DYNAMIC MONETARY MODEL OF INTELLECTUAL CAPITAL EVALUATION

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Abstract

Man’s work is an important element of the business process. However, apart from its role as a means of production, products and services, its value is not disclosed on the assets side of the classical balance sheet. Are there any solid grounds for such consideration of work? Does such consideration of Man’s work result from underestimating the meaning of this element of the business process? And finally, isn’t work (employees, human potential, intellectual capital) a factor that has a crucial influence on successful business operations? These and similar questions are within the scope of Human Resource Accounting. Findings on the value of intellectual capital are not new. In fact, its value has already been well recognized by pre-classical economists who treated Man as an element and source of the national treasure. Over time, this knowledge underwent the process of maturation; nowadays, however, intellectual capital finds its position in financial statements only exceptionally. Intellectual capital may be disclosed among the assets on a balance sheet only if it is expressed in value terms. In order to disclose intellectual capital among balance sheet items, one must find a proper method for measuring its value. In this article we present an original monetary model of intellectual capital evaluation.

Key Words: Accounting, intellectual capital, evaluation.

1 Introduction

A company is usually founded by individuals striving to achieve their own or broader goals. Goal achievement related to a company's operations is called business or the business process. There are four basic elements required for a business process, namely assets, products, services and employees (human potential).

However, there is a significant difference between employees and the other three relevant elements. As a rule, human potential is not expressed in terms of monetary units, which means that its value is not disclosed on the assets side of the classical balance sheet. The same applies to investments in human potential. These investments do not add to the value of human potential, but instead are characterised as costs from the very beginning.

Such treatment of human potential stems from the belief that employees are not company assets. According to the classical model, an element can be treated as an asset only when:

a) there is a possibility that the presence of this element in a business process is associated with economic benefits, and

b) the (purchase) value of this asset can be measured reliably.
As was mentioned before, all four basic elements are crucial for a company’s operations. This further means that their presence in a business process is associated with the achievement of economic benefits. Therefore, the first requirement (a) does not need to be elaborated further. Our thinking is more directed toward searching for answers associated with the second (b) requirement.

Why would knowing the value of employees be important? Is this associated with acquiring expensive yet useless accounting data, or is there more?

We are of the opinion that knowing the value of employees plays an important role in ensuring:

a) real accounting statements: It is well known that book values do not correspond to market values – in such conditions the accounting statement does not offer accurate information on what was going on in the company and eventually such inappropriate accounting information obstructs quality decision-making about the future.

b) appropriate handling of employees: Knowing the value of goods plays a crucial role in handling them, as well as in finding out how successful such handling was – employees are no exception to this.

Employees can be evaluated in monetary or non-monetary terms. Non-monetary models for evaluating employees include organisational and behavioural variables. These variables are not expressed in monetary terms; however, based on changes in their quality, one can assume the increased or decreased value of employees within the company. Among nonmonetary models the most popular are: Michigan model (Likert et al. 1969), Flamholz's model (Flamholz 1972) in Ogan model (Ogan 1976).

The value of non-monetary models should not be underestimated; however, we are of the opinion that monetary models are of greater importance. So far, a number of monetary models for evaluating employees have been shaped, which reflects the importance of this issue. However, there are vast differences in the elaborations of such models. Among monetary models the most popular are: Unpurchased goodwill model (Hermanson 1964), Capitalisation of historical costs model (Likert 1967), Opportunity costs model (Hekimian and Jones 1967), Discounted wages and salaries model (Lev, Schwartz 1971), Replacement costs model (Flamholz 1973) and Calculated intangible value model (Stewart 1995).


This article presents an original model for evaluating employees – a monetary model that is the result of several years of study in this field. Money is simply a common
denominator that facilitates the inter-comparison of economic categories that are usually not compared against each other. In our model, employees are considered to be one of the most important elements of a business process; we therefore strive also to find their position on the accounting statement. However, we need to know their value first.

Below, our monetary model design is outlined first, followed by explanation of its elements.

2 Nature of the Model


Following these definitions we recognize two difficulties: first, it is difficult to provide objective estimates on the values of separate components, second, it is even more difficult to provide empirical estimates of relationship between mentioned components of intellectual capital measured in monetary values.


Perhaps all the mentioned frameworks could be used as an appropriate basis foundation for further development of methodology, although the validity of the received results is difficult to judge. Methodological frameworks that take the route following the above-mentioned definitions of intellectual capital provide in fact no objective estimates that could be verified in practice. Additionally to this there exist one even more serious disadvantage of this mentioned approach to measuring the intellectual capital of a company, it does not provide an estimate of each individual employee. Each employed person is regarded as a homogenous worker, consequently we face the problem of the biased estimates of each constitutional component of the intellectual capital.

Considering this difficulties we decide to take the route in opposite direction and suppose that all separate constitutional parts are related to the human capital, hence there is no need to distinguish between the human capital, structural capital and customer capital, while the second two are the result of employees’ work in the company. Take for
instance the newly established company. At the beginning its success depends on the success of work of employees at all the levels of organization structure. Organizational structure, amount of acquired customers and relationships to other companies have to be established anew. Of course the success of the company depends on all these factors that some authors regarded as separate constitutional parts of the intellectual capital of a company. But, as we stress, the establishment of the structural capital, innovation capital and customer capital depends on the quality of employees work. Now suppose that a few of the leading people leave the company. They take all knowledge with them and can establish a new company aimed at the same activity as was the previous one. So all structural, customer and innovation capitals of the first company vanish. But this will not happen if the management of the company is replaced smoothly, so that the new management team can acquire all knowledge needed for managing the company successfully. In this case we deal with generational change that is realized gradually and all the amount of human capital stays within the company.

Following this we think that the approach for evaluating the intellectual capital of a company that is based on distinguishing between separate parts is wrong, and only one component is crucial, namely, the human capital.

Following this fundamental assumption we develop an original model for evaluating the human capital of a company.

3 Model Design

This model is based on the economic concept of value. According to this model, the value of particular goods depends on the present and future benefits associated with these goods. This also applies to employees. Therefore, the value of employees depends on the present value of their expected future services. This definition can apply to an individual as well as to all employees within a company.

Therefore, this model is intended to evaluate:
   a) individual employees and
   b) groups of employees (i.e. all employees within a company).

The value of individual employees can be determined directly, while the value of a group of employees can be determined indirectly, as a corrected sum of the values of individual employees. Correction is made via a coefficient of employee performance, which is based on the ratio between added values within the company and the global economy for the last three years. Here it must be pointed out that the value of a group of employees is not a simple sum of the values of individual employees – this value usually differs from such a sum due to synergetic effects. Therefore, the sum of values of all employees within a company may not correspond to the difference between the market and the book value of the company (due to synergetic effects, it is usually lower).

This model is based on an approach usually used for evaluating the majority of tangible fixed assets by recognising some specific features of employees. Tangible fixed assets
comprise land, buildings, equipment, multi-annual plantations and breeding stock. At this point we should remind the reader that assets include not only tangible fixed assets, but also small inventories. If one wants to evaluate assets on the one hand and employees on the other, one has to take into account both their similarities and differences. The two elements manifest the following similarities:

a) They are both material in nature.
b) During a business process they do not cease to exist, they only transfer their value to business effects.
c) Transferring their value to business effects is a gradual process and not a momentary one.
d) Their presence in a business process is associated with costs.
e) Both elements have a limited useful life.

The aforementioned similarities gave us the idea that the approach usually used for evaluating tangible fixed assets could also be used for evaluating employees. However, there are also some differences between employees and assets:

a) Unlike an asset, an employee is not owned by a company, since he/she can leave the company at any time – at least as an individual; a group of employees (i.e. all employees within a company), however, is permanently associated with the company and leaves the company only in case it ceases operations.
b) After its useful life, the asset is usually written off in accounting terms, which means that it is useless for the company; however, an employee who still has the capacity to work retains his/her (non-written off) value when he/she leaves the company and finds another employment.
c) Replacing one employee with another is a more demanding job than replacing one asset with another, which is most evident in cases of employees performing very demanding jobs.
d) As a rule, the value of an asset does not change over its useful life, while the value of an employee varies and is usually lower during training time as well as before leaving the company.

The aforementioned differences between the two elements require not an ordinary evaluation, but a specific one. This is exactly what we did in our model.

It is a dynamic model, which means that it enables establishing the value of an individual employee or all employees within a company at any moment. It is similar to establishing the value of tangible fixed assets.

Some may find the comparison of tangible fixed assets and employees unacceptable, morally disputable or even offensive. We apologise in advance for any misunderstandings. We treat human resources as assets not because we would like to underestimate their human characteristics, but because we would like to emphasise their economic value. It means that we treat human resources as economic goods.
4 Evaluating Individual Employees

As was mentioned above, this model originally aims at evaluating individual employees. It was also mentioned that the value of a group of employees can be determined indirectly, as a corrected sum of values of individual employees. Our dynamic model for evaluating individual employees is presented in Figure 1.

![Dynamic model for evaluating individual employees]

Throughout the presentation of this model, the evaluation of employees is compared to the evaluation of tangible fixed assets; we therefore state solutions that hold true for evaluating tangible fixed assets and offer suggestions as to how to evaluate an employee on a similar basis.

A tangible fixed asset’s value (usually referred to as “net carrying amount of a tangible fixed asset”) is the difference between its purchase value and its adjusted value. The calculation is presented below:

\[
\text{tangible fixed asset's value} = \text{purchase value} - \text{value adjustment of tangible fixed asset}
\]

The value of an employee is the sum of the employee’s purchase value and the value of investments into an employee, less the value adjustment of an employee. The calculation is presented below:

\[
\text{Employee's value within the company} = \text{purchase value} + \text{value of investments into an employee} - \text{value adjustment of an employee}
\]

Concepts and other items from the model are explained below.

4.1 Purchase Value
4.1.1 Purchase Value of Tangible Fixed Assets

The purchase value of tangible fixed assets normally equals the investment value associated with their acquisition. It is composed of the purchase price along with costs in relation to customs duties, transport, assembly and similar. The aforementioned holds true only in cases when the company purchases the tangible fixed asset on the market. In economic terms, the purchase value equals the current value of future services (economic benefits) that can be expected from using the tangible fixed asset during its entire useful life.

The company can build or make its own tangible fixed asset. In such a case, we talk about the cost-value comprised of the own price of a tangible fixed asset. When the costs necessary for bringing the asset to its working condition are added to that price, one gets the purchase value of such an asset. This purchase value of a tangible fixed asset normally also equals the investment value associated with its acquisition. In economic terms, such purchase value, similar to the previous case, equals the current value of future services that can be expected from using a tangible fixed asset during its entire useful life.

Yet another case is when the company acquires a tangible fixed asset via a donation. In such a case, the purchase value is comprised of fair value, namely the amount for which an asset could be exchanged between a knowledgeable willing buyer and a knowledgeable willing seller in an arm's length transaction. In economic terms, such purchase value is similarly defined as for the previous two.

4.1.2 Purchase Value of an Employee

The purchase value of an employee is composed of investments into an employee before and directly upon his/her arrival at a company. The company does not necessarily participate in all components of these investments. In the context of this evaluation model, the purchase value of an employee includes three components, namely:

a) investments in employee training,

b) investments in employee acquisition, and

c) employee opportunity costs.

Let’s take a detailed look at these components.

4.1.2.1 Investments in Employee Training

Investments in employee training are associated with acquiring his/her work capacity.

As was mentioned before, the company can acquire tangible fixed assets in a number of ways. The method of their acquisition does not influence their purchase value. Their purchase value always equals their investment value, namely the current value of future services that can be expected from using a tangible fixed asset during its entire useful
life. Is the same logic to be applied when determining the investment value associated with employee training?

The company has basically two options with regard to acquiring an employee. Firstly, the company can participate in training a candidate to become an employee in the long run. This means that the company can award a scholarship, provide training during the candidate’s studies, assist the candidate in preparing his/her thesis, etc. Secondly, an employee can be acquired via a job advertisement, namely by offering a position on the labour market.

The two theoretical options differ substantially with regard to the investment value associated with employee training. In the first case the investment value is great, while in the second case almost negligible. Does this mean that the two investment values associated with employee training differ?

As was pointed out before, the method of acquisition of tangible fixed assets does not influence their purchase value. Therefore, the purchase value of a tangible fixed asset is the same, no matter whether the company has purchased it on the market, built or made it on its own or received it via donation. In all cases the purchase value can be expressed in terms of the fair value of a tangible fixed asset.

Similar considerations apply to employees. The investment value associated with training an employee cannot depend on the method of acquisition. Otherwise the investment value associated with training an employee in the long run would be substantially higher than the investment value of the same-category-employee acquired by the company on the labour market via a job advertisement. This means that the investment value associated with employee training equals the investment value of the company with regard to training an employee only in cases where the company has participated in employee training in the long run.

Based on the above, it is proposed that the investment value associated with training an employee can be established similarly to the investment value of tangible fixed assets. However, there is a significant difference between the two elements with regard to this issue. The purchase value of tangible fixed assets is determinable, definitive and can be easily established by the company. The purchase value associated with employee training, however, is less determinable, uncertain and is more difficult to be established by the company. As a rule, the company is not the only investor into employee training.

As was mentioned, the investment value associated with training an employee cannot depend on the method of acquisition. Therefore, the investment value associated with employee training does not differ between equally trained employees. Further, an assumed value, obtained from the sum of investments needed for an employee in the process of acquiring relevant work capacity, can serve as investment value associated with employee training.

This means that investment values associated with employee training should be standardised. In this context, we talk about investment value associated with primary school, high school and university education. Investment value associated with training
an employee to perform certain tasks can be defined as the usual investment needed in the process of acquiring his/her work capacity.

4.1.2.2 Investments in Employee Acquisition

Investments in employee acquisition include:

a) investments in job advertisement and
b) investments in direct employee acquisition.

Investments in job advertisement are associated with: placing ads for an available position, interviews, evaluation of candidate suitability, etc. Investments in direct employee acquisition are associated with the medical assessment of an employee, his/her placement, etc.

A significant portion of these costs is recorded and disclosed in the accounting books, while the rest of them are to be assumed as, for example, the cost of work performed by employees who are in charge of interviews, placements, etc.

4.1.2.3 Employee Opportunity Costs

Opportunity costs in are lost benefits resulting from choosing a particular alternative. Employee opportunity costs are an individual’s investments into his/her own knowledge and development.

Let’s assume that we are in the position of employing a university graduate. This is an individual who has successfully accomplished his/her education at all three levels: primary, secondary and tertiary.

Learning is time consuming (since it is measured in years) and tiresome. However, the results of the lasting efforts put into one’s studies are not tangible material goods, but acquired knowledge and a diploma. Therefore, the decision for an education forces the employee to decline remunerations that would be collected in the case of his/her being employed during the time of study. The lost remunerations of an employee are, therefore, the opportunity costs that reflect the value of an individual’s investments into his/her knowledge and development. Their value is lowest at the primary school level and increases with additional years of study.

4.2 Value Adjustment

4.2.1. Value Adjustment of Tangible Fixed Assets

The value adjustment of a tangible fixed asset is the value of a fixed asset that is, via its usage, transferred to business effects. This value depends on the purchase value of a tangible fixed asset and its useful life.

The purchase value of a tangible fixed asset equals the investment value associated with its acquisition.
The useful life of a tangible fixed asset is the period during which it can be used in a business process. This depends on its expected:
   a) physical wear and tear,
   b) technical obsolescence,
   c) economic obsolescence, and
   d) legal or other limits to the use of the asset.

The useful life of a particular tangible fixed asset to be considered is the shortest period estimated in association with each of the above factors separately. The annual depreciation rate of a tangible fixed asset is obtained by dividing 1 by its useful life expressed in years.

The useful life of a tangible fixed asset should be reviewed periodically. When the actual useful life significantly differs from that estimated, appropriate measures must be taken. The depreciation of a tangible fixed asset is usually established by the straight-line depreciation method.

4.2.2 Value Adjustment of an Employee

The value adjustment of an employee is the value transferred by an employee, via his co-operation in a business process, to business effects. It can be obtained by calculating the sum of an employee’s purchase value adjustment and the adjustment value of investments into an employee. The calculation is presented below:

\[
\text{value adjustment of an employee} = \text{employee's purchase value adjustment} + \text{adjustment of investments into an employee}
\]

Terms: employee’s purchase value adjustment and value adjustment of investments into an employee are explained in more detail below.

4.2.2.1 Employee’s Purchase Value Adjustment

The employee’s purchase value adjustment is obtained by multiplying the employee’s purchase value by his/her annual depreciation rate. The calculation is presented below:

\[
\text{employee's purchase value} = \text{employee's purchase value} \times \text{annual depreciation rate}
\]

At this point the employee’s annual depreciation rate needs to be defined, since the employee’s purchase value has been already defined as the usual investment needed in the process of acquiring his/her work capacity, plus the investments associated with his/her direct acquisition.
The annual depreciation rate of a tangible fixed asset is obtained by dividing 1 by its useful life expressed in years. Similarly, the employee’s annual depreciation rate can be obtained as follows:

\[
\text{employee's annual depreciation rate} = \frac{1}{\text{useful life of an employee (in years)}}
\]

The useful life of an employee, expressed in years, is the period during which the employee shall render services to the company. This period depends on the expected presence of the employee in a business process. However, there is a significant difference between a tangible fixed asset and an employee. If ownership is considered in the classical way, one can quickly figure out that an employee is not owned, since he/she is free to leave a company. Therefore, the useful life of an employee is the period during which it is reasonably expected that the employee shall render services to the company. It is the period from the present to the day when an employee quits working for a company due to finding employment elsewhere, disability, retirement or similar reasons.

The concept of useful life is associated with the future. The useful life of a tangible fixed asset is more easily determined than the useful life of an employee. Technological development and the related technical obsolescence of a tangible fixed asset present probably the biggest uncertainty. Although this uncertainty grows, it is still controllable. However, one may ask oneself if it is possible at all to determine the useful life of an employee, especially if one knows that an employee can leave a company at any time. This fact presents a significant barrier to defining the useful life of an employee; however, in our opinion, it can be overcome. We are of the opinion that the useful life of an employee can be determined on the basis of data on the duration of employment (useful life) of those employees who have performed similar tasks in the past.

It is assumed that a company keeps records on the duration of employment (fluctuation) of individual employees. Equipped with this information, one can establish the average duration of employment of individual employees in the past. Further, this information seems to be an appropriate basis for decision-making about the future, namely defining the expected presence of an employee in a company or his/her useful life. Here is an example:

Data on the duration of employment (fluctuation) show that the average duration of employment of employees performing particular tasks is ten years. This means that if we have an employee who performs similar tasks and is with a company for six years, his purchase value adjustment equals 60 percent.

The useful life determined via this method should be reviewed periodically. When the actual useful life significantly differs from that estimated, appropriate measures must be taken. Defining the useful life of an employee is associated with some risk; however, we are of the opinion that this risk is controllable.

4.2.2.2 Value Adjustment of Investments into an Employee
The value adjustment of investments into an employee is obtained by multiplying the value of investments into an employee by the annual depreciation rate of these investments. The calculation is presented below:

\[
\text{value adjustment of investments into an employee} = \frac{\text{value of investments into an employee}}{\text{annual depreciation rate of investments into an employee}}
\]

Further, the two concepts from the equation, i.e. value of investments into an employee and annual depreciation rate of investments into an employee, are explained in more detail.

Investments into an employee include:
- Investments in direct assurance of working abilities,
- Investments in health and well-being, and
- Investments in loyalty to the company.

Investments in direct assurance of an employee’s working abilities are those that are most profoundly relative to the employee’s work in a company. They include:
- Investments into introductory and formal training,
- Investments into informal training,
- Investments into informal introductory training,
- Lower productivity of an employee during the period of his introductory training, and
- Lower productivity of an employee prior to his leaving the company (opportunity costs of the company).

The first four elements increase the value of investments in direct assurance of the working abilities of an employee, while the last one decreases it.

Investments into an employee’s formal training are expenses associated with acquiring the formal knowledge needed for performing certain tasks.

Investments in an employee’s informal training are expenses associated with acquiring his/her functional knowledge.

Investments into an employee’s informal introductory training are associated with the period of his/her introductory training. A new employee needs to be informed about the history of the company, its business policies and methods of communication within the company, and he/she must be introduced to other employees with whom he/she will cooperate at work.

When the differences and similarities between assets and employees were presented, it was pointed out that the value of an asset normally does not change over its useful life, while the value of an employee is much lower during the period of his/her introductory training and the period prior to his/her leaving the company. We will look more
precisely at these two significant periods associated with the presence of an employee in a company.

We have postulated that an employee’s working abilities are significantly lower during introductory training and prior to leaving a company. Therefore, the value of services or economic benefits offered by an individual to a company during this period is lower than his/her salary. However, there is a significant difference between these two periods.

The period of an employee's introductory training is a period of investments during which it is expected that the employee will offer services of certain value to the company in the future. Therefore, the value of investments into an employee during his/her introductory training equals the difference between the amount of the employee’s salary and the value of services offered by this employee to the company. In the case of an employee who performs demanding tasks, such investment value is higher because the introductory training is usually longer. In the case of an employee who performs less demanding tasks, however, such investment value is lower due to the shorter period of introductory training.

The period prior to leaving a company is characterised by negative investments into an employee, namely the opportunity costs. The opportunity costs of the company in this case equal the difference between the amount of the employee’s salary during this period and the value of services offered by this employee to the company. The opportunity costs of an individual who performs more demanding tasks are higher. The period of notice (to terminate employment) of such an employee is longer. In addition, the lost benefits as a result of the lower working abilities of such an employee during this period are higher. The opportunity costs of an individual who performs less demanding tasks are lower.

How can we define the value of the lower productivity of an employee during the period of introductory training and prior to his/her leaving a company? Here is an example: Let’s take an employee who underwent six months of introductory training. Further, we assume that the value of services offered to a company by a newly employed individual equals zero at the beginning of his/her employment and reaches the value of his salary amount on the last day of his/her training. The value of services offered to a company by this newly employed individual is less than half the amount of his/her salary in the first half of his/her introductory training period and is higher than half the amount of his/her salary during the second half of his/her introductory training period. This means that, on average, the value of services offered to a company by a newly employed individual equals half the amount of his/her salary. Similarly, the value of the lower productivity of an employee prior to leaving a company, namely the opportunity costs of the company arising as a result, can be determined.

Investments into health and well-being are those that enable regular attendance in the workplace. These investments may have direct (e.g. reducing sick leaves) or indirect effects (e.g. better achievement as a result of better physical and mental condition). They include: periodic employee medical check-ups, co-financing the lease of recreational buildings, organising sport events and similar.
Investments into employee loyalty reduce the probability that an employee will quit working for the company prior to disability, retirement or similar.

The elements of investments into an employee may differ to a certain extent from company to company. In fact, in some companies or lines of business some specific knowledge is required and therefore specific requirements are applied there. However, the aforementioned elements of investments into employees give solid ground for this particular issue.

The remaining item to be defined is the annual depreciation rate of investments into an employee. This rate may be obtained by dividing 1 by the useful life of investments into an employee (expressed in years) as shown below:

\[
\text{annual depreciation rate} = \frac{1}{\text{useful life of investments into an employee (in years)}}
\]

The useful life of investments into an employee is a period during which the employee shall render services to the company as result of investments directed toward his/her employment. The duration of this period depends on the intensity of knowledge-obsolescence and varies across employees. The knowledge-obsolescence of employees with a technical education depends on the technical/technological development in a particular economic area, while the knowledge-obsolescence of an employee graduating in the social sciences depends more on scientific development in that particular area and similar.

When searching for a method of defining the annual depreciation rate of investments into an employee, one should follow the logic employed in defining the annual depreciation rate of investments into a tangible fixed asset. If it is postulated that the company retains the volume of its capacity instead of raising it, then one may question what influences the volume of investments into a tangible fixed asset in such circumstances, the volume that enables simple reproduction.

The answer is rather simple. The volume of investments into a tangible fixed asset that enable a company to retain its simple reproduction depends on the useful life of the tangible fixed asset. The above may also be stated as follows: the annual volume of investments directed into retaining the simple reproduction capacity of a tangible fixed asset (i.e. the purchase of a new tangible fixed asset when the previous one is worn out) depends on the period of its useful life. Similar considerations apply to an employee. The annual value of investments into an employee reflects the speed of decreasing the value of these investments for the company. Similarly, the annual value of investments into individual elements of such investments manifests itself in the speed of decreasing the value of that element, namely its useful life for the company.
Investments into an employee include: investments in direct assurance of an employee’s working abilities, investments in his/her health and well-being, and investments in loyalty to the company. In terms of values, there are significant differences between these investment elements. Investments in direct assurance of an employee’s working abilities are more valuable than the other two. This means that the useful life of this type of investment is shorter than the useful life of the other two investments. Here is an example:

The purchase value of an employee equals 1,000 monetary units (hereinafter: m.u.), while the annual value of investments into that employee equals 200 m.u. Further, the investments are broken down as follows: 120 m.u. are directed to assurance of an employee’s working abilities, 120 m.u. to health and well-being and 30 m.u. to loyalty to the company.

With regard to the above, one may figure out that the useful life of investments into an employee is 5 years, which gives a 20 percent annual depreciation rate (0.20). The annual depreciation rates of individual investments into an employee are as follows:

- a) investments in direct assurance of working abilities \( \frac{120}{200} = 0.60 \)
- b) investments in health and well-being \( \frac{50}{200} = 0.25 \)
- c) investments in loyalty to the company \( \frac{30}{200} = 0.15 \)

This means that the useful life of the first type of investments is 20 months, the second type of investments 48 months and the third type of investments 80 months.

### 4.3 Net Carrying Amount

#### 4.3.1 Net Carrying Amount of Tangible Fixed Assets

The net carrying amount of a tangible fixed asset is the positive difference between its purchase value and its adjusted value. It is a value that shall be transferred by a tangible fixed asset to business effects during its remaining useful life.

#### 4.3.2 Net Carrying Amount of an Employee

As was already mentioned, our model for evaluating employees is based on the economic concept of value according to which the value of particular goods depends on the present and future benefits associated with these goods. Therefore, the net carrying amount of an employee depends on two factors, namely:

- a) the previously determined positive difference between the purchase value of an employee and his/her adjusted value and
- b) his/her significance to a company.

The second factor is described below.

Let’s assume that we have two employees who differ in only one dimension: the first one performs regular professional tasks, while the second one is a top manager. Would a company in the case of losing them (due to their employment elsewhere, disability,
retirement or similar reasons) suffer the same damage from each? Is their value to the company equal?

Both answers are negative. We are of the opinion that the value of an employee to a company depends on his/her position in the company in terms of its organisational structure. Of course, this also influences the remuneration. The wages and salaries of employees are, therefore, important indicators of their value within the company.

Employee wages and salaries may be defined as a factor that reflects the efficiency of the used work abilities of an individual in the company. An employee, with his/her presence in a business process, offers the company a service and receives a salary in return. The salary amount reflects the value of services offered by an individual to a company and also the employee’s value to the company.

According to the above, the net carrying amount of the value of an employee must be corrected. The correction factor in this context is the ratio between the annual salary of an employee in a company and the average annual salary of an employee in a national economy. The correction factor may be defined as follows:

\[
\text{Correction Factor} = \frac{\text{Annual Salary of Employee in Company}}{\text{Average Annual Salary of Employee in National Economy}}
\]

The wages and salaries of employees consist of their gross amount plus taxes.

5 Evaluating a Group of Employees

As earlier mentioned, this monetary model for evaluating employees aims at evaluating individual employees as well as groups of employees (i.e. all employees within a company). The value of a group of employees is not a simple sum of the values of individual employees – this value usually differs from such a sum due to synergetic effects. However, there does exist a certain relationship between the sum of values of individual employees and the value of a group of employees. Consider that this relationship depends on the successful performance of employees in the company compared to the successful performance of employees in an entire economy.

Further, one may question how the successful performance of employees is reflected in a company. We are of the opinion that the two factors – successful performance of employees and successful business operations of a company – are directly related. In fact, we can say that they are synonyms. In other words: The successful business operations of a company are largely the result of the quality of its employees. A similar relationship exists at the level of the entire economy. Therefore, the difference between the successful business operations of a company compared to the successful business operations of the entire economy lies in the quality of employees. At issue, however, is the problem of selecting an appropriate measurement of the successful performance of employees and, further, the successful business operations of a company.
A number of possible measurements exist to determine the successful performance of employees. One of them is return on capital (the ratio between profit and capital) or net return on capital (the ratio between net profit and capital). Another measurement that can be used is return on assets (the ratio between profit and assets) or net return on assets (the ratio between net profit and assets). The abovementioned measurements manifest some significant weaknesses. Some of them are presented below.

Profit does not depend only on the quality of business operations but also on the chosen approach of evaluating economic categories. Similarly, the amount of net profit depends not only on a company’s tax policy, but also on activities associated with the use/non-use of available tax relief. Further, using capital as a measurement of success relates the successful business operations of a company to its financing, since the value of the said indicator depends largely on capital stake or debt among sources of financing. Further, the value of a company’s assets may depend on the method of their acquisition. Assets acquired under economic lease are disclosed under off-balance records. Does there an appropriate measurement of the successful performance of employees exist?

We consider that a concept of ‘value added’ should be introduced when shaping a model of the successful performance of employees. Value added can be defined as the increased market value of business effects as a result of their increased quality. It is determined as the sales value of business effects less the purchase value of necessary elements.

According to the Accounting Standards Steering Committee, value added is the simplest way to understand a company's profit.² In this context, profit is defined as the achievement of the joint efforts of investors, managers and employees. Value added is treated as wealth; it is a measurement unit for presenting the achievement of these three groups.

In this model, the employees’ performance coefficient serves as a measure of the successful performance of employees. It is defined as the ratio between the sum of weighted average value added per employee in a company and the entire economy during last three years (numerator) and the sum of the number of years used (denominator). The aforementioned ratio of last year is then multiplied by a factor of 3, the ratio of two years ago by a factor of 2, and the ratio of three years ago by a factor of 1. The sum of the factors (3+2+1) equals 6. Accordingly, the performance coefficient is calculated as follows:

\[
\text{Employees' performance coefficient} = \frac{3 \times \text{AA0} + 2 \times \text{AA1} + \text{AA2}}{6}
\]

Abbreviations in the equation mean:
AAO – value added per company employee during last year
BBO – value added per employee in entire economy during last year
AA1 – value added per company employee two years ago
BB1 – value added per employee in entire economy two years ago
The remaining two abbreviations in the equation are defined by using the same logic as above.

When the value of a group of employees is to be determined, the aforementioned approach enables recognition of the overall performance of a company for a period longer than a year. When calculating, the period selection is a matter of subjective judgment, however a three-year period seems to be suitable. The business life of a company is rather intensive, and in light of this, three years seems to be a period that is long enough. In addition, the overall performance of a company during the last year is more accentuated than is the performance of previous years.

6 Conclusion

Employees are the most important element of a business process and yet their value is not disclosed among balance sheet assets. This fact throws a bad light on realistic accounting statements and the authenticity and credibility of accounting information upon which decision-making is based. Further, the management of human resources is frequently inappropriate because of their value not being known.

Employees can be disclosed among assets only after determining their value. The dynamic model for the monetary evaluation of employees presented in this article aims at finding answers to questions associated with this significant and professionally very demanding issue. Currently, this model is in the phase of practical evaluation.

Notes

(1) Such a view is rather static, since a company purchases a new tangible fixed asset only when the previous one is worn out; however, we are of the opinion that the content suits this context.
(2) Accounting Standards Steering Committee (1975), p. 4.

References


