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RESEARCH ARTICLE

Supporting efforts to measure intellectual capital through the EFQM Model with the example of Hungarian National Quality Award winners

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Abstract

The bottom line of managing intellectual capital is the ability to measure its elements. Year by year intellectual capital literature and company practice line up new measuring attempts, but only some of them prove to have strong empirical evidence. Notwithstanding, several companies complete their traditional financial accountings with the evaluation of assets which are invisible in the books. First, our study introduces the main issues regarding the measurement of intellectual capital elements. Then it seeks the answer for the question how the EFQM-based self-assessment method can support an organization in its efforts to evaluate some of its intellectual capital elements.

Keywords

intellectual capital (IC) · measurement · self-assessment model · Hungarian National Quality Award

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1 Introduction

In the history of management several models, schools have dealt with the identification of the sources of business success which have established effective and efficient operation of organizations in a particular economic-social situation. Models reacting to changes and challenges of the environment have emphasized different points of views. Since the beginning of the 90s the theory of intellectual capital (IC) and the researches related to the identification and quantification of its elements have attracted more and more attention as only a part of the organizations' resources is tangible, while another part which is more and more determining is intangible. Steady competitive advantage of several companies of today is due to their skilled and experienced staff, strong customer relations, brands, corporate culture or their unique organizational structure, procedures, i.e. capital elements that are difficult to be grasped from the point of view of accountancy. These are all such 'soft' factors of the organization that are rather difficult to be quantified. Notwithstanding, the questions how IC elements could be made visible within the assets of a corporation and how their contribution to corporate success could be measured arise as a natural demand.

The realisation that a corporation has intangible assets is not novel. The management have developed several methods, techniques, models that are related to the assets not appearing on the balance sheet, such as business process reengineering, the main driving forces of quality management systems, or the identification and management of core competences [13].

The question arises evidently: if the emphasis is gradually laid on intangible assets instead of tangible assets, how it will affect the behaviour and applied leadership styles of managers. They will soon realise that managing IC elements does not require the same methods as managing tangible assets. What is the main reason for it? IC cannot be totally appropriated, talks sometimes back, it is difficult to get hold of it and it is expensive to keep it, it is difficult to push it into traditional corporate schemes, and it will most likely reshape the applied management techniques totally.

1.1 Definition of IC

For the last two decades mainly, there have been several efforts to define it not only in IC literature, but in corporate practice as well, but there has not been a common denominator regarding the definitions of IC [4]. One of the main reasons for this is that the difference between corporate value and the fair value of independently rateable assets, i.e. corporate value added is explained in different ways [16]. Accordingly, different measuring purposes have generated different definitions, the purposes of accounting policies, investments in intellectual assets and managerial aims have also resulted in different definitions [15].

The first generally accepted definition is originated with Stewart, whereas intellectual capital is the whole of useful knowledge, which includes skills of the staff, information regarding customers, suppliers, other stakeholders, it contains corporate processes, procedures, technologies, and corporate structure that can be put to use to create wealth [31]. According to one of the most complete definitions, intellectual capital refers to the combined amalgam of intangible assets that makes the organization manageable [7].

Most of the time those corporate resources are regarded as intangible, immaterial, non-objectified assets which though, have neither material-physical nor financial form of appearance, but they do carry some kind of value for the corporation [17]. Intangible assets do not necessarily carry value, but become valuable by taking part in value-making processes of the corporation [12].

In the course of our study by the concept of IC we mean the combination of intangible capital elements which are at the corporation's disposal, and by means of effective and efficient management of them IC can be the source of competitive advantage for the corporation. All intellectual capital elements, which define the success of the corporation, are included in this category, though, only some of them appear in the balance sheet under the headword 'immaterial assets'. Therefore, intellectual capital includes such intangible assets besides immaterial assets traced in the books that carry knowledge which can be made use of by the corporation in order to fulfil its own purposes. Moreover, the combination of intangible assets and not their absolute quantity raise value for the corporation. What is more, the corporation does not own all of these intangible assets, i.e. it cannot control all of them. The organization can only be in disposal of them regarding achieving its aims. Finally, sheer existence of these intellectual capital elements will not bring positive results without the efficient and effective management of them.

1.2 The elements of IC

There is no single attitude towards content elements but if we take a closer look at the different models, several similarities and related approaches can be noticed [13]. The practice is that each author applies his own model and his own classifying method of intellectual capital elements (e.g. [1,7,11,28,31,35]). Luthy groups intellectual capital elements on the basis of studies concerning international literature into three fundamental categories, so *human capital*, *structural* (or often *organizational*) *capital* and *relational* (or *customer*) *capital* altogether constitutes an organization's intellectual capital [13].

The importance and honoured role of *human capital* is stressed by every expert. It includes corporate members' knowledge, skills and experience. It is the part of intellectual capital which is not owned by the corporation. The employees' tacit knowledge can be made explicit, by means of which human capital becomes structural capital, so this way it changes hand. Human capital is especially important, because it is the source of innovation and strategic renewal.

The second component is *relational capital*, which includes relations with customers, suppliers, owners and other stakeholders, but the values originating from the maintained relations with social factors operating within the closer and wider environment of the corporation by means of integration, cooperation, commitment as an expression of social responsibility are included as well. It is the easiest IC element to follow up by measuring e.g. market share, the ability of keeping customers, the ratio of lost and loyal customers and the profit per customer [31].

Structural capital is everything that is left behind at the office when employees go home [11]. Opposed to human capital this capital belongs to the organization such as corporate culture, corporate structure, procedures, technological infrastructure, processes and innovative results.

Sveiby as a pioneer of intellectual capital studies refers to human capital as the employees' competence, structural capital as internal structure, while relational or customer capital as external structure [35].

Giving up the theory of tree-type IC element classifications Stewart claims that human, structural and customer capital overlap each other [31]. Separate IC capital elements cannot be definitely classified in particular IC capital categories, i.e. managing intellectual capital depends on in which category single intellectual capital elements of the corporation are being included at the moment, and what activities are necessary for the corporation to convert human and customer capital into structural capital [21].

According to the theory of overlapping the Aeropa consulting corporation have constructed the *4-Leaf Model* which demonstrates that instead of handling human, structural, and customer capital separately IC categories work together [31]. This model breaks intellectual capital up to four elements and in their intersections it identifies 15 areas overlapping one another. These four elements are human, customer, structural capital and the capital related to strategic allies and partners. The identification of the latter capital element rests upon the realisation that partners, coalitions and chains are more and more becoming influencing factors of business success.

Another message of the model is that apart from structural capital intellectual capital elements are shared capitals [31], i.e. the corporation shares human capital with its employees, therefore if an employee leaves the corporation, the corporation loses

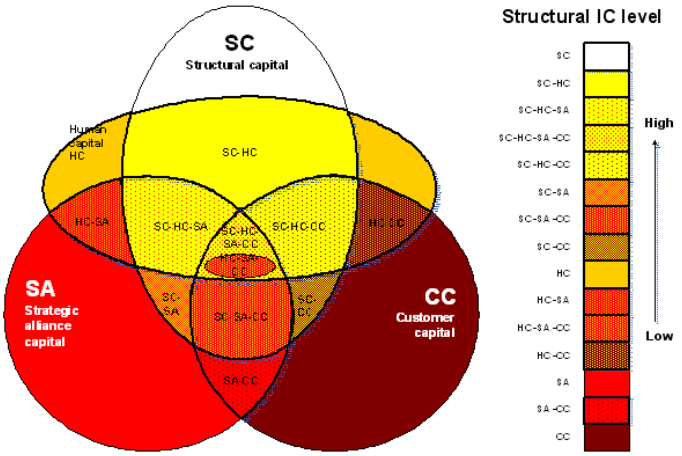

Fig. 1. 4-Leaf Model [2]

his skills, expertise, reputation and his hidden potentials. The same 'rule' applies to customer and strategic alliance capital. Although, neither human capital nor customer and strategic alliance capital can be totally lost as a part of them becomes structural capital. The conclusion of the model is that intellectual capital elements can convert into neighbouring capital elements, so it is especially important to know where single intellectual capital elements are being situated at the moment and what actions are necessary to be taken to convert those IC capital elements which are threatened by the risk of being lost into structural capital [2].

2 Measuring models for IC

For the past decades there have been several researches focusing on demonstrating, measuring and evaluating intellectual capital. The pioneers of these studies were practising experts [25, 29] as corporations themselves were the first ones to realise that present and future success of corporations depend less and less on the strategic allocation of physical and financial sources, but the strategic management of intellectual capital is becoming more and more important [4]. For the last 15 years several national and international efforts, projects have dealt with the identification and quantification of intellectual capital elements, establishing principles in connection with them [4, 8, 9, 19, 20, 24].

Due to the role of IC elements in value-creating and to the inadequacy of them regarding accounting information there have been several theoretical and practical efforts in management literature to identify and review these elements. The latest approaches are not concerned with the insufficiency of traditional accounting report and they do not consider it to be the source of putting efforts concerning measuring and managing intellectual capital in the right direction. On the basis of different requirements, what kind of information stakeholders are interested in and how they would like to gain this information have become the main motivations of the creation of different measuring models [27].

The most popular measuring and evaluating models have been developed on the strength of the wide-ranging motivations of measuring intellectual capital, e.g. monitoring organizational performance, reporting to stakeholders, guiding investments, uncovering hidden value. There are four measuring model categories according to Sveiby's classification [34] by right of applied measuring methodology approach:

- two main groups of methods intend to grasp intellectual capital in a single financial indicator (Market Capitalization (MCM) methods [1] and Return On Assets (ROA) methods[2]
- another group of methods approaches intellectual capital by its elements adding financial indicators to each (Direct Intellectual Capital (DIC) methods[3];
- the third category of methods intends to measure the value of intellectual capital on corporate level, aggregately and in one single non-financial indicator;
- last but not least, there are methods approaching intellectual capital by its elements and adding non-financial indicators to them (Scorecard (SC) methods);

The Fig. 2 shows the structuring of well-known measuring frameworks of intellectual capital according to Sveiby:

Every method has its own advantages or rather the situations, the evaluating purposes or stakeholders for which they can be used profitably. Methods offering financial valuation can be well applied for industry comparisons, in the course of mergers and acquisitions or for stock market valuations. The inevitable advantage of MCM and ROA methods is that they operate with expressions that can be easily communicated to management. Their drawback is that referring to these intangible phenomena with financial terms can easily be the source of incorrect conclusions. Particularly MCM methods are of no use for non-profit and public sector organizations. Direct measuring methods could provide the most sufficient foundation of managerial and investment decisions, therefore the probability of managerial mistakes, but the maturity of these methods is low-level with less empirical evidence. The advantage of DIC and SC methods is that they (would) give a more comprehensive picture of individual intellectual capital elements; therefore they could result in deeper knowledge. A further advantage of scorecard methods

[1] The starting-point of these methods is the idea that the total value of a corporation's intellectual capital or intangible assets equals the difference between the market value and the book value of the organization [3, 31] .

[2] The corporation's average pre-tax earnings are taken as starting-point. It is related to the average value of tangible assets. Then this ratio, which is the ROA of the company, is compared to the industrial average. The difference between the company's ROA and the industrial average is multiplied by the company's average value of tangible assets to get an average annual earning from intagibles. If it is divided by the company's average cost of capital or by other interest rates, we get the estimated value of intellectual capital [22, 31].

[3] The value of intellectual capital is estimated in the way that first its individual elements are identified then their individual money value is defined, e.g. according to assumed money-flow which is directly connected to the individual assets [7, 32]

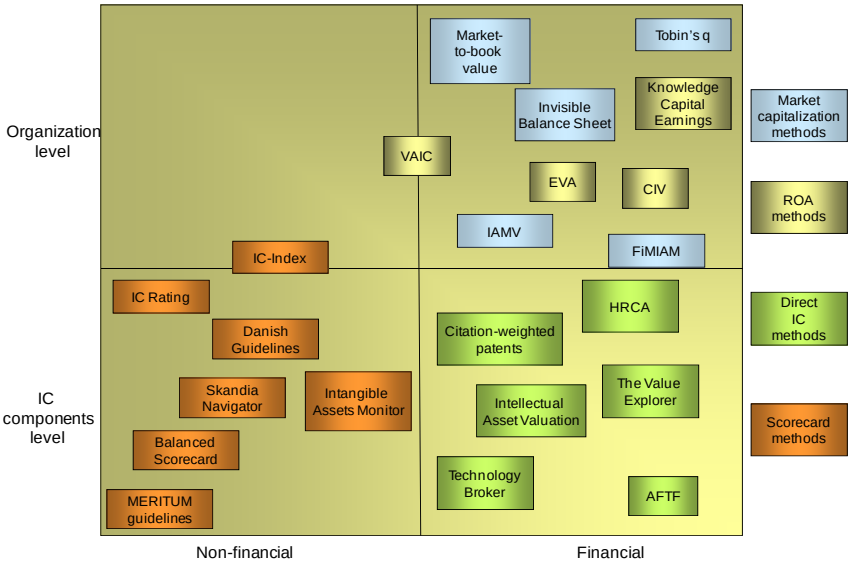

Fig. 2. The four basic approaches for measuring intellectual capital [33]

is that these indicators have a more direct relation to the intellectual capital element being evaluated as they are more accurate than pure financial measures. Their drawback is that these measures have to be 'customized' to the corporation's purposes. Furthermore, they are more difficult to be made accepted by members of the corporation and by the management [34].

As different methods offer different advantages and serve several purposes, one of the most important questions is how to choose from the new methods occurring. According to Bontis the answer is in the deeper understanding of the models available at present, in mapping their conditions, strengths and weaknesses [4]. No method can fulfil all purposes so there are no best methods and no best tools. As a matter of fact, there is no method which can be applied generally and widely but there are several methods and tools which stand fast in particular situations and in the case of particular types of corporations. At the same time most experts do not even think that a single 'common denominator' should be found.

Among the measuring models introduced above our attention turned to the scorecard methods which apply non-financial indicators and scrutinizes IC elements separately. The reasons for our choice:

1 The difficulties of measuring intellectual capital are on one hand caused by the uncertainty of the size and time of future revenues and expenses connected with intellectual capital elements and by the uncertainty of defining cause and effect relations. On the other hand, their value cannot be measured directly in financial terms, whereas indirectly only with strong distortions [16].

2 Developing intellectual capital is possible only in parts, it is not enough to measure the whole intellectual capital of a corporation, its parts should be grasped as well. Although, it is more difficult to apprehend intellectual capital elements than to measure the whole. It is caused by the fact that market feedbacks, from which we can make deductions about the size of intellectual capital, measure it as a whole and do not say anything about the parts [3].

3 The purpose of scorecard methods is a kind of condition survey and to find the answer how single intellectual capital elements could be managed and also to evaluate strategic preparedness from this point of view. Their purpose is to define the non-financial value of intangible assets and they measure processes and results that depend on intellectual capital elements. One of the purposes of scorecard methods is to find an indicator to define a particular intellectual capital element which is more suitable than financial measures. Therefore, the measuring model focuses on the evaluation of indicators and trends of intellectual capital rather than calculating economic value at any cost.

However, scorecard methods are a good starting point to understand the nature of IC, because they can provide the largest number of possibilities to review intellectual capital elements and to follow changes on the basis of research results at present.

3 Hidden potentials in the EFQM Model to assist the measurement of intellectual capital

Besides financial evaluation methods other measuring models have had results worthy of attention since the middle of the 90s, therefore self-assessment models appearing as a result of the development of quality management systems provided a suitable point of origin for the review of intellectual capital elements and threw light upon the importance of measurement. There have been several attempts on international level to expand the potentials of TQM-guided self-evaluating models over the measurement of immaterial assets. The Danish Rambøll consulting corporation has created its intellectual capital measuring model upon the EFQM Excellence Model [30]. Knapp's holistic intellectual capital measuring approach [18] includes measuring

elements based on the EFQM Model and its point system as well.

The EFQM-based self-assessment model was chosen as a basis for our research. On one hand, the reason for choosing this model is that it is strongly related to measuring models using both financial and non-financial scorecards to assess organizational performance. On the other hand self-assessment models form the basis of various quality awards. As a kind of a performance measuring model the EFQM model can support the identification of intellectual capital elements, their role in organizational performance and the examination of their managerial methods is a good foundation to present indicators supporting the effectiveness and efficiency of these methods and supporting the measurement of intellectual capital elements.

We intended to take a measuring model to motivate measuring intellectual capital among domestic corporations as a basis, which could become the starting-point of national efforts to measure intellectual capital, therefore which makes defining, measuring, tracking and evaluating of both financial and non-financial indicators necessary and is more widely known in Hungary than any other measuring models shown in the table below.

Furthermore, the motives for our choice were that there are approximately three hundred local corporations which apply self-assessment regularly [36] and several hundreds of corporations have applied for regional and national quality awards so far [4]. We have assumed that apart from the model applied, self-assessment activities can be made use of in measuring particular intellectual capital elements.

3.1 Study purposes

One of the purposes of our study was to examine how the EFQM based self-assessment model and its criterion system applied for measuring business excellence make the review of IC elements and the understanding of synergic effects between them possible.

Our aim is to introduce how self-assessment could contribute to the managerial and quantification efforts of IC and how indicators and measures applied during self-assessment can be connected to well-known intellectual capital measuring models, such as Sveiby's Intangible Asset Monitor [35], the Skandia Navigator, [11] or [1] model.

Another purpose of our study is to prove that measuring and managing intellectual capital is part of business excellence and among key strategic indicators there are non-financial indicators which confirm the strategic role of some specific intellectual capital elements.

We demonstrated the relations between the sub-criteria of the model and IC categories according to the application guidelines of National Quality Award 2006 (NQA) [26] and by making use of the requirement system of the EFQM Model which forms the basis of the Award. The guidelines of NQA give a detailed presentation of the self-assessment information required in connection with certain sub-criteria, therefore it provides a suitable basis for matching them with intellectual capital elements and for deciding that the management and the quantification of which intellectual capital elements could be contributed to by the activities and results presented on the basis of certain sub-criteria.

Taking the altogether 39 cases of self-assessment practice (applications for the European Quality Award as well) of 31 National Quality Award winner companies as a starting-point, we placed the sub-criteria of the Results side of the model into the focus of our research by examining what kind of indicators companies use and for how long they have been measuring.

3.2 The sub-criterion system of the EFQM Model and the self-assessment potentials of certain intellectual capital elements

Most criteria and sub-criteria of the EFQM Model is connected to soft organizational factors that are difficult to be grasped as during the assessment of organizational excellence activities like developing policies and strategy, managing human resources and partnerships, or the perception of employees, customers and the society about the corporation are heavily stressed. During the evaluation of satisfaction the most important stakeholders have to assess such organizational factors as e.g. the quality of the product, the working environment, the corporate culture or the social responsibilities of the corporations etc.

By reason of the cause and effect relations among the sub-criteria the 32 sub-criteria of the model were put into logical relations with human capital, structural capital and relational (customer) capital one by one. The reason for taking this intellectual capital categorization as a basis is that the corporation being involved in self-assessment has to review its results achieved in connection with customers and employees on the Results side separately. Moreover, social effects appear in the structure of the model as part of the corporation's relational capital but they are clearly separated from customer capital.

The following example contains a sub-criterion on the Enablers (5.b) and Results (6.a) side to present the relation between the sub-criteria of the EFQM Model and intellectual capital categories.

Sub-criteria of Enablers could review management of specific IC elements and the methods of them by nature. Sub-criteria on the Enablers side cover the self-assessment of methods, tools, techniques and processes of the management and development of structural capital and they present how human capital develops due to structural capital and the intention to increase relational (customer) capital. Synergic effects between intellectual capital elements and overlapping can easily be realized. If we take a closer look at the intellectual capital elements connected to the sub-criteria of the Enablers, it can be demonstrated that most of the sub-criteria besides structural capital is connected to either human capital or relational capital as well, i.e. the corporation aims at the increase of human and customer capital by managing structural capital elements or the other way round, it

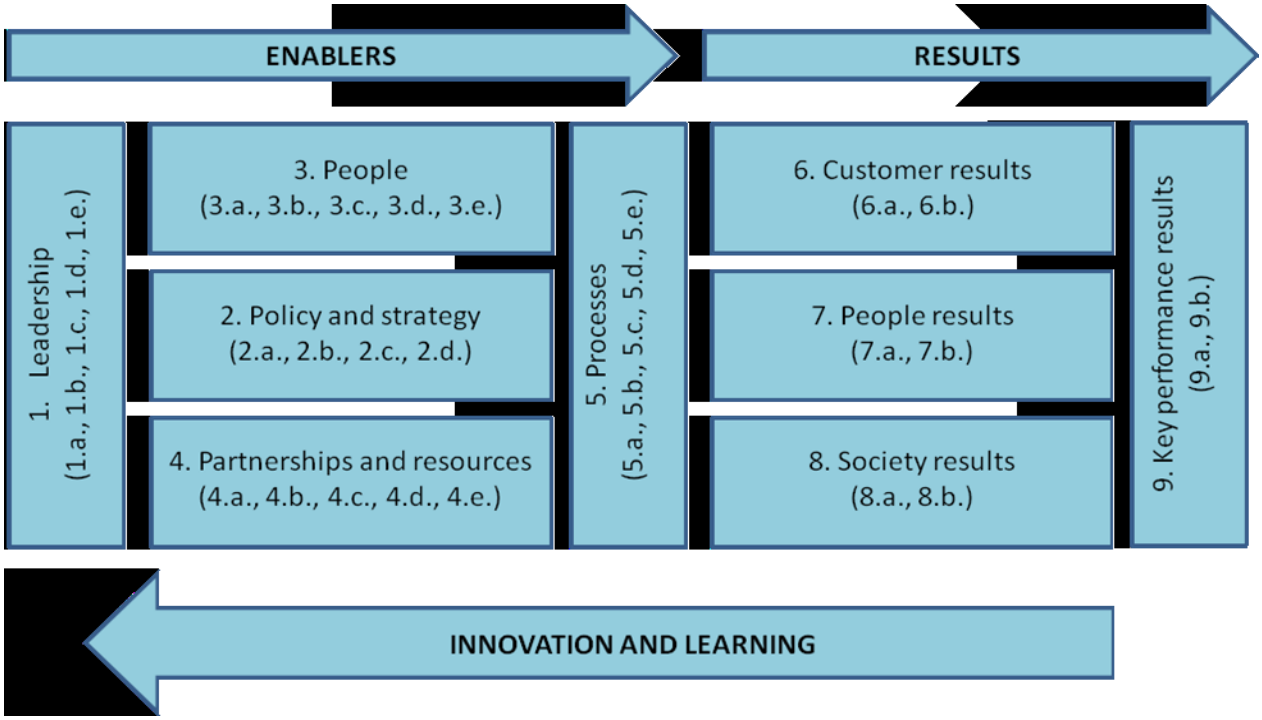

Fig. 3. The criterion system of the EFQM Excellence Model

also appears in the sub-criteria how the corporation makes use of its human and customer capital at its disposal to increase certain structural capital elements.

The criteria of the Results side contain two sub-criteria: 'a' and 'b'. Corporations present the outcomes and the results of key importance on the Results side in sub-criteria 'a'. In sub-criteria 'b' there are such internal performance indicators, other measures of key importance, positive tendencies of several years in connection with them, remarkable results compared to competitors, and achieved or approached internal targets appointed, on the basis of which it can be justified that these indicators are suitable to quantify certain elements of human capital, structural capital and customer capital.

It can also be justified that certain sub-criteria cannot be attached to certain intellectual capital categories solely even on the Results side. There are several sub-criteria in the intersection of human capital and structural capital. In the course of self-assessment these sub-criteria are to present how structural capital can contribute to the increase of human capital and how human capital can contribute to the corporation on the way to become structural capital. Another major part of the sub-criteria can be found in the intersection of structural and relational capitals, so it describes how relational capital can be made of structural capital and how the strength of relational capital can be made use of in order to increase structural capital.

Certain sub-criteria can be found in the intersection of the three IC categories. These are characteristically the sub-criteria which are connected to all intellectual capital categories of the corporation.

In sub-criterion 9.a (Key Performance Outcomes) corporations present results which are connected to the purposes defined in the policy and strategy. Only a part of the results of key-importance is linked with financial results, another important part includes non-financial results. These non-financial results as indicators are organization-specific and can be connected to all IC capital elements, i.e. to the classification of human capital, structural and relational capitals as well.

The key performance indicators introduced in sub-criteria 9.b can include non-financial indicators such as performance measures of processes, evaluation data of external resources and relations, indicators of buildings, equipment and material management, technological development measures, and indicators indicating the success of information and knowledge management beyond financial measures. These indicators, depending on the character and strategy of the corporation, can also be connected to any of the three IC categories, can contribute to their quantification and in addition they allow tracing the deployment of strategy, so IC elements which contribute to the fulfilment of strategic objectives. At the same time, the aim of self-assessment is to explore methods of managing IC elements that are important from the point of view of policy and strategy deployment, to introduce and measure their revision and to review indicators supporting the success of the methods applied and also describing them.

After proving that the criterion system of the EFQM Model allows it and in the course of self-assessment National Quality Award winner corporations do demonstrate indicators that are suitable to trace and assess the condition of some intellectual capital elements, we studied how these indicators can be fitted into well-known IC measuring models, such as Sveiby's Intangi-

Tab. 1. An example for the relation between two sub-criteria of the EFQM Model and IC categories

Sub-criterion picked as an example and its relation to other sub-criteria	Ways of managing intellectual capital and indicatig relations to other sub-criteria	The relation with intellectual capital categories
5.b. Processes are improved, as needed, using innovation in order to fully satisfy and generate increasing value for customers and other stakeholders (sub-criterion of 5. Processes) (←1.b., ← 2.c., → 7.a., → 9.b.)	➢ Identification and prioritising improvement potentials; using results of performance and perception results and information from learning activities (→ 6.b., 7.b., 8.b.); establishing the adequate methods to implement changes (← 1.e.); communicating changes to all stakeholders involved, training employees according to changes (← 1.e.); ensuring process changes achieve the results predicted. ➢ Stimulating and applying the innovative skills and creativity of employees, customers and partners in the improvement of the system of processes.	➢ Introducing methods included in structural capital, which contribute to the increase of customer and relational capitals by making use of human capital (these methods contribute to the development of human capital into structural capital and the structural capital into relational capital). (e.g. how information resulting from the evaluation of the processes is processed, taking expectations of outside partners into consideration during the development of processes, how the employees' ideas about developing processes are collected, how information about changes is given, how the outcome of the changes is revised)
6.a. Perception Measures (sub-criterion of 6. Customer Results)	Standpoints of satisfaction indexes presenting customer opinion classified according to intellectual capital categories: ➢ Accessibility, communication, transparency, flexibility, quality and reliability of the product, innovative developments, product reviews, guarantee provisions; ➢ Capabilities and behaviour of employees, advice and support, consultancy and support, handling complaints, response time; ➢ Loyal customers, willingness to recommend the corporation, to purchase other products and services of the corporation	➢ Identification of structural capital elements and their strengths, feedback of methods applied; ➢ Identification of strengths of human capital elements that are important from the point of view of the customers; ➢ Important indicators of customer capital. (e.g.presenting results of surveys and judging whether the corporation has reached its purposes with the introduction of adequate methods)

ble Asset Monitor, Edvinsson and Malone's Skandia Navigator, or Allee's model [1, 11, 33].

When studying the Results and its indicators, we find several similarities between the indicator systems proposed by Sveiby, Edvinsson and Malone, and Allee. It can be well seen by fitting measures applied by single NQA winner corporations into the measuring models above that among performance indicators (criteria 6.b., 7.b., 8.b.), and among outcomes and indicators of key importance (criteria 9.a. and 9.b.) applied in the EFQM Model development/renewal, efficiency and stability indicators can be found which are in accordance with models both by Sveiby or Allee. Furthermore, the EFQM Model allows surveying synergic effects between intellectual capital elements; most of the criteria are suitable for tracing overlaps of IC categories. It can also be seen through the sample cases of corporations that in which sub-criteria the corporation introduced the different indicators used for measuring different intellectual capital elements, so indicators of key importance from the point-of-view of strategy can also be identified in these tables.

A former NQA winner corporation is taken as example, the indicators of which applied in self-assessment can be well fitted into the model of Sveiby's Intangible Asset Monitor [35]. Sveiby defines three measuring dimensions to measure intellectual capital elements; these are development and renewal, efficiency or stability indicators [33]. An important difference is worth mentioning as opposed to the internationally accepted threefold grouping of intellectual capital elements. Sveiby refers to employees he calls experts only as part of the human capital category whereas the administrative staff is regarded as part of internal structure. By external structure not only the relations with outside partners are meant, but also brand name and image can be included. The NQA winner taken as example uses a segmentation of employees that is the closest to Sveiby's (1997) classification into experts and administrative staff [35]. The example demonstrates well that corporations measure development/renewal, efficiency and stability indicators according to the Intangible Asset Monitor and they apply them in the course of self-assessment to support corporate excellence. In the table we also intended to indicate that in the course of self-assessment in which sub-criteria the indicators according to the model by Sveiby have come to the surface and how old the positive trends introduced by the corporation are. The indexes in bold are suggestions how to make the indicators already used more suitable for measuring IC elements.

4 Summary

The effort of most of the corporations to measure several intellectual capital elements is obvious. Moreover, corporations applying EFQM-based self-assessments review these measurements and the methods of measuring and management applied

Tab. 2. An example for an NQA winner corporation's indicators fitted into Sveiby's Intangible Asset Monitor model [35]

Winner in middle-sized service category	External Structure	Internal Structure	Competence
Growth/renewal	6.a.: Quality of transport (ppm, 2002-2004) 6.a.: Number of products received by.... on behalf of ... (2002-2004) 6.a.: Outcome of ... audits (%, 2002-2004) 6.a.: Frequency of taking over first products and the ratio of the successful ones (pieces, 2002-2004) → **profitability per customer**	6.b.: Results of self-assessments (number of points, 2002-2004) 6.b.: Results of ... audits (%, 2003-2005) 6.b.: Decrease of complaints according to error codes (2002-2004, 5 different error codes) 7.a.: Number of different, feasible, realised, handed in, development suggestions (2002 and 2004) 7.a.: Number of development suggestions being realized (2002 and 2004) 7.b.: Number of innovation suggestions (according to the rules of innovation) (pieces, 2002-2005) 7.b.: Value of innovations (million HUF, 2002-2005)	7.b.: Number of regular employees (working for the corporation for over 5 years, their number and %, 2001-2004) 7.b.: Educational ratio (amount of educational hours per capita, 2002-2004) → **number of training days per expert** 7.b: Number of people taking part in trainings (person, 2000-2004) 7.b.: Employees taking part in postgraduate education (widening activities, career plans, person, 2000-2004) 7.b.: Number of people taking part in external education (purpose of widening activities) (person, 2002-2004) 7.b.: Number of people having manifold qualifications (having 2 and 3, person, 2002-2004) → **educational level, average time of education**
Efficiency	6.a.: Tendency of complex quality, technological and development, logistics and transport accuracy indexes (average in a scale 1-6, 2002-2004) → **customer satisfaction, index of satisfied customers** 6.a.: Quality indexes according to customers (3 competence centres, average in a scale 1-6, 2002-2004) 6.b.: Tendency of market share (%, 2002-2004) 6.b.: Share of the corporation within the whole concern (%, 2002-2004) → **sales per capita (customer)**	7.a.: Ratio of realisation of development suggestions increasing satisfaction (2002 and 2004) 7.a. Employee satisfaction (scale 5, 2002, 2004, 2005) → **supporting staff satisfaction segmented** 7.b.: Price income per capita (thousand HUF/head, 2002-2004) →**segmentation to supporting staff**	7.a. Employee satisfaction (scale 5, 2002, 2004, 2005) → **expert satisfaction segmented** 7.b.: Income per capita (thousand HUF/head, 2002-2004) → **value added per expert**
Stability	6.a.: Customer competence centres → frequency of regular orders → ratio of loyal customers can be established according to satisfaction assessment	7.b.: Number of people handing in innovation suggestions (person, 2002-2005) → **segmentation to supporting staff** 7.b.: Changes in the number of employees (intellectual, direct and indirect, person, 2000-2004) → **changes in supporting staff** 7.b.: Performance percentage (changes of the performance of working teams, %, 2002-2004) 7.b.: Ratio of early notice (it compares the number of new employees to the number of those leaving the company within the first six months of their employment in a given period of time, %, 2002-2005) 7.b.: Ratio of vocational students and university students in the staff (%, 2002-2004) → **ratio of newcomers** 7.b. Inner supply to explore reserves: Number of people taking part in Assessment Centre (person, 2001-2005) → **planning replacement**	7.b.: Changes in the number of employees (intellectual, direct and indirect, person, 2000-2004) → **changes in experts** 7.b.: Fluctuation (employment notice by employees in proportion to the number of staff, %, 2002-2005) → **changing experts** 7.b.: Number of those handing in innovation suggestions (person, 2002-2005) → **segmentation to experts**

time by time. Self-assessment practices of organizations cover measuring specific intellectual capital elements, therefore the identification and quantification of particular intellectual capital elements have its role in self-assessment and these efforts are regarded as important elements of organizational excellence.

4.1 The most important conclusions of our research

The EFQM Excellence Model is suitable for characterizing the quality and presence of intellectual capital, i.e. human, customer (relational) and structural capital within the corporation. Due to the logic of the model, the cause and effect relations between the sub-criteria and the learning process, which is the curve of the model, systematic application of self-assessment furthers the measuring awareness of IC and the description of IC elements by indicators not only in the case of small and medium-sized companies, but of large corporations as well, independent of the industrial, manufacturing and service sector.

Based on the self-assessment practice of NQA winners it can be stated that studying the management methods of specific IC elements and introducing and evaluating indicators supporting the efficiency of these methods are parts of organizational excellence. In the course of EFQM-based self-assessment the methods of managing human capital, structural capital and customer (relational) capital are to be evaluated on the Enablers side and the results of perception measures and internal and key performance indicators underlying the efficiency and effectiveness of these methods are to be evaluated on the Results side.

The criterion system of the EFQM Model makes synergic effects between single intellectual capital elements visible, so due to regular and systematic self-assessments those intellectual capital elements are highlighted which support the execution of current strategic purposes. Cause and effect relations between the criteria and the learning process of the EFQM Model allows understanding synergic effects, which particularly in the case of small and medium-sized companies is of high priority, because it becomes possible to invest in a single intellectual capital. Due to the synergic effects between the sub-criteria, which demonstrate the overlap of IC elements, investing in a single IC element will have its effects on other intellectual capital elements as well.

Based on the investigated and applied self-assessment practice it can be stated that besides demonstrating financial indicators among outcomes and key performance indicators, non-financial measures, which are connected with human capital, structural capital and relational (customer) capital, are upgraded, which fortify the intellectual capital elements' contribution to strategic purposes.

Most corporations measure single intellectual capital elements through several kinds of evaluation techniques and efforts. One of the reasons for it is that corporations themselves look for indicators applicable to trace intangibles. Comparisons between companies are more difficult based on methods using scorecard-type indicators, because organizations choose measures that best fit their measuring purposes. Our study proves that corporations following regular self-assessment practice have the abilities to measure some of their intangibles, at least those which serve the traceability of strategic purposes and internal measuring objectives and therefore IC measurement is regarded as part of organizational excellence.

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