. M. Economics: Principles, Problems and Policies Global Edition. McGraw-Hill Higher Education, 2011. 920 p.
6. Pirozhkova N. I. Zatraty na personal predpriyatiya kak faktor, vliyayushhiy na velichinu chelovecheskogo kapitala predpriyatiya // Vestnik Dagestanskogo gosudarstvennogo tekhnicheskogo universiteta. 2011. Issue 21. P. 229–236.
7. Fitz-Enz J. The Roi of Human Capital: Measuring the Economic Value of Employee Performance. Amacom, 2009. 336 p.
8. Marshall A. Principles of Economics: Unabridged Eighth Edition. Cosimo Classics, 2009. 740 p.
9. Krakovskaya I. N. Izmerenie i otsenka chelovecheskogo kapitala organizatsii: podkhody i problemy // Ekonomicheskiy analiz: teoriya i praktika. 2008. Issue 19 (124). P. 41–50.
10. Tuguskina G. N. Razvitie metodov kolichestvennoy otsenki chelovecheskogo kapitala // Kreativnaya ekonomika. 2009. Issue 1. P. 82–87.
11. Slovari i entsiklopedii na Akademike. URL: http://dic.academic.ru
12. Voloshyna S. V. Arkhitektonika liudskoho kapitalu pidpryiemstva // Derzhava ta rehiony. Seriia: Ekonomika ta pidpryiemnytstvo. 2018. Issue 1. P. 46–52.
13. Voloshyna S. V. Zavdannia vidtvorennia liudskoho kapitalu pidpryiemstva // Ekonomika i upravlinnia v umovakh hlobalizatsii: proceedings. Kryvyi Rih: DonNUET, 2018. P. 55–57.
14. Instruktsiia po vyznachenniu vartosti robochoi syly: Nakaz Ministerstva statystyky Ukrainy No. 131. 29.05.1997. URL: http://zakon.rada.gov.ua/laws/show/z0258-97
15. Pro profesiinyi rozvytok pratsivnykiv: Zakon Ukrainy No. 4312-VI. 12.01.2012. URL: http://zakon.rada.gov.ua/go/4312-17
16. Bilyk O. M. Mobilnist v systemi liudskoho kapitalu: metodyka otsiniuvannia ta napriamky aktyvizatsii: Abstract's PhD thesis. Kyiv, 2009. 20 p.
17. Hohitashvili H. H., Karpachevski Ye.-T., Lapin V. M. Upravlinnia okhoronoiu pratsi ta ryzykom za mizhnarodnymy standartamy. Kyiv: Znannia, 2007. 367 p.
18. Hvozdyk N. M. Efektyvnist investytsii v liudskyi kapital na pidpryiemstvakh: Abstract's PhD thesis. Kyiv, 2011. 20 p.

Voloshyna Svitlana, *PhD, Associate Professor, Department of Economics, Donetsk National University of Economics and Trade named after Mykhayilo Tugan-Baranovsky, Kryvyi Rih, Ukraine, e-mail: voloshyna@donnuet.edu.ua, ORCID: http://orcid.org/0000-0001-7148-6923*