

EVALUATION OF HUMAN CAPITAL ECONOMIC QUALITY ON THE BASIS OF FINANCIAL CATEGORIES. KL-ARK MODEL

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Abstract:

The corporate value creation, which measures the economic success of a company, occurs as a result of integration around the corporate mission and strategy of different resources and competences, among which human resources appear to be very significant. The article presents the author's self-designed measurement model of the *economic quality of human capital* (the KL-ARK model). The conceptual framework of the model includes: (1) the definition of the company human resources, their attributes and artefacts which appear in financial reporting, (2) the mission based presentation of the vision and value as well as business thinking model with regard to the attributes of corporate human resources, (3) the indication of financial reporting categories allowing for the evaluation of outlays on the development of human resources important for the company, (4) the financial measurement of economic quality of human resources expressed by the power of correlation of human resources attributes and artefacts. In the KL-ARK model, the financial measurement of economic quality of human resources is conducted: with the elasticity indicators of human resources artefacts and attributes (direct financial method) and with the power of correlation of human resources attributes with human resources artefacts (indirect statistical method). This text presents the first group of indicators. The model comes as a response to the presently developed standardisation of integrated and sustainability reporting.

Keywords: human capital, value, accounting, financial reporting, model of economic evaluation of human capital quality

1. INTRODUCTION

The major reporting areas the sustainability reporting focuses on at present include: human, community, environmental and management problems (*Sustainability. Reporting Guidelines G4*, 2013). However, the key issue in the integrating reporting, which is being rapidly developed, is reporting on the way VALUE is created in a company (organisation). (*The International <IR> Framework*, 2013). It seems that according to both these initiatives the future of corporate reporting is predetermined. It may be summed up in the phrase: integrated reporting on the value created within sustainable growth.

In corporate VALUE creation, the key business model is oriented to the cooperation of different resources and competences acquired in order to accomplish the corporate mission and strategy. (Karmańska, 2014a). A significant resource in the process of VALUE creation, equal to those enumerated in Table 1, is the competence of people performing corporate work. In integrated reporting the evaluation of the quality of management of such competences expressed by the measurements allowing for the formulation of opinions of the process of VALUE creation in the company seems absolutely indispensable. The model concerning this important issue is presented below. The KL-ARK model is the author's self-designed proposal of how to use the information available in the accounting system in this evaluation¹.

2. ACCOUNTING AND HUMAN RESOURCES ARTEFACTS IDENTIFICATION

The presentation of the KL-ARK model should be perceived in terms of an **axiom that in financial corporate reporting human resources are not reported in the literal sense**, i.e. with regard to the people of definite competence and other attributes important for the company operation. Bearing the above axiom in mind, it is advisable to use the term **human resources attributes** instead of **human resources**. For the terminology used in the description of the KL-ARK model it is important that human work in a company finds its definite final effect for example in the form of a manufactured product, created project, document, ensuing situation etc., and these eventually are reflected in the value of financial categories and description revealed in financial reporting such as financial categories, incomes and costs or cash flows as well as complementary information. From this point of view, in financial reporting it is possible to identify **human resources artefacts**, which may have the character of value, relationship, dynamics or risk factors possible to recognize from a financial report.

At this point, in order to make the message explicit, it should be underlined that whenever the data from the accounting information system are mentioned, they refer exclusively to the scope, features and the way of operation of financial accounting information system as a result of which financial reports are made in compliance with the information requirements of the *International Financial Reporting Standards – IFRS* or respective European Union directives.

3. HUMAN RESOURCES MANAGEMENT QUALITY AND HUMAN RESOURCES ARTEFACTS IN ACCOUNTING

The appearance of human resources artefacts in reporting is affected by **human resources management**. This management means an ability to acquire and retain people with attributes necessary to implement tasks planned in a given company. The way this community works depends on the applied methods, techniques and culture of human resources management. Ignoring the soft aspects connected with it, one can – in the context of accounting and financial reporting – holistically conclude here that the quality of human resources management translates into the competence potential of the people employed in the company (human resources attributes), and this in turn translates into the artefacts of these resources. The recognition of the artefacts of one company and comparing them with human resources artefacts in another company may help to realise whether the company gains a competitive advantage only thanks to the attributes of its human resources. This sort of analysis and findings may be helpful in appraising the role human resources in VALUE creation in a given company in terms of the ability of these resources to create a corporate potential resulting from the synergy of the set of attributes of its human resources.

¹ Broader presentation of the model included in: (Karmańska 2013).

4. EVALUATION MODEL OF HUMAN RESOURCES ECONOMIC QUALITY– KL-ARK

The author's self-designed disquisition is presented below on the identification of *corporate human resources and their value*. The presentation does focus on the axiological perception of value, assuming that the identification of the problem of corporate human resources value is to serve approaching the measurement of the significance of these resources for the corporate economic potential and finally for the competitive rise in the corporate market value. The disquisition, presented here as the KL-ARK model, is based on:

- 1) the knowledge of law in the area of accounting and its impact on financial categories appearing in financial reporting,
- 2) process and activity approach to the monitoring of costs and corporate business activity effects,
- 3) intuitive and at the same time holistic perception of the connection of financial categories thanks to which one can try to identify certain aspects of *corporate human resources*.

Within the conceptual thinking framework about the *evaluation of human resources* on the basis of the data available in the AIS system, which for communicative reasons, are defined as **KL-ARK model**, we assume a model assumption that when making use of the financial reporting categories, we can evaluate:

1. **the value of human resources attributes** acquired to the company by HR according to the corporate needs but already in possession of the recruited people; this value is subjective although it is reflected in the value of the respective remuneration and related costs; it is so because it depends to a large extent on the *degree of corporate desire for a definite bundle (set) of human resources attributes*; the desire is determined by the further business plans of the company;
2. **the value of human resources attributes** at the expense of the company in order to adjust and develop human resources attributes contributed to the company on recruitment;
3. **the value of human resources artefacts acquired from other companies**, gained through the acquisition of another entity or its organised part;
4. **the value of human resources artefacts** in the company as long as they translate into financial categories (for example expense or income) or certain relations between them and other reporting categories which, as a matter of principle, reflect the **economic quality of use of human resources attributes** in the corporate operation;

The model assumes that the aforementioned **four evaluations may become a starting point of the search for measurements of correlation between the value of human resources attributes** possible to be used in the company and **the value of human resources artefacts**, but only these artefacts which can be measured by financial categories and which are actually the final effects of corporate human behaviour (on all planes: behavioural and professional as well as behavioural and interpersonal in the whole corporate community).

In view of the above, the **underlying thesis of the KL-ARK model is**: on the basis of the data available in the AIS system, it is possible to diagnose the *economic quality of human resources*; the diagnosis may be an independent module in a more comprehensive model of evaluation of human resources, but it may also be perceived as a reasoning model based exclusively on the accounting information system categories (both financial and management accounting).

The **economic quality of human resources** is perceived in the KL-ARK model as a correlation between human resources artefacts (to make the message explicit: broadly understood multi-dimensional effects of work of people employed in a company) measured with the application of financial categories and the value of outlays connected with the maintenance, within the company, of the bundle (set) of human resources attributes used in this company.

In the model approach there is an **important assumption** that **human resources artefacts appear with delay** (yearly, half-yearly, quarterly – depending on the selected period of analysis) **in relation to the outlays on human resources attributes**.

The KL-ARK model determines **financial reporting categories which identify human resources synergic artefacts** from the perspective of processes and activities, applying the following assumptions:

- A) the application of this model is possible **in order to make an aggregated evaluation of the economic quality of corporate human resources**,
- B) this model may be used to make a detailed **evaluation of the economic quality of corporate human resources in the area of operational, investment and innovation activity**, as long as facultative corporate disclosures allow for it,
- C) **the provision of data** important for a detailed evaluation of the economic quality of corporate human resources requires a facultative presentation of information which may be acquired in the company distinguishing appropriate processes.

In the KL-ARK model, **the financial measurement of economic quality of human resources is conducted through:**

- a) **the indicators of elasticity of human resources artefacts and attributes** (*direct financial method*)
- b) **the power of correlation of human resources attributes with human resources artefacts** (*indirect statistical method*).

The present study in the following sections is confined to the presentation of the author's proposals of artefacts elasticity indicators and human resources attributes. It does present the statistical method, which will be dealt with in the next conceptual studies.

In view of the above, the KL-ARK model recognises **3 key financial parameters referring to the value of human resources attributes** possible to identify in the financial report (in the detailed version of a complementary section); they include:

- **value of remuneration costs**, which are a financial measure of the staff attributes value (appraisal of their competence, potential and usefulness),
- **value of outlays on the development** of these attributes within the scope and scale resulting from the corporate plans and needs. These outlays are a kind of investment on which a return is expected in the form of innovation initiation and pursuit or a better quality of work. It should be noted that in this group of values of human resources attributes, the cost of external training of staff is a leading item but not the only one. There are other important costs incurred by the company in order to provide their staff with new experiences and observations, and this does not always mean participating in trainings or conferences,
- **value of human resources artefacts acquired from other companies** which is to be associated with the acquired goodwill.

Moreover, the model assumes **a selection of financial parameters referring to artefacts of attributes of human resources** appearing in a company primarily due to human resources attributes and not due to market mechanisms, which are beyond the company's control.

This model is under construction (in the conceptual phase) and in this period it tries to identify the economic value of human resources exclusively thanks to elasticity factors, i.e. the financial direct method, whose usefulness should become subject to verification. As it is evident that the concept of the model should be verified, it is ready for the discussion in the professional environment.

5. DIRECT FINANCIAL METHOD OF MEASUREMENT OF ECONOMIC QUALITY OF HUMAN RESOURCES

Direct financial method of measurement of economic quality of human resources **makes use of the so-called elasticity factors of artefacts and attributes of human resources.**

These factors include two groups:

EJ(K)^Z	factors of the aggregated (Z) evaluation of economic (E) quality (J) of corporate human resources (K)
EJ(K)^U	factors of the detailed (U) evaluation of economic (E) quality (J) of corporate human resources (K)

The author's self-designed proposal of formulas of these elasticity factors of artefacts and attributes of human resources serving the purpose of the evaluation of the economic quality of corporate human resources is presented in Table 1.

Table 1. The proposal of elasticity factors of artefacts and attributes of human resources serving the purpose of the evaluation of the economic quality of corporate human resources

EJ(K)^Z	factors of the aggregated (Z) evaluation of economic (E) quality (J) of corporate human resources (K)
1. A static factor of aggregated evaluation of economic quality of human resources	
$EJ[K]^Z = \Delta EVA^t / [\sum_{i=1}^n W(t-1)_{ATw-i} + \sum_{i=1}^n W(t-1)_{ATr-i} + \sum_{i=1}^n W(t-1)_{ARw-i}]$	
EVA	economic value added set for the whole company
T	evaluated period
t -1	comparable period directly preceding period t
i (...) n	number of process distinguished in the company
W(t-1)	value of respectively identified attributes or artefacts of human resources, set for the period t-1, i.e. a comparable period directly preceding the period for which the evaluation of economic quality of corporate human resources is conducted
W(t-1) _{ATw-i}	value of human resources contributed attributes and appearing in corporate process i (set at the level of remuneration and related costs)
W(t-1) _{ATr-i}	value of human resources attributes developed at the corporate expense and appearing in corporate process i (set on the basis of outlays on training, courses, conferences, acquisition of new experience and other forms of expansion and development of knowledge, skills and behaviour of staff)
W(t-1) _{ARw-i}	value of acquired human resources artefacts from other companies (set on the basis of goodwill or in connection with the reference to a part of this value as intangible)
General interpretation:	
<ol style="list-style-type: none"> 1. The factor should be monitored period to period. 2. When interpreting, it is important to note that the increase in the positive or negative economic value added may result from some market determinants independent of human resources attributes. However, on the other hand human resources attributes should be able to work efficiently in every market situation. That is why the interpretation can be accepted that from the perspective of the whole company the growth in EVA is a synergy effect of all corporate human resources attributes and is a good parameter to reflect their quality. 3. Only a positive value of the factor indicates good economic quality of human resources. 4. Value 0 should be perceived as the situation in which corporate human resources attributes are likely not to play any role in the corporate market value rise. 5. The factor value means a financial efficiency of human resources attributes expressed by the value of the growth in the value added per unit of value of human resources attributes. 6. The factor shows how the human resources attributes developed in the former period are paying off in the current period with the value added (with a rise or decline). 7. The monitoring of this factor in a long run allows for finding out a possible "seasonality" of human resources attributes, which may become a subject of a separate analysis from the behavioural perspective. 	

<p>2. A dynamic factor of aggregated evaluation of economic quality of human resources</p> $\Delta EJ[K]^z = \Delta EVA^t / \left[\sum_{i=1}^n (W(t-1)_{ATW-i} - W(t-2)_{ATW-i}) + \sum_{i=1}^n (W(t-1)_{ATR-i} - W(t-2)_{ATR-i}) + \sum_{i=1}^n (W(t-1)_{ARW-i} - W(t-2)_{ARW-i}) \right]$	
EVA	economic value added set for the whole company
T	period with regard to which the evaluation of economic quality of corporate human resources is conducted
t -1	comparable period directly preceding period t
t -2	comparable period directly preceding period t-1
i (...) n	number of process distinguished in the company
W(t-1) lub W(t-2)	value of respectively identified attributes or artefacts of human resources, set for the period t-1 and t-2
W(t-1) _{ATW-i} lub W(t-2) _{ATW-i}	value of human resources attributes contributed and appearing in corporate process i (set at the level of remuneration and related costs), referring to period t-1 and t-2
W(t-1) _{ATR-i} lub W(t-2) _{ATR-i}	value of human resources attributes developed at the corporate expense and appearing in corporate process i (set on the basis of outlays on training, courses, conferences, acquisition of new experience and other forms of expansion and development of knowledge, skills and behaviour of staff), set for the period t-1 and t-2
W(t-1) _{ARW-i}	value of acquired human resources artefacts from other companies (set on the basis of goodwill or in connection with the reference to a part of this value as intangible)
<p>General interpretation:</p> <ol style="list-style-type: none"> 1. This factor should be interpreted together with the static factor of aggregated evaluation of economic quality of human resources. 2. This factor allows for the assessment if there is an economic return on human resources attributes; the return indicates how many cents of the increase in EVA corresponds to one unit of the increase in the value of human resources attributes. 3. The interpretation of the factor has to be cautious as it may have a positive value due to a positive EVA increase but it may also have a positive value with a negative EVA increase, i.e. in the situation when the rise in value of human resources attributes has a negative value. 4. If the value of the factor is 0, it may be concluded that the increase in corporate outlays incurred on the retention and development of human resources attributes does not bring an economic effect translated into in the corporate market value rise. 5. Comparative analyses of companies indicate that the evaluation of human resources looks more favourable in the company in which the value of the factor is higher. 	
<p>3. An elasticity (dynamic) factor of aggregated evaluation of economic quality of human resources</p> $D-EJ[K]^z = D_{EVA} / D-W_{ATIAR}$ <p>where:</p> $D_{EVA} = (EVA^t - EVA^{t-1}) / EVA^{t-1}$ $D-W_{ATIAR} = \frac{\sum_{i=1}^n (W(t-1)_{ATW-i} - W(t-2)_{ATW-i}) + \sum_{i=1}^n (W(t-1)_{ATR-i} - W(t-2)_{ATR-i}) + \sum_{i=1}^n (W(t-1)_{ARW-i} - W(t-2)_{ARW-i})}{\sum_{i=1}^n W(t-1)_{ATW-i} + \sum_{i=1}^n W(t-1)_{ATR-i} + \sum_{i=1}^n W(t-1)_{ARW-i}}$	
EVA	economic value added set for the whole company
T	period with regard to which the evaluation of economic quality of

	corporate human resources is conducted
t -1	comparable period directly preceding period t
t -2	comparable period directly preceding period t-1
i (...) n	number of process distinguished in the company
W(t-1) lub W(t-2)	value of respectively identified attributes or artefacts of human resources, set for the period t-1 and t-2
W(t-1) _{ATw-i} lub W(t-2) _{ATw-i}	value of human resources attributes contributed and appearing in corporate process i (set at the level of remuneration and related costs), referring to period t-1 and t-2
W(t-1) _{ATr-i} lub W(t-2) _{ATr-i}	value of human resources attributes developed at the corporate expense and appearing in corporate process i (set on the basis of outlays on training, courses, conferences, acquisition of new experience and other forms of expansion and development of knowledge, skills and behaviour of staff), set for the period t-1 and t-2
W(t-1) _{ARw-i}	value of acquired human resources artefacts from other companies (set on the basis of goodwill or in connection with the reference to a part of this value as intangible)
General interpretation:	
<ol style="list-style-type: none"> 1. This factor is the most dynamic in this group and allows for the diagnosis whether value added growth rate is the same as the rate of growth of the value of corporate human resources attributes. 2. The factor may have value 0, 1, > 1, < 1. 3. Value 0 indicates the lack of impact of human resources value on the corporate market value. 4. Value 1 indicates a linear policy in relation to human resources, i.e. the increase in the value of human resources is parallel to the growth in impact on the market value. 5. The higher the value added, the more strongly it points to the significance of economic quality of corporate human resources. 6. When interpreting this factor it is good to remember that it may also have a positive value in the case of an EVA negative growth rate, if there is also a negative rate of growth in the value of human resources attributes. 	
EJ(K)⁰	factors of detailed (U) evaluation of economic (E) quality (J) of corporate human resources (K)
<p>1. Factors of evaluation of economic quality of human resources involved in the corporate operational process</p> <p>The factors in this group may be constructed in an analogical way to the factors of aggregated evaluation of economic quality of human resources, with differences as follows:</p> <ol style="list-style-type: none"> a) in this activity, the effect on the gross sales increased by the cost of sales should be a synergic financial artefact used instead of EVA, b) the value of human resources contributed attributes, the value of human resources developed attributes, the value of human resources artefacts acquired from other companies should be set according to the internal information management system for the operational process including the marketing sub-process, sales sub-process and aftersales service sub-process (without a strictly goods manufacturing and services process) <p>The evaluation of economic quality of human resources involved in the very operational process of manufacturing and services should make use of controlling categories of deviations from the planned costs for this activity.</p>	
<p>2. Factors of evaluation of economic quality of human resources involved in the corporate investment process</p> <p>The factors in this group may be constructed in an analogous way to the factors of aggregated evaluation of economic quality of human resources, with differences as follows:</p> <ol style="list-style-type: none"> a) in this activity, the total revenue result (income and expense recognized in effects and equity) but set for the financial activity should be a synergic financial artefact used instead of EVA, b) the value of human resources contributed attributes, the value of human resources developed attributes, the value of human resources artefacts acquired from other companies should be set according to the internal information management system for the investment process perceived in the way it defined for the purpose of the AIS. 	
<p>3. Factors of evaluation of economic quality of human resources involved in the corporate innovation process</p> <p>The factors in this group may be constructed in an analogical way to the factors of aggregated evaluation of economic quality of human resources, with differences as follows:</p> <ol style="list-style-type: none"> a) in this activity, <ul style="list-style-type: none"> – the parameter of innovativeness understood as value 0 in the case it does not appear in intangible assets of the development work expenses item or value 1 otherwise, or – the value of expense on research work completed and development work completed jointly, or – the value of expense on the conducted research work and conducted development work jointly may be a synergic financial artefact used instead of EVA. <p>These parameters should be set for the carefully selected periods due to the delayed financial artefact in relation to the value of human resources attributes, discussed before in the model</p> 	

description.

- b) the value of human resources contributed attributes, the value of human resources developed attributes, the value of human resources artefacts acquired from other companies should be set according to the internal information management system for the investment process perceived in the way it defined for the purpose of the AIS.

Source: own material.

6. CONCLUSIONS – THE APPLICATION OF THE KL-ARK MODEL IN RELATION TO HUMAN RESOURCES IN COMPANIES OF DIFFERENT SIZES

Taking into account the fact that this model makes use of the data included in financial reports and facultative disclosures, it may be concluded that it may be fully applied in **large companies**, where human resources are more numerous and due to this they are subject to a special management process (usually developed much better than in small or even medium companies). The application of the model in its full scope means using the indicators mentioned above in two groups: group 1 – factors of the aggregated evaluation of economic quality of corporate human resources and group 2 – factors of the detailed evaluation of economic quality of corporate human resources.

It may also be assumed because of it that large companies intensively seek a competitive growth in the market value in order to gain a competitive advantage in the acquisition of capital for financing their activity; these companies will report, on their own will, different parameters describing their human resources. Thus, it is possible to attempt to answer the question what parameters should be presented as complementary facultative information so as to allow for a comprehensive comparative application of the proposed model (within the industry, region or on a different plane). Thanks to it, it would be possible to compare the economic quality of human resources of different companies. **With regard to small and micro companies**, it seems well justified to apply only the factors of group 1 – the aggregated evaluation of economic quality of corporate human resources.

The model uses such synthetic categories that it is of no significance whether the evaluation would refer to domestic or foreign companies, or those operating in compliance with the Polish or international law.

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