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PROBLEMS OF ASSESSING THE COST OF HUMAN RESOURCES

Abstract
The impact of human capital on an organization's financial performance is examined. A model for quantitatively assessing human capital is proposed, allowing for the quantification of human capital. Human capital costs are structured, taking into account the return on each type of expenditure depending on specific factors.

Keywords: human capital, quantitative assessment, cost efficiency, intellectual capital.

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Introduction

Today, economic transformation is reflected in the growing importance of intellectual, digital, and informational innovations, which shape the competitive advantages of any given entity. Their practical use is justified by the level of development of human resources, the importance of which is growing every day. Personnel skills for mobilization, activation, and adaptability in the face of regular transformations, the ability to create new concepts, constantly expand their knowledge base, and strive for self-development—all of this contributes to the successful functioning and improvement of an enterprise. The expansion of the range of quality standards for human resources is driven by the need to deploy a development mechanism. In other words, a mechanism must be developed that addresses the specifics of an enterprise's functioning. The qualitative and quantitative transformation of personnel competencies must be achieved through a human resources development mechanism. The labor potential of each individual employee must also be taken into account. In the process of development, corporate human resources reach a new level. The characteristic features of corporate human resources stem from the high social importance of the institution of personnel management. Managers themselves must not forget about development. In this context, it is necessary to ensure the growth and development of competent specialists.

Developing a set of effective methods and tools for human resource development is particularly important. Since each company pursues specific goals, the path to human resource development also varies. Furthermore, human resource development experts have different views regarding which tools are most effective in this process. For this reason, the definition of the concept under study varies depending on the selected literary source. To provide the most comprehensive interpretation of the term under consideration, we will highlight the word "development" as its main component. Development is based on two approaches. First, from the Platonic perspective, development is defined as the uncovering, facilitating the activation of hidden potential.

From the mechanistic perspective, development is the transformation of an object aimed at improving its properties. Taken together, these approaches allow us to define development as a comprehensive improvement in terms of adaptation to external conditions, quality, and structure through the uncovering of potential and its active implementation. Next, it is appropriate to examine the concept of "human resource development." A preliminary analysis of literary sources reveals a wide variety of interpretations for this concept. Table 1 demonstrates an analysis of the term under consideration from a semantic perspective. Based on the most appropriate definitions, several conclusions can be drawn.

Table 1. Interpretations of the definition of "Human Resource Development".

Authors	**Definition**
Hentze I.	A personnel and economic function aimed at unifying all corporate entities to acquire the competencies required to achieve professional goals and objectives. This involves supporting the development of personal areas and competencies of employees in the context of changing activity areas and target accounting. Human resources development is carried out as an activity carried out between the performance of work tasks. In other words, it is improving the production potential of business entities.
Schmidt G., Marra R.	creating conditions at the enterprise that facilitate employee development in accordance with corporate goals and objectives.
North K., Prokopenko I.	Competent support and development of the personnel training process for the further implementation of corporate goals. To ensure the organization's continuous development and achievement of new heights, it is necessary to improve the competencies of employees and expand their professional knowledge.
Yanchenko E.	The totality of enterprise structures, business operations, methods, and resources required to deploy a human resource complex within an enterprise, facilitating the achievement of the organization's goals and objectives, meeting the needs of employees in terms of professional growth and development.
Vesnina V.	Implementation of a set of measures aimed at realizing the personal potential of employees, their skills, focused on achieving corporate goals and objectives.
Kibanov A.	A set of corporate and economic measures aimed at training employees, improving their qualifications, changing specializations within the company, and so on. The measures listed cover aspects of professional suitability, analysis of candidates for the desired position, personnel assessment, planning for further professional growth, interaction with talent pools

Source: Compiled by the authors based on [6,9,11,8].

Based on the above, it can be concluded that human resource development is a rather broad concept. According to the authors of this paper, a proper interpretation should encompass all areas. Therefore, the following definition is proposed: a complex, a process, a set of conditions aimed at the formation of two interdependent outcomes: the development of the necessary qualitative and quantitative structure, and the achievement of a competent individual (employee) based on corporate goals. Based on this, it is appropriate to identify two key functions of human resource development [10]:

- Supporting the activation of human resource development to achieve corporate goals and objectives;
- Creating conditions for the independent development of employees.

Human resource development is assessed as an activity with several stages. In specific circumstances, it is more logical to distinguish such stages as general state, regional, territorial (for example, locality), corporate, and personal. Three branches of human resource development should also be noted [10]:

- Structural-quantitative, aimed at maintaining labor productivity. The set of corporate functions requires ensuring a sufficient volume of human resources while taking into account labor standards. This branch also involves restructuring the workforce.
- Qualitative. In this case, the organization's employees must attain a level of education corresponding to their positions. The employees' drive to achieve goals and their high level of professionalism are the results of this

approach. In the context of improving the human resource development process, it is necessary to develop its components, reflecting the functioning of the entire mechanism [11]:

1. Focus on human resource development, particularly in relation to overall corporate goals and strategies. In this case, target benchmarks for the company's near-term position are assumed. It is appropriate to highlight several methods for target orientation based on the criterion of the final result:

1.1. **Management in accordance with instructions.** This is the basic and most common method for setting human resource development goals. It is closely linked to production functions and equipment. The goal of this method is to ensure that personnel conscientiously and effectively fulfill their assigned obligations and comply with organizational standards and work schedules. In this case, there is a need to develop clear performance indicators for the qualitative and quantitative structure of human resources, and for individual employees as a result. The limitations of the described method are its key drawback, but its use for specific human resources is still permitted.

1.2. **Target management.** In this case, the development of a set of harmonious criteria within which corporate and individual goals are linked is particularly important, subsequently calculating the compensation indicator. From the perspective of human resource development, development goals are defined as a mandatory component of work activity. The described method makes it possible to monitor quantitative and qualitative changes in the human resource composition. The need for highly professional management and the rational determination of required indicators at all stages of human resource development is a key drawback of this method.

1.3. **Competency-based management.** In this case, goal-setting is achieved by maintaining certain skills and development levels in personnel. This method allows for a set of standards for each human resource component.

1.4. Value-based management. This method aims to foster corporate loyalty by reinforcing values and standards both within and outside the enterprise. The practical application of the above-described methods is comprehensive; using them separately will not yield the expected effectiveness. The choice of a specific method dictates the need to establish the conditions for the relationship between human resource development results and corporate goals. The development of a target tree, with qualitative aspects prevailing over quantitative ones, is the expected result of target-based management.

2. The concept of human resource development. A set of concepts, principles, and management standards that form a methodological basis, taking into account the specifics of an enterprise's functioning. This component should be based on and correlate with traditional aspects and management standards of the enterprise. Nevertheless, it is necessary to identify principles that ensure the relationship between the organization and the direct development of human resources.

2.1. **Logic.** That is, the direct development of human resources and the regulation of this process should correlate with corporate goals and objectives, as well as the external conditions for the implementation of the process. This principle reflects the general nature of human resource development.

2.2. **Achieving synergy.** In the process of developing human resources, through the combination of various results, a more significant return is achieved than by achieving each result separately.

2.3. **Productivity.** Based on this principle, the final result should fully compensate for the costs of achieving it.

2.4. **Regularity and Comprehensiveness.** The development process must be ongoing, differentiated into stages, and address all components.

2.5. **Appropriateness.** The distinctive features of the enterprise must be taken into account in the human resource development process.

2.6. **Adaptability.** The mechanism and direct development of human resources must be designed to maintain the option of change in accordance with internal and external circumstances.

2.7. **Novelty.** The use of technological innovations and human resource development methods is required. Human resource development in the digital economy involves acquiring new knowledge, improving skills, career planning, and motivating employees to improve the company's performance.

Key factors for improving human resources from the perspective of the digital economy [11]

- Creation of new professions, requirements for them, and educational programs for their development.
- Application of innovative educational methods to develop soft skills.

Intelligent technologies will help create an education system that takes into account all aspects of learning. This is important for human development. The digital economy requires specialists who are able to work with these technologies [11]:

- To easily adapt to change and come up with new ideas, one must train one's thinking, communicate with people, and collaborate with them.
- To succeed at work and fully participate in society, one must master digital skills: using email, the internet, social media, instant messaging, working with texts, protecting information, and typing.

To effectively utilize human capital, it is necessary to motivate employees and create a favorable working environment. Thus, from all of the above, we can conclude that. Human resource development in the context of digital technology advancement is the process of forming a subsystem within the human resource management system, including acquiring new knowledge, improving qualifications, and creating a personal development (career) plan to improve the efficiency of all business processes based on motivation and enhancing the adaptive potential of employees.

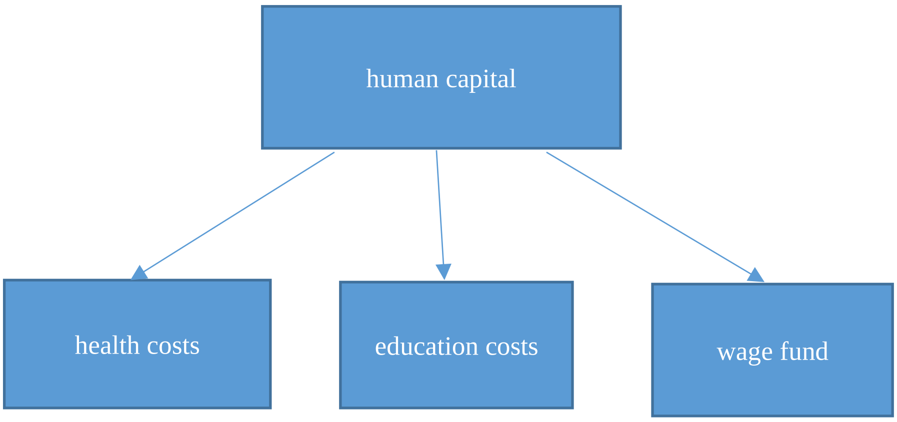
According to the China Academy of Information and Communications Technology (CAICT), China's digital economy will reach US$7.1 trillion in 2023, accounting for 38.6% of GDP and playing a key role in driving the country's economic growth [10]. According to a recent survey conducted by the local Shanghai newspaper Press in 2021, 78% of Chinese executives believed that the rapid development of emerging technologies and scientific innovations will inevitably disrupt their existing industries. Furthermore, Microsoft CEO Satya Nadella echoes this sentiment: “All companies are software companies. You have to start thinking and acting like a digital company. It's no longer about acquiring and implementing one solution. It's not about one simple software solution. It's about thinking about your future as a digital company” [7]. Over the past decade, digitalization has changed everything in the world of business and in all of human society [7] At the micro level, the impact of the digital economy on employment quality is primarily manifested in recruitment. Gürtzgen et al. show that online recruitment accelerates the search process and improves the efficiency of recruitment by employers and employees. Furthermore, Mang, using data from the German Socioeconomic Panel (SOEP), found that online job seekers have greater opportunities to utilize their skills, leading to a significant increase in their chances of promotion and job satisfaction. Further research is needed to examine the impact of digital technologies on existing recruitment systems, as previous studies have primarily focused on the impact of the digital economy on the quality of recruitment [7]. Today, human capital is the most valuable resource for both an individual company and society as a whole, far more important than natural resources or accumulated wealth. It is human capital, not factories, equipment, and inventories, that today is the indicator of competitiveness, economic growth, and efficiency [1]. To assess, develop, and utilize human capital as a critical component of production, it is necessary to define it as an economic category. The idea of human capital has deep roots in the history of economic thought [2].

In this paper, human capital is considered a set of qualities that determine labor productivity and can become sources of income for individuals, families, organizations, and society. In other words, human capital is a form of capital and a measure of a person's embodied ability to generate income, which clearly has a monetary value [3].

Proponents of the human capital management concept believe that by measuring the impact employees have on an organization's financial performance, companies can select, manage, evaluate, and develop the capabilities of their employees in a way that transforms their human qualities into meaningful financial results. Organizational leaders are gradually recognizing the important connection between human capital and a company's financial performance—a connection that traditional accounting methods fail to capture [4].

To assess the impact of an organization's human capital on its financial performance, it must be quantifiable. Since the calculation of financial indicators is primarily based on costs, the cost approach is optimal for quantitatively assessing human capital. The advantage of the cost approach to assessing human capital is that it allows for the quantification of human capital, integrated with the valuations of other sources, such as fixed and working capital.
To apply this approach, it is necessary to divide all costs associated with human capital into 3 groups, as shown in Figure 1.

Figure 1: Structure of human capital costs.



Source: prepared by the authors.

The wage fund refers to all payments to employees, including wages, taxes, bonuses, incentive allowances, etc. These payments themselves already reflect the company's assessment of employees' performance. Intellectual capital costs include expenses on training, retraining, and advanced training of employees, participation in thematic seminars, conferences, and symposiums; expenses on research and development, information and legal systems, software, literature, including periodicals, and other resources (see figure 1). These expenses help improve the intellectual level of employees, which in turn allows for more efficient use of existing, limited human resources in accordance with the needs of the enterprise. Health capital expenditures represent investments in individuals, made with the goal of developing, maintaining, and improving their health and performance [4]. These expenses include those related to health protection (preventive employee examinations, additional health insurance, spa treatment, and other disease prevention and control measures), as well as expenditures aimed at improving workplace safety, organizing employee sports activities, improving living conditions, etc. Thus, in formalized form, the expression for the quantitative determination of human capital HC will look like an additive model, representing the sum of three components:

$$HC = A + B + C$$

Where A is the enterprise's wage fund; B is the enterprise's expenditure on intellectual capital; C is the enterprise's expenditure on "health capital."

It should be noted that each cost element has its own return. For example, the return on investment in intellectual capital is higher than that on investment in "health capital." Therefore, it is advisable to introduce return weighting coefficients β1, β2, β3 for each type of cost.

$$HC = \beta_1 A + \beta_2 B + \beta_3 C$$

where the return on costs is: β1 – for the wage fund; β2 – for intellectual capital; β3 – for “health capital”.

The coefficient values are assigned based on the return of each component on the company's human capital. When determining the return on each type of cost, the following key factors must be taken into account:

- the industry in which the company operates;
- the size of the company (scale of operations, type and level of development of the organizational structure, annual turnover);
- the degree of "intellectualization" of labor, the level of research intensity of products;
- the stage of the company's life cycle;
- the presence of a personnel assessment and motivation system.

Furthermore, a firm's intellectual capital and "health capital" are influenced by such factors as the average education level of its employees and their average age. The dependence of the efficiency of intellectual capital expenditures on the overall educational level and of health capital expenditures on the average age of its employees can be reflected through the parameters α1 and α2, respectively.

$$HC = \beta_1 A + \beta_2\, \alpha_1 B + \beta_3\, \alpha_2 C \qquad (1)$$

where α1, α2 are reflecting the dependence of the return on investment on the level of education and age, respectively.

$$\alpha 1 = \Sigma\, r_1\, z_1 / R_s\, z \qquad (2)$$

where *ri* and *zi* are the number of employees with the *i*-th level of education and their average salary; n is the number of education levels at a particular enterprise; Rs- is the total number of employees at the enterprise; *z*- is the average salary of employees with the basic level of education (university).

The function representing the return on investment in "health capital" looks like this:

$$\alpha 2 = \ \gamma m\, \Sigma\, k_j d_j + \gamma m\, \Sigma\, k_j\, t_j\ , \qquad (3)$$

where *γm*, w are the proportion of men and women, respectively, at the enterprise; *dj*, *tj* are the proportion of male and female employees in the *jth* age group; *n*- is the number of age groups; *kj* -is the return on investment coefficient for "health capital" depending on the age groups, which are determined based on the retirement age in Azerbaijan [5]. For each age group, the corresponding coefficient values are assigned (Table 2).

Table 2. Return on investment by age group.

Age groups	**1**	**2**
Men	16- 65	≥ 65
Women	16- 60	≥ 60
k_j	1,00	0,85

Let's evaluate human capital using the presented methodology using the example of enterprise X. This enterprise develops electronic devices. Since this type of activity is quite knowledge-intensive, human capital is one of the main factors of production. Therefore, effective management of this enterprise requires constant monitoring of human capital. We will conduct its assessment for the period from 2021 to 2023. The initial data for the calculations are presented in Tables 3.

Table 3. Dynamics of human capital costs

Type of costs, thousand manat.	2021	2022	2023
1. Payroll fund	13967	17340	20030
2.Costs of intellectual capital	315.5	254	256
3.Health capital costs	196	105	121

Considering the specific nature of this enterprise's operations, the following return coefficients were assigned: $\beta1 = 0.7$, $\beta2 = 0.25$, $\beta3 = 0.05$. We calculate the values of the parameters $\alpha1$ and $\alpha2$, which reflect the dependence of return on investment on education level and age, respectively, using formulas (2,3), Table 4.

Table 4. Values of parameters $\alpha1$, $\alpha2$.

Parameter	2021	2022	2023
$\alpha1$	0.9373	0.9370	0.9555
$\alpha2$	0.9933	0.9900	0.9886

Having analyzed the obtained data over time, we can see a trend of slight increases in educational attainment, which increases the return on investment in intellectual capital. Regarding investments in health capital, we observe a trend of decreasing effectiveness, which is due to the increasing proportion of retirement-age workers at the enterprise. Next, using the data in Tables 2 and 3 and formula (1), we obtain a quantitative assessment of human capital, Table 5. Thus, at the analyzed enterprise, human capital has been growing dynamically from 2021 to 2023, which is a positive trend. It is worth noting that the average annual growth rate of human capital is 19.6%, which is slightly lower than the average annual growth rate of the wage fund (19.8%). Based on this, we can conclude that the company's management effectively manages human resources, and the structure of human capital costs meets the company's needs.

Table 5. Quantitative assessment of human capital for the analyzed enterprise.

Year	The value of human capital, thousand manats
2021	9856
2022	12203
2023	14088

Therefore, the proposed human capital assessment methodology allows for a quantitative evaluation of this value in terms of incurred costs, taking into account their return on investment. The calculated human capital value can be used to analyze its dynamics, growth rate, assess its impact on the company's cost performance indicators, and forecast indicators based on production functions. This methodology will allow for the human component to be taken into account when valuing a business using traditional methods.

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İNSAN RESURSLARININ QİYMƏTLƏNDİRİLMƏSİ PROBLEMLƏRİ

Xülasə

Məqalədə İnsan resurslarının təşkilatın maliyyə göstəricilərinə təsiri araşdırılır. İnsan resursunun kəmiyyətcə qiymətləndirilməsi üçün model təklif olunur və bu da insan resursunun kəmiyyətcə müəyyənləşdirilməsinə imkan verir. İnsan resursları xərcləri, hər bir xərc növü üzrə konkret amillərdən asılı olaraq gəlir nəzərə alınmaqla strukturlaşdırılır.

Açar sözlər: insan resursu, kəmiyyət qiymətləndirilməsi, səmərəlilik, intellektual resurs.

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ПРОБЛЕМЫ ОЦЕНКИ ЧЕЛОВЕЧЕСКИХ РЕСУРСОВ

Резюме

В статье рассматривается влияние человеческих ресурсов на финансовые показатели организации. Предложена модель количественной оценки человеческих ресурсов, позволяющая количественно определить их стоимость. Затраты на человеческие ресурсы структурируются с учетом доходов в зависимости от специфических факторов для каждого вида затрат.

Ключевые слова: человеческие ресурсы, количественная оценка, эффективность, интеллектуальные ресурсы.

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