
APPLICATION OF FINANCIAL ANALYSIS IN DETERMINING
THE POSSIBILITIES OF HUMAN CAPITAL DEVELOPMENT

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Abstract. The article aims to present financial analysis in determining the possibilities of human capital development, i.e., increase in the value of an enterprise through development of human capital. The market value of an enterprise is to a large extent dependent on its intellectual capital, including human capital. It may be said that human capital constitutes a ground for an enterprise's development through work, creativity in operation, adjustment to a fast-evolving environment. Emphasizing the importance of the above content, as "hidden" assets of the enterprise, human capital is not fully included in the company's financial reporting. Despite the often enormous intangible contribution into preparation, use of complex methods for selecting the right employees, implementation of an incentive system, performance evaluation and staff development, organizational procedures that absorb a series of activities to ensure growth of the company's value and which should be included in its financial statements, are underestimated.

Keywords: human capital; development; management; financial analysis; employee, HRM.

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1. Introduction

In today's high tech global economy the need of competent and highly qualified workforce becomes focal point in the research of academics, practitioners and business alike (Petrova, Tepavicharova, Dikova, 2018; Bacho et al, 2019). Dynamic changes taking place in the market economy point to a great need of companies to strive at not only maintaining their place on the market, but first and foremost developing the organization through the employed human capital. In this environment, the increase in the value of an enterprise and development of its employees is gaining more and more significance, and this is possible only when a company has a financial stable situation.

A lot of businesses are looking for innovative ways to improve efficiency and maintain competitive advantage in order to survive (Laktionova et al, 2019; Zahariev et al, 2020; Petrova et al, 2018; Trunina & Sushchenko, 2017). One of the important factors is the ability to organize funds for the implementation of individual projects or the ability to maintain financial liquidity, etc.

This requires the development of various techniques for improving their business competitiveness (Kurmanov, Petrova, Suleimenova, 2019; Pukala & Petrova, 2019; Pukala et al, 2019; Uteubayev & Petrova, 2017; Tepavicharova et al., 2020; Okpamen, & Ogbeide, 2020; Deneva & Grasis, 2020). The owners and investors forecast and assess the increase in the value of the enterprise. They also assess the risk of its activities (Pukala, 2013).

Business communities shall recognize that companies' ability to implement innovations can be a powerful trigger to competitive advantage and process effectiveness (Uteubayev & Petrova, 2017). Methodical basis for this may be the procedure for determining the value of intellectual property (Labunska, Petrova & Prokopishyna, 2017).

In an environment of high competition, managers should focus on the areas and factors that generate value growth for the enterprise when making decisions. Some of the important decisions are preceded by an analysis of financial statements; furthermore, various financial measurement methods and tools are used to help the manager identify the factors affecting loss or increase of the company's value. For example, decisions may tackle such areas as acquiring capital or shaping its structure, or even maintaining financial balance between financial resources and the sources of their financing.

Business value management constitutes a link between the organization's strategy and its financial results, and the mutual connection of employees' incentive remuneration, measurement and evaluation of current activities and methods of conduct makes it possible to maximize the value of enterprises (Marcinkowska, 2000).

The value of an enterprise should be considered in material and non-material (intangible) factors, i.e., an image of the so-called the intellectual capital of the enterprise which includes human capital.

The issue of evaluating the productive capacity and human potential of the whole society is one of the unsolved questions of the economic theory. The power of the concept of human capital, both theoretically and practically, is adjacent to the lack of tools and indicators to measure it (Uteubayev & Petrova, 2017).

The article aims to present financial analysis in determining the possibilities of human capital development, i.e., increase in the value of an enterprise through development of human capital.

The study is theoretical and empirical at the same time; it comprises an analysis of scientific literature of Polish and foreign scientific authors and the logical construction of dependence of growth in terms of the company's value through development of human capital and the factors shaping the possibility of that development.

Creating company value through development of human capital

The human capital is a kind of company asset that has its place in the composition of intellectual capital. The specificity of human capital lies first of all in the opportunities for the development of employees, thus creating the value of the enterprise. The change in human capital entails a change in the structure of employment and a change in the value of the enterprise in the short and long term.

The market value of an enterprise is to a large extent dependent on its intellectual capital, including human capital. It may be said that human capital constitutes a ground for an enterprise's development through work, creativity in operation, adjustment to a fast-evolving environment. Emphasizing the importance of the above content, as "hidden" assets of the enterprise, human capital is not fully included in the company's financial reporting. Despite the often enormous intangible contribution into preparation, use of complex methods for selecting the right employees, implementation of an incentive system, performance evaluation and staff development, organizational procedures that absorb a series of activities to ensure growth of the company's value and which should be included in its financial statements, are underestimated.

Factors determining an enterprise's market value, which is also human capital, give rise to the need to measure this capital. Until now, there has been no uniform method of its measurement which, would be widely recognized. The non-measurability of some elements causes a number of difficulties. Because organizations differ in size, their form and subject of activity, size of capital held, sources of its origin, strategy and vision of business owners, etc., it becomes important to apply tailored measures to both the organization and the method of measuring human capital, which is contained in the company's intellectual capital.

The importance of human capital in the knowledge-sharing process

Human capital is reflected in what employees of a given organization have. It includes elements such as:

- competences, including knowledge, skills,
- attitudes including views, motivation, leadership qualities, behavior,
- intellectual abilities including innovations, entrepreneurship, intuition, adaptation and learning skills,
- interpersonal skills including leadership, interpersonal relationships, exerting influence on others.

When speaking of managing human capital development, it is necessary to consider employee development planning, collect the necessary data, motivate human capital to develop knowledge and professional competences and control the implementation of planned activities. Human capital is related to the accumulated value of investment in staff training and application of knowledge, competence and experience in the future. This concept focuses on the value of what a person can create. Thus, human capital includes the value of a person in an economic sense. In other words, what the employee knows, wants and does for the company.

Despite the fact that human capital constitutes the most important category of intellectual capital, it is also the least durable of all categories of intellectual capital. A change may take place at any moment in time, i.e., a change of the workplace, health and willingness to share knowledge with others. For this reason, employees with knowledge and experience that is strategically important for the company constitute valuable human capital, which should be skillfully directed towards giving young, new employees what is the most valuable for the company at a given moment and in the future. All this to not lose what is the most valuable for the organization for any reason. The goal is development of employees by gaining knowledge inside and outside the company.

The big issue is that employees do not willingly share knowledge with others, especially those who can replace them in the future (they are afraid of competition). This is where management of the employee development process comes in; this should be done in such a way to properly motivate financially and guarantee job stability, placing individuals on the position of mentors, and giving a prestigious function in the organizational structure. People are afraid and they want these elements specifically to be able to communicate what is valuable and important for the organization to others.

The introduction of innovations in the field of human capital and career development should support and motivate employees to contribute to the realization of employees' business and developmental goals through their effective work.

Methods of measuring economic results

Classic methods of measuring economic results in an enterprise which base upon ratios show a change in the company's economic situation. However, it often turns out that the financial analysis is insufficient and misinterpreted, due to not having included the intangible and non-financial element. The aim is to collect data useful in the process of analyzing changes taking place related to the development of human capital.

At the same time, the introduction of a well-adjusted and deliberate management system for human capital development must indicate changes in the level of development of human capital, invisible with the help of classic tools of capital loss.

It may be said that the human capital comprises the totality of predispositions, knowledge, abilities and skills as well as possibilities of their utilization in the form of competences while performing specific tasks. It includes two different groups of elements (Bal-Woźniak, 2006, p.77):

1. individual capital of persons,
2. resources resulting from the organization and occurrence of teamwork, i.e., related to the existence and functioning of groups of employees that complement each other with their knowledge.
- 3.

Valuable human capital is one whose employment allows the company to implement strategies which improve organizational and economic efficiency, the use of market opportunities, and neutralize potential threats. The human capital is therefore a generator of the value of a modern enterprise. It also characterizes the uniqueness defined as specific skills assigned to particular people having personalized knowledge, based on their own experience, skills, system of values and intuition. Acquisition of these skills often results from specific learning processes involved in organizational culture. Although unique skills can be difficult to replicate, making them a potential source of competitive advantage for the organization, passing them on to others causes an increase in value and knowledge by way of a spiral of knowledge.

Man has a complex nature, but for him to strive for self-improvement or professional development, he must want it personally. The organization can only do so much as stimulate or discourage to development through inefficient management, but it is up to human capital as to where, how and when the development opportunities created will be used. Human traits occur in different intensities due to influence of the environment and conditions in which the employee functions at the moment or has functioned in the past.

As shown in tab. 1, the combination of three important factors of human capital indicates various characteristics of employees. Not all of them may be necessary, some may be treated as priority, others can even be considered insignificant for the occupied job position.

Table 1. Combination of three important factors of human capital

No.	Factors	Characteristics
1.	Characteristics contributed by the employee to the organization	Assertiveness, motivation to work, responsibility, energy, intelligence, reliability, honesty, credibility, loyalty, values, eloquence, empathy, interpersonal skills, communicativeness, coherence, creativity etc.
2.	The employee's ability to learn	learning capacity, analytical and synthesis skills, creativity, imagination, etc.
3.	Employee's motivation to share knowledge	commitment, empathy, teamwork skills, striving to achieve goals and work results, way of responding to stimuli, etc..

Source: own study.

Nonetheless, the purpose for which information about the human capital of a given company can be used should be specified. As B. Lev notes, there is a noticeable difference in the needs of internal stakeholders (Lev, 2001):

- *Management staff* – information regarding intellectual capital should be used in the process of human capital management, in the process of allocating financial capital in human capital, in shaping the form, value of remuneration and motivational factors.
- *Employees* – they often use information about the value of human capital to determine their importance for the company, their role and position in the enterprise, building bonds with their firm, build their own value.

Management staff and human capital pay attention to factors determining the enterprise's economic situation. At the same time, they note the importance of investment for the development and maintenance of employees. This creates reasons for developing effective solutions (Stemplewska, 2011).

Valuation of human assets and methods of their measurement

Valuation of human capital is difficult because (Łukasiewicz, 2009, pp. 95-9):

- human assets are heterogeneous concepts that include many unspecified elements, i.e., skills, knowledge, experience, competence, motivation, health, etc.;
- it is difficult to attribute a monetary value to qualitative components;
- the value of human capital cannot be determined as a sum of the value of its components, because this capital is created as a result of synergistic interactions between its elements as well as components and elements of other categories of intellectual capital.

That is why it is difficult to manage the development of human capital. At present, measurement of human capital value includes cost methods. These are models based on (Sopińska & Wachowiak, 2005; Koval, Slobodianiuk & Yankovyi, 2018):

1. Historical cost, including the costs of acquiring and training an employee.
2. The cost of restoring human capital, including costs of the employee's departure, acquiring a new employee and costs of his further education.
3. Alternative cost, including opportunity costs.
4. Another method of measuring human capital is the so-called weighted scoring model.

The value of human capital in financial accounting

Human capital should also be seen as the company's intangible assets. By adjusting the nomenclature used to determine the value of assets in International Accounting Standards (IAS), one can talk about the value of the enterprise: current, balance sheet, economic and fair (International Accounting Standards Committee, 1999):

- **Current value** will respond to a discounted current value of future inflow of net cash flows which the enterprise will earn in the course of business.
- **Balance sheet value** will correspond to the sum of assets recognized in the balance sheet after deduction of amortizations and the total amount of impairment write-downs.
- **Economic value** corresponds to the net selling price of the assets or their value in use, depending on which one is higher.
- **Fair value** is the amount for which the company's assets could be exchanged by way of transaction carried out on market terms between the concerned and well-informed, unrelated parties.

A similar and much broader classification of the company's value is provided by E.A. Helfert, who distinguishes the following values: economic, market, accounting, liquidation, partitioning, replacement, pledge, ownership, estimation, functioning enterprise and ownership. (Helfert, 2004, pp.451-457)

In financial accounting, the issue of intangible assets has its own legal authority. For example, IFRS 3 and IAS 38 precisely define the recognition, measurement and disclosure of all intangible assets. They characterize them as identifiable non-monetary assets without physical form, which arose as a result of a contract or other legal acts, irrespective of whether these rights are transferable and separable from the subject.

A given nonmaterial factor must be identifiable, which means that a specific component can be extracted, returned, disposed of or determined by an agreement; it must also remain under the control of the enterprise and be clearly distinguishable from goodwill. Additionally, for a given resource to be classified as an element of accounting assets according to the recalled standard, it must meet two conditions (Greuning, 2006, p.199):

- it must generate economic benefits in the future in the form of higher revenues or lower costs;
- production (or acquisition) cost of given element of assets must be reliably determined.

If a given component of intangible assets does not meet the criteria of identification and recognition as an intangible asset, expenditures on a given component are recognized as costs, unless the given cost was incurred as a result of business combination by acquisition. In this case, it should form part of the goodwill (*Praktyczny przewodnik po MSSF*, 2007, p.68).

The Polish Accounting Act broadly defines non-material assets as "intangible assets", which include: "property rights acquired by the entity, classified as property, plant and equipment suitable for economic use, with an expected useful life of more than one year, intended for use for the needs of the entity, in particular: copyrights, related rights, licenses, concessions, property rights to inventions, patent rights, rights to ornamental and utility designs and trademarks, know-how. Intangible assets also include the acquired goodwill and development costs."

Labor costs constitute a significant part of expenses for the creation of intangible assets. Salaries, bonuses for employees and other costs related to the creation of a given resource should be calculated according to current market rates. It is also necessary to take into account any changes in knowledge and technology until the valuation day, which may affect the shortening (or lengthening) of working time.

Ratios for valuation of investment in human capital

Investments in human capital are directly related to incurring company costs. In order to be able to efficiently control the amount of expenses incurred and, above all, the increase in the efficiency of human capital, it is important to monitor the changes in an appropriate manner. The need arises to control the effectiveness of costs borne using the analysis for return on investment in human capital. This measurement is aimed at capturing the relationship between specific investments focused on human capital and efficiency as a result of the company’s work. Appropriate ratios should be selected to identify changes and employee development results. There is a dilemma in making managerial decisions: should highly-qualified employees be hired or should own staff be educated further?

The creator of the human capital asset pricing model is J.J. Philips. He created a system for analyzing the profitability of human capital based on quantitative ratios:

Table 2. The basic measure of profitability of human capital in the entire enterprise

NO.	Ratio		Calculation method
1.	HC ROI	human capital return on investment	$HC\ ROI = [P - (OC - TLC)] / TLC$
2.	HCVA	human capital value added	$HCVA = [P - (OC - TLC)] / NE$
3.	HCR	human capital revenue	$HCR = PoS / NE$
4.	CFTE	cost per full time equivalent	$CFTE = OE / NE$
5.	PFTE	profit per full time equivalent	$PFTE = PoS / NE$
6.	PPFTE	pre & tax interest profit per full time equivalent	$PPFTE = GP / NE$

Source: author’s own study based on the aforementioned human capital asset pricing model by J.J. Philips.

Where:

- P – Profit
- OC – Operational costs
- TLC – Total labor costs
- NE – Number of employees (per FTE)
- PS – Profit from sale of products, goods and materials
- OE – Operating expenses
- PoS – Profit on sales
- GP – Gross profit

As shown in tabl. 2 the HC ROI ratio “Human Capital Return on Investment” shows the amount the company will receive from each zloty invested in human capital. This ratio can be treated as a basic measure of profitability of human capital in the entire company. A positive ratio means that the costs of employee remuneration translate into the company’s revenues, contributing to the increase of investment opportunities. A negative ratio means that employed staff use more resources to perform their job than they generate income.

The HCVA ratio “Human Capital Value Added” shows the company’s profit that can be attributed to the person employed. This profit includes taxation and deduction of the cost of invested capital. This metric is considered an important efficiency criterion for assessment of a given company’s management staff. It shows the added value that is created by employees for the enterprise in full-time equivalents.

The HCR ratio “Human Capital Revenue” means income from human capital and constitutes the basis for

the measure of human productivity in the enterprise. This ratio indicates the number of employees which are needed to earn the desired income.

The CFTE ratio “Cost per Full Time Equivalent” indicates the amount of operating costs per one employee; registered several times in a time interval, it shows the extent of changes as the costs in this period changed.

The PFTE ratio “Profit per Full Time Equivalent” stands for profit from sales per person employed; it shows what part of the sales profit can be earned by a single employee.

The PPFTE ratio “Pre & tax interest profit per FTE” that is, gross profit per employee allows to observe the effectiveness of employees’ work, take into account changes in employment and their impact on the entire enterprise’s financial result. Profit before deduction of tax and other benefits is included.

These are generally recognized and universally accepted performance indicators of the function of human resources, which can be described as strategic indicators. Enterprises, in their attempt to meet the requirements set forth to them by investors, should inform about all the elements affecting the company’s value. Increasing investments in intangible assets are not reflected in book values of enterprises. This leads to a large discrepancy in the enterprise’s actual value.

Conclusions

When considering the issue of human capital development in enterprises, it should be emphasized that the final decision as to career development or acquiring new skills belongs to human capital.

So, human capital in a group forms a combination of factors that cause a synergic effect between various individual types of human capital, and together with other factors, they make it possible to develop knowledge in the company, achieve innovativeness, and competitiveness.

The advantages of ROI investment returns analysis using ROI ratios include:

- Measuring the effectiveness of human capital management processes inside the enterprise as well as comparing the company’s ratios with practitioners in the comparative group.
- Searching for the organization’s business advantages in the area of the potential of human capital owned.
- Identifying a knowledge gap in managing human capital development.
- Defining areas of knowledge and comparing the level of investment in human capital.

The value of human capital is closely related to its impact on the implementation of the business strategy. The basic measures of profitability of human capital are not perfect and should be extended with more detailed ones which would take into account those characteristics of human capital, which are necessary to increase the company’s value.

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