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Digital Transformation of the Economy: Challenges, Trends and New Opportunities

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Digital Transformation of the Economy: Challenges, Trends and New Opportunities

 Springer

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Human Capital Accounting Issues in the Digital Economy

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Abstract. The article discusses the issues of accounting for human capital in the digital economy. In the accounting community, company staff is recognized as an object of personnel records, but is not recognized as an object of accounting, cost accounting. The structure of accounting objects is proposed to include not only the property of the enterprise, but all the resources over which the company exercises control. The accounting methodology must respond appropriately to the development of accounting in the digital economy. At the same time, IT technologies cause significant modifications both in the methodology and in the applied direction of the science of accounting.

Many researchers believe that the main directions of transformation, in terms of improving the theory of accounting and reporting in the digital economy, are the areas of transformation of the digital economy: manufacturing, financial services, education, health care, and the media. As the analysis of theoretical sources showed, human capital management is not limited solely to economic studies of its value and value, but also includes the study of external social and mental effects. It became possible to estimate human capital by calculating the possibility of replacing an employee, including the cost of training or hiring a new employee. The general accounting model of intellectual capital considers the objects of accounting (structural, consumer, human capital, goodwill) from the point of view of the overall construction of the research process of a complex problem. A human asset can be identified, has evidence of its existence, can arise or cease to exist in an organization at an identifiable time point. In order to create effective accounting and management reporting in an organization, elements of human capital should be classified and accounted for as separate and independent human capital assets. In the context of focusing on the information needs of the stakeholders in the digital economy, the requirements for disclosing information, reducing the time needed to prepare and submit accounting (financial) statements are increasing.

Keywords: Accounting · Assets · Auditing · Digital economy · Human capital · Intangible assets · Intellectual capital · IT technologies

1 Introduction

Accounting issues of human capital are not theoretically developed, there is no clear definition (definition) of human capital in the scientific literature, researchers have not come to a common opinion regarding the methods of its financial evaluation. In the accounting community, company staff is recognized as an object of personnel records, but is not recognized as an object of accounting, cost accounting.

The development trend of accounting is the accounting of assets and the provision of information about the resources of the company, which cannot be fully controlled, which cannot be reliably estimated financially, but the use of which will lead to economic benefits. The structure of accounting objects is proposed to include not only the property of the enterprise, but all the resources over which the company exercises control.

Property is represented mainly in the form of intangible assets (methods of identification, valuation, accounting and reporting), while intellectual property (human, structural and consumer capital, goodwill) has not been comprehensively considered comprehensively.

Among the areas of development of the world economy stands out the transition to digital technology, where information is the main resource. This resource is of great value and acts within organizations as an intangible asset.

The accounting methodology must respond appropriately to the development of accounting in the digital economy. Particularly relevant is the problem of rethinking and developing a methodology for cost accounting and calculating processes and products. Solving the problem is caused by the need to analyze past activities and plan future ones.

One of the most important parts of the accounting system is the information component of the two subsystems - financial and management accounting. The reorientation from the control function to the informative one, based on the organization of points of digital transformation of the enterprise, is noted. It requires the development of new indicators, methods of collecting and processing not only financial information, but also the sufficiency of its integration with information about other aspects of business and the external environment. Analyzing the content of literary and scientific sources devoted to this problem, it can be argued that the development of the theory and improvement of accounting practices is metaphysically connected with the expansion of the information potential of the existing economic space. At the same time, IT technologies cause significant modifications both in the methodology and in the applied direction of the science of accounting.

Many researchers believe that the main directions of transformation, in terms of improving the theory of accounting and reporting in the digital economy, are the areas of transformation of the digital economy: manufacturing, financial services, education, health care, and the media. Particularly, it is possible to single out a study of the possibilities for evaluating new accounting objects, which are intellectual human capital, customer base, innovative products, R&D results, etc. [8].

Managing human capital in modern conditions is the management of humanity in the direction of enhancing the humanization of human relations, which makes additional political relevance of the topic of human capital internationally.

In theoretical terms, the clarification of features, principles of human capital management in modern highly competitive conditions can contribute to the development of forecast scenarios for the development of both a single enterprise and society as a whole in its macroeconomic scale.

An assessment of the degree of elaboration of the topic of human capital management in modern highly competitive conditions made it possible to reveal the theoretical lacunae available in studies of human capital.

As the analysis of theoretical sources showed, human capital management is not limited solely to economic studies of its value and value (future value), but also includes the study of external social and mental (social and psychological) effects that are important both for social relations and for internal political relations, society, as well as for international politics, if we talk about international relations in the field of production, distribution and use of knowledge and skills that make up *nova* human capital.

2 Materials and Methods

The growing importance of human capital has always been associated with the emergence of a new type of workers - the creative class in the conditions of a corporation of knowledge, characteristic of a new type of economy.

According to the definition of human capital [2], the following components can be distinguished:

- opportunities of workers (education, professional skills, experience, network of contacts, values and ideas);
- the growth potential of employees (the potential of the employee to achieve the goals of the organization outside of its current role);
- employee motivation (firm values as a basis for employee motivation);
- Innovation of employees' activities (contribution to the creation of new products and services of the company, loyalty to the changes of the company, the desire to learn).

Of course, it is almost impossible to evaluate these components. However, in order to measure work with human resources, a large number of various performance indicators have been created, including in terms of costing and pricing. Thus, it became possible to estimate human capital by calculating the possibility of replacing an employee, including the cost of training or hiring a new employee. As an alternative way to assess human capital, researchers B. Lev and A. Schwartz in 1971 proposed [10] to estimate the current value of all the income that an employee can bring to the company in the future.

However, these methods when trying to meet the requirements of financial statements face the problem in the form of the ambiguous nature of such a component of

intellectual capital as human capital, since its essence is dynamic and unstable for being able to be accurately assessed.

The terms “intellectual capital” and “intangible assets” are often used interchangeably. However, this approach is wrong, since there is a huge difference between these concepts. While intellectual capital implies almost all intangible sources of value creation, intangible assets are an identifiable non-monetary asset that does not have a tangible form. An intangible asset is a resource created as a result of an organization’s past actions (including purchasing or direct creation) and managed by an organization, with which the organization plans to gain economic benefits in the future.

According to this approach, intangible assets have the following characteristics:

- identifiability;
- the possibility of legal protection;
- the established ownership right;
- material evidence confirming the existence of the asset;
- the creation as a result of a specific event or an identifiable time interval;
- the possibility of destruction or termination of existence as a result of a specific event or the expiration of time.

Obviously, only a small part of the intellectual capital can meet the above requirements. Patents and trademarks in most cases satisfy these conditions. However, many other objects of intellectual capital are not suitable for these requirements. It is almost impossible to determine the moment when customer loyalty to an organization arises, the innovative spirit of a company arises or when an employee’s computer literacy ends. This is the main reason why, when working with IC assets, it is not the usual formulas for calculating cost that are used, but rather integrated circuits for determining approximate values.

The advantages of modeling include:

- (1) repeated use for the analysis of various situations;
- (2) modeling systems with a complex solution that cannot be expressed by one or several mathematical relationships;
- (3) requires mathematical skills much lower level than optimization models (optimization models) [13];
- (4) accounting is fractal, that is, there is an infinite variety of models that never repeat exactly as a result succeeds the scientific or practical school that concentrates the model that most closely matches the stochastic conditions of a market economy, which led to the use of several hundred models in accounting.

All these positions have led to the need to develop and test a general accounting model for intellectual capital.

Accounting objects in the general model with respect to recommended accounting systems are considered as follows:

- structural capital (reflected in financial and transaction accounting: managerial and strategic);
- consumer capital (not reflected in financial accounting and reflected in transaction accounting: managerial and strategic);

- human capital (not reflected in financial accounting and reflected in transaction accounting: management and strategic);
- goodwill (business reputation) is reflected in financial accounting and is not reflected in transaction accounting, that is, in order to avoid double counting, since transaction accounting regulates the value of business reputation from the moment of acquisition of goodwill and the result is related to the predicted goodwill. Goodwill is subject to regular revaluation.

The general accounting model of intellectual capital considers accounting objects (structural, consumer, human capital, goodwill) from the point of view of the overall construction of the research process of a complex problem, reflected in the form of blocks: accounting and analytical support; intellectual capital model; intellectual capital pattern; complex of defining problems of financial accounting (structured chart of accounts; traditional financial accounting; international model of financial accounting); transaction accounting; change accounting; expression of accounting results in the form of net assets and net liabilities; audit; control.

The general accounting model of intellectual capital is built in terms of efficient use of structural, consumer, human capital and goodwill from the standpoint of identifying growth assets and treating liabilities as an expected value to be created by subsequent investments, that is, based on the requirements of fair valuation and determination of net liabilities in market and fair valuations [7].

3 Results

International financial reporting standards typically include intellectual and human capital as internally created goodwill—expenses incurred by an enterprise to generate future economic benefits that do not meet the conditions for recognizing intangible assets such as identifiability (possibility of separation from other assets) and control (the opportunity to secure and restrict to others the right to receive economic benefits). Expenses arising from the creation of internal goodwill are not subject to capitalization and are recognized in the period they are committed according to IAS 38 Intangible Assets.

A human asset can be identified, has evidence of its existence, can arise or cease to exist in an organization at an identifiable time point.

Signs of an asset:

- (a) An asset brings economic benefits. Labor is a factor of production, allowing the employer to produce and sell products, works, services produced by workers. The company is able to receive future economic benefits from the use of a human asset throughout the term of the employment contract.
- (b) The presence of control over the asset. The acquisition of labor by the company is in the process of hiring, executed by the employment contract and the order to work. An enterprise has authority over an asset, it has the ability to influence income by exercising its authority. The employer has the right to impose requirements on the level of education, work experience, experience in the specialty and other requirements. Set the date of commencement of work, place of

work, working hours and rest time, the size and order of payment of wages. The employer assigns the employee specific work, monitors its implementation, in the event of non-compliance, the employee is disciplined. Thus, the employer controls the asset object.

- (c) Asset valuation. At the stage when labor activity has not yet begun, the person directs his efforts towards receiving upbringing and education. In order to adapt to the constantly changing conditions of the labor process, the employee repeatedly improves skills, improves skills and abilities. The financial valuation of a human asset is the monetary expression of the accumulated knowledge of the skills and abilities of an individual to obtain aggregate data on the organization when preparing financial statements.

The object is able to bring economic benefits in the future, the company has the right to receive economic benefits, the initial cost is determined and a human asset can be allocated as an object of accounting.

Accounting for a human asset is an orderly system of collecting, recording and summarizing information in monetary terms by means of complete, continuous and documentary accounting.

The organization discloses in accounting policy the ways of keeping records of human assets, namely: primary observation, cost measurement, current grouping, final summary.

In order to create effective accounting and management reporting in an organization, elements of human capital should be classified and accounted for as separate and independent human capital assets. Moreover, the classification of human capital is to some extent feasible: the number of new products, the assessment of customer loyalty, the percentage of employees with a degree - these quantitative indicators are almost identical to the assets of human capital (human, structural and relational capital). However, human capital assets are often interdependent, which excludes the possibility of separation from each other and subsequent independent classification. It is because of the complex nature of human capital that the approach to the inclusion of all assets of human capital in one asset - goodwill [14] has spread. If the contract price exceeds the market value of all assets, positive goodwill arises. Conversely, if the contract price is lower than the market value of all assets, negative goodwill arises [10].

However, these quantitative indicators are still difficult to translate into monetary value in order to include them in reporting or use them as a management mechanism. Moreover, even if monetary valuation becomes possible, management is much more difficult to convince management of its necessity. So, for example, if you try to evaluate the company's unique business methods, their patenting, valuation and valuation can lead to the loss of their uniqueness, for example, as a result of the publication of patent documents, which will lower their "cost" and destroy the competitive advantage of the company.

At the same time, the initiative to create a system of strict reporting, valuation and asset management of human capital should come primarily from investors and top management of the company, who are willing to invest their resources in the creation and development of human capital, and are interested in making informed decisions based on human capital asset reporting system. The development of such a reporting

system requires certain investments from investors, which, however, will pay off many times as a result of the implementation of this reporting system.

Considering human capital as a working example, let us try to imagine that this asset is human capital and its characteristics will be reflected in the company's reporting system. Suppose that employees of the company in question have higher computer literacy than competitors, and that this feature is a competitive advantage of the organization and, therefore, the cause of value creation. Of course, in this case, the investors of the company will be ready to invest in measures to improve computer literacy of employees, which means that developing an accounting system for the organization is necessary, because if computer literacy of employees is a competitive asset of the company, then it must be reflected in the financial statements.

However, it is difficult to assess the growth of computer literacy of staff, which has arisen due to investments of investors, and to separate it from the previous level of computer literacy, as well as from the entire set of IT skills of employees (such as programming, system administration, etc.) and the overall organizational culture of the company. This raises the problem of the monetary valuation of such a single asset, as computer literacy of staff, and therefore will not allow to determine the necessary investments of investors for growth and management of this asset.

At the same time, the company cannot pay off the debt to creditors using IT skills of employees or part of the organizational culture that encourages computer literacy, the founders cannot eliminate the IT skills of employees as a result of the company's bankruptcy, and sales management is unable to sell this human capital as an asset to persons wishing to purchase it. Thus, given that IT literacy of employees is an asset that does not have liquidity in the market, investors and founders of a company do not always support the development of a special reporting system for accounting for human capital assets.

In this regard, many investors are not ready to invest in the creation of such a system of reporting human capital assets, and many financial analysts cannot benefit from the existing reporting system, due to the problematic monetary valuation of human capital assets.

4 Discussion

The company's intellectual resources are the main value generators in the knowledge economy [15]. In this regard, such a knowledge management initiative, such as the creation of IC reporting for management purposes, can help expand the list of opportunities for assessing human capital at the organizational level. This initiative, linking the analysis and evaluation of human capital, will structure the priorities and goals of the organization, which in the conditions of the knowledge economy becomes a top priority.

J. Fitts-ents complains: "As far as accounting ignored human capital, you can see in almost any book on business ratios indicators related to employees appear only once, and then as an expense, and not profit" [6].

E. Flamholtz, identified three main criteria for recognizing human resources as an asset: potential gain, existence of rights of ownership or control by an economic entity, measurability in monetary terms [5].

Opponents of the concept of HRA believe: human resources cannot be reflected in the account as an asset due to the fact that the company does not have ownership rights to the person.

Researchers strive to take into account the fullness of the factors affecting the value of human capital, health, culture, the intellectual qualities of the individual, etc., propose calculation formulas for which the value of human capital is “not calculated”.

For the purposes of investment projects, business plans, it is important to have a database for computing, so that all corporations calculate the cost uniformly (using a uniform methodology), in this case the indicator will be informative for investors.

G. Becker determined the value of human capital on investments for special training. This is the time spent and the efforts of the student himself, the teaching activities carried out by others, and the equipment and materials used. G. Becker also referred to investment in human capital as payment for the services of employment agencies, the cost of finding a new job, the time spent on interviewing, testing, inquiring and clerical work, investments in health that increase productivity [1].

B. Newman argues that to a certain extent the capitalization of human capital is reflected in a reporting item such as “goodwill” and believes that the value of human intellectual capital is estimated by the buyers of the acquired company [11].

J. Fitts-ents refers to human capital expenditures (HCCF) on employee records and benefits, costs for non-permanent workforce, losses due to the lack of employees in the workplace, and employee turnover losses [6].

Competencies determine the skills needed to do the job effectively, while human capital addresses a global problem. That is, competencies relate to the decomposition, disintegration and sale of human capital. Thus, human capital is considered as a whole, or rational, with the value and uniqueness of knowledge. Taking into account the relationship between competencies and human capital, the next question arises: what do we consider, what competencies determine human capital in a company? Is it enough to say that it is valuable or unique? Or: is it possible to determine what conditions of competence and determine the value and uniqueness of human capital? The value and uniqueness of human capital are two concepts that differ in content, and in this regard, they are related to the company’s strategy, which clearly indicates the definition of these two values [3].

Human capital in auditing is fundamental to the audit industry. Does human capital in audit activity (on education, on the level of customers of auditors) affect the likelihood of financial distortion? Is there a link between professional experience, level of education and financial distortion? However, the question remains whether human capital in auditing affects the quality of auditing. Human capital can be formed through education and professional experience gained in the workplace, training, consumption and in-depth knowledge of the economic system. Among these factors, education and professional experience are considered as the two most important aspects of human capital. Education, an important component of human capital, can help people improve their cognitive abilities and solve ethical problems of human capital in auditing [16].

Organizational learning is becoming increasingly important for the strategic renewal of organizations in the digital and high-tech economy. Organizations with a huge variety, especially successful in the current environment, when firms must be effective and quickly adapt to change. Research results show differences in training between marketing and production units, as well as various methods of personnel management and types of human capital. Human capital mediates between the practice of HRM and learning [4].

In the context of focusing on the information needs of the stakeholders in the digital economy, the requirements for disclosing information, reducing the time needed to prepare and submit accounting (financial) statements are increasing. “Regulators in many countries of the world and far-sighted leaders of modern business are already actively thinking through the changes necessary to succeed in high-risk conditions when more demands are made on their business” [9].

Human capital is a collection of relatively stable qualities of individuals that determine the ability of people to generate effective solutions and allow them to create and disseminate innovations in the outside world. The most important functions of this component of intellectual capital as a single economic value of any business are the creation and dissemination of innovations, the creation and use of unique solutions to the problems encountered. The functioning of human capital serves the renewal, development and progression of economic entities [12].

5 Conclusion

1. Currently, the need for an effective system of reporting intangible assets remains high, and the concept of human capital, together with ordinary financial reporting, is most suitable for these purposes in the new economy, where knowledge is the source of wealth. We have investigated the reasons for the need to create a system of human capital-reporting, as well as factors that prevented the introduction of human capital-reporting in most economic entities.
2. Human capital assets are difficult to classify, evaluate, and identify and can often be used only in conjunction with other human capital assets, making it difficult to evaluate them separately and ultimately affect the reliability of the proposed human capital reporting systems. At the same time, an inefficient human capital-asset market does not allow an accurate valuation and increases the contract price many times in a transaction involving human capital assets, which, in turn, affects market participants and owners of assets who don't want to invest their resources in setting up a human capital-asset reporting system due to high costs. However, the most important problem in this area is the disagreement between the practice and the theory of human capital, since until the accounting of intangible assets and human capital accounting are separated from each other, the possibility of creating an accurate system of reporting assets of human capital is controversial.
3. It is necessary that the theoretical results be used in the development of methodologies and specific recommendations, the practical implementation of which will contribute to the effective implementation and development of the human capital accounting system in the digital economy. In addition, the situation suggests that

there is a need to accumulate experience in keeping records and disclosing economic information in financial statements based on fundamental modifications in the field of receiving, exchanging and processing economic information in the digital economy.

4. Observation and measurement of human capital today is possible only in the management accounting system of the organization. But even here, a conceptual framework for the financial assessment of human capital has not yet been created, which would have been widely used to manage it: there is no unequivocal judgment about the approaches to the financial assessment of human capital, to the disclosure of financial indicators of intellectual and business qualities, labor results.

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