A performance model to evaluate intellectual capital

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\textbf{Abstract.} We are living today in a knowledge society, a society shaped by the information revolution and advanced by communication technologies. At the dawn of this new age, the concept of intellectual capital has been used for the first time to explain the importance of intellectual resources - such as information, knowledge, and experience - in the modern economy. Today the intellectual capital is a key factor in company’s profitability and has become the preeminent resource for creating economic wealth. In this environment, the intellectual capital and intangible assets is fundamental to success. Intellectual capital consists of intangible assets, which if used properly become a source of sustainable competitive advantage. To create value intellectual capital components must interact. Evaluation of the intellectual capital is an important activity for any organization operating in a competitive market and envisages the achievement of the intangible assets but lower costs. The interest on measuring the intellectual capital was caused because accounting, as it is currently practiced, has lost much of its ability to inform as businesses have become more and more knowledge intensive. Traditional methods of valuation, based on accounting principles, where the value of the company’s assets is a portion of the value, have systematically undervalued companies. Existence of non-financial standards is crucial to create company value, because accounting rules while constantly revised were originally designed for tangible assets, which is the source of wealth in the industrial period. Literature deals with evaluating intellectual capital in many ways, with many approaches developed over time from studies and research, most aiming at improving the performances of an organization is measuring by different instruments. This article represents a synthesis of the most know models used to evaluate intellectual capital and then implement it in the case of X Company. The findings support the hypothesis that a company’s intellectual capital influences favourably the organizational performance, and may indicate future competitiveness.

\textbf{Keywords:} intellectual capital, evaluation, model.

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\section{1. Introduction}

These last years, the attention in research dedicated to intellectual capital has shifted to evaluating intellectual capital [1]. The interest in evaluating intangible assets occurred since the second half of the 20th century, when scientists have realized that the resources and the amount of resources available to the company are not decisive in its results. A multitude of theories and models for evaluating intellectual capital are reflecting their rising importance and difficulty of finding a suitable model. Leif Edvinsson is the scientist who developed the first model of intellectual capital assessment called Skandia Navigator.

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Evaluating intellectual capital is critical in order to compare different companies to estimate their real value or improvement to control year after year. Also, to improve the way companies manage their intellectual resources that create value and give back some benefits consequences maximize the benefits for the company.

In order to properly evaluate and manage intellectual capital there are a number of principles that should be observed [2]:

- Organizations do not own human and customer capital. Organizations must recognize the shared nature of these assets that an organization can manage and profit from these assets.
- To create human capital it can use, an organization needs to foster teamwork, communities of practice, and other social forms of learning.
- Organizational wealth is created around skills and talents that are proprietary and scarce. To manage and develop human capital, organizations must recognize that people with talent are assets to invest in. Others should be managed closely with little or no investment.
- Structural assets are the easiest to manage but those that customers are not really interested in or care least about.
- Move from collecting knowledge for “just in case” scenarios to having information that customer’s need ready to hand, and that they might need within a reasonable time.
- Information and knowledge can and should substitute for expensive physical and financial assets.
- Knowledge work is custom work, where mass produced solutions will not yield high profits.
- Every organization should re-analyze the value chain of the industry it belongs to in order to see what information is most crucial.
- Focus on the flow of information in the business process not the flow of materials.
- Human, structural and customer capital work together. It is not enough to invest in people, systems and customer separately. They can support or detract from each other.

To build a performance model for evaluating intellectual capital it is necessary to respect concepts of intellectual capital sharing elements between the organization and other stakeholders and to fulfill the principles listed above in order to streamline the process of evaluating and managing intellectual capital.

We propose and provide empirical support for a model of intellectual capital that includes the following three key factors: human capital, structural capital, and relational capital. Our model is offered as a useful tool to managers for assessing various aspects of intellectual capital within their organizations, with the view of identifying areas in most need of resources. It also serves as a prototype for gauging the overall intellectual capital of a company.

2. A review of the available IC evaluation models

2.1. Limits of the accounting model

Financial accounting is mainly aimed at providing information on the financial statements of shareholders and investors to base decisions effectively. Current and potential investors and creditors take their investment and lending decisions based on financial statements. Therefore, any event that could affect the financial position and performance of the organization should be passed in future annual reports.

In traditional accounting systems most of the elements that make up the intellectual capital are not reflected in the balance sheet, the investments in these elements are charged to the profit which leads the organization and the carrying amount of the shares to be undervalued. For these reasons it is possible investors and managers to [3]:
• Determine the rate of return on investments in intangible assets and the change in time of the investment efficiency of the organization.
• Evaluate changes in the characteristics of investment assets intangible.
• Determine intellectual capital and the useful life of the elements that compose it.

Because the underlying factors that create value are not in the annual financial statements, knowledge-based organizations face obstacle discovery of their sources of funding or acquire them less profitable conditions. The problem raised is that intangible assets are difficult to recognize, and which they determine future earnings are more uncertain than in the case of tangible assets. There are currently evaluating various models of intellectual capital that seeks to consolidate the financial aspects of issues relating to intangible value. Most of these models consider intellectual capital as something that is not visible, but incorporating value staff skills, organizational processes and relationships with customers.

2.2. Models of evaluation of intellectual capital

Many theories and models for evaluating intellectual capital reflect the growing importance and the difficulty of finding a suitable model. However, over the last years they have identified various intellectual capital evaluation models. The most popular measurement models as well as the most widely used or just the easiness of their applications of all non-financial measurement methods are: Balanced Scorecard, Intangible Assets Monitor, Skandia Navigator and Intellectual Capital Index.

Balanced Scorecard (BSC) was created by Robert Norton and David Kaplan, allows the manager to translate mission and strategy into a comprehensive evaluation. BSC focus on financial goals but also includes the performance drivers of these financial objectives. In addition to tracking financial results, BSC at the same time monitoring progress in building the capabilities and acquiring the intangible assets for future growth [4]. BSC has been developed from a recognition of an organization's ability to mobilize and exploit its tangible and intangible assets, has become more important than investing and managing physical assets, tangible. Managers in their efforts to build long-range competitive capabilities clashed with "real estate" model based on historical cost accounting [5].

Balanced Scorecard maintained traditional financial indicators. But these traditional financial indicators reflect past events, the appropriate tools for the industrial age organizations which invest in long-term capabilities and customer relationships were not critical for success.

These financial indicators are still unsuitable for guiding and evaluating the "journey" that knowledge-based organizations must go through in order to create value through investment in customers, suppliers, employees, processes, technology and innovation [6].

Over the past decade, the balanced scorecard has evolved from being a measurement framework to being a strategy implementation tool (fig.1). It represents a set of cause-and-effect relationships among output measures and performance drivers in the four perspectives [7]:

• Financial measures: how do we look to shareholders, for example, cash flow and profitability?
• Customer measures: how do our customers see us, for example, price as compared with competitors’ and product ratings?
• Internal process measures: what must we excel at, for example, length of cycle times and level of waste?
• Learning and growth measures: can we improve and create value, for example, percentage of sales derived from new products?
The capability of an organization in the management of intangible assets is more important to its success than investment and fixed asset management. Moreover, the fixed assets will be better exploited if we have a better prepared workforce, a good system, good relationship with suppliers of company.

A weakness of this model is that it does not consider relations with suppliers and other key stakeholders. If a company depends on a particular supplier, the organization's position is not just one favourably. Therefore, the relationship with the supplier and other suppliers are very important and should not be overlooked when developing such a model.

**Intellectual Assets Monitor**

Sveiby's Intangible Assets Monitor (IAM) was developed from his experience as a partner and manager of a financial newspaper (fig.2). While working there, he realized that traditional financial statement of the organization "was a joke" and that most of the company's value lies in its "knowledge-based intangible assets".

The model developed by Sveiby is simply one that classifies intangible assets into three categories [8]:

- Competence of employees
- Internal structure
- External structure

![Intangible Assets Monitor Model](image)
The internal structure refers to systems, databases, patents, trademarks, concepts, administrative systems, processes that support the organization [9]. They are created by employees and belong to the organization. Sometimes, it may be purchased from elsewhere. The internal structure belongs also to the internal organizational culture and work, formal and informal. The internal structure and the people who co-inhabit form the organization.

The individual skills of the employees reflect their ability to act in various situations. They include education, individual experience, skills, talents, abilities, cultural and social values, ideas of employees. People are actually only true agents in business. All tangible and intangible assets of the organization are ultimately the result of their economic activity [10]. Therefore, companies are striving to reward their employees’ work and to retain as much for the benefit of their individual skills.

The external structure reflects the organization's relationships with its customers and suppliers, the stakeholders are relevant to the organization, brands, trademarks and reputation or image of the organization. Some of these components may be the legal property, but the investment in their development cannot be controlled as well as in the internal structure due to elements of uncertainty [11]. The external structure of the components is in the possession of the organization, such as tangible resources. Their economic value is as intangible as the market value of a house. But this situation is the fact that we have not yet defined tools with which we can measure their value, as we do with the tangible resources of the company.

Unlike balanced score model, this model takes into account suppliers and other relevant stakeholders. Depending on the type of organization, the external structure will be different from one company to another.

*Skandia Navigator Model*

Skandia Navigator was developed in 1993 at the Swedish financial services company Skandia by a team led by Leif Edvinsson. In 1995, a supplement to Skandia’s annual report used for the first time the word “IC”, instead of the accounting term “intangible assets”. Skandia Navigator incorporates the assumption that intellectual capital is the difference between market value and book value of the organization [12]. The model aims to provide a balanced view, and a basis for systematic management processes that are considered essential to create value in the future. Skandia has five areas: customer, human capital, processes, renewal and development capacity and financial area, offering a holistic view of the organization (fig.3).

![Skandia Navigator Model](image-url)
The customer aria gives an indicator on how well the company fills the needs of its customer via services and products. For the company it is important to define the customer’s needs.

The human area is the heart of the company and is essential in a value creation organization. The process of knowledge creation is visualized in this focus area. It is also important that the employees are pleased with their work situation; pleased employees lead to pleased customer improving company’s sales and result.

The processes area captures the actual processes of creating services and products company customer’s desire.

Customer, human and the process focus constitute the IC of a firm and represent the present stage of the company.

The renewal and development capacity area aims at reassuring the organizations long-term renewal and in part its sustainability. Renewal and development are the foundation that underpins the company's future.

The financial area captures the financial outcome of our activity. Some like to see it as a receipt. This could be profitability and growth that our shareholders demand from the company. The financial focus consists mainly in the company's balance sheet that deals with the past of the company [13].

**Intellectual Capital Index**

The IC Index was created by Göran Roos and Johan Roos in London based on intellectual capital services. It is a tool for performance measurement of value creation process of an organization or business unit. The model is based primarily on research results in the fields of strategy and finance. It was developed as a means for managers to discover and articulate the hidden values in creating resources and processes and create a structure for measuring the achievement of strategic objectives at an enhanced level (fig.4). IC Index proposes replacing one individual indicators index and brainpower trying to correlate changes with changes in market value of the firm [14].

The IC Index is based on indicators relating to [15]:

- Relationship capital
- Human capital
- Infrastructures
- Innovation

![Fig. 4: Intellectual Capital Index](image-url)
IC Index value depends on the subjective assessment of these indicators and the choice of weights. However, the IC Index gives managers the opportunity to understand the effects of a particular strategy on its intellectual capital and compare two versions to understand which one is better in terms of intellectual capital. The value is based on defining the strategic intent of the organization and as a starting point for the two separate processes, which subsequently merge to generate Intellectual Capital Index.

The first process is a rational and analytical process based on strategy, as stated in official documents, and the strategy aims at extracting tacit knowledge of managers about the size of the value created in the unit studied. It includes not only identifying the resources needed to create value, and use, or transformation from a resource to another (flows) and their relative importance in achieving the desired position in the future. The result of this process is viewed ultimately in a "Navigator" specific context [16].

The second process aims to develop relevant indicators, precise and robust key success factors identified as necessary to achieve the strategy. Subsequently, the indicators are weighted and sorted according to their relative importance determined by the navigator and according to their basic structure [17].

The end result is two sets of indices, one for stocks and one for streams. The first shows the changes in the resource base, while the latter shows how well managed organization to use resources to create value for shareholders.

Like other methods, intellectual capital indicator identifies key areas of interest that are vital to the organization. Unlike other methods, seeking a balance between different types of indicators, measures of intellectual capital indicator are combined to give an index of overall performance or efficiency.

Each of the presented models has strengths and weaknesses. Some are very easy to apply, but the relevance of the information to be running a fairly low. On the other hand, other models offer a more comprehensive picture of the concept of intellectual capital, but some organizations may have difficulties in their implementation.

3. The proposed model test and validation in a case study

3.1. A proposed model for evaluating IC

The measurement and evaluation of intellectual capital is an exercise in trying to determine the value of ideas, skills and other products of the human intellect. The history of intellectual capital valuation is both fraught with problems and replete with opportunities. Current experiments in reporting and evaluating knowledge assets show that intellectual capital, once it is recognised and cultivated, is a potent force in enhancing organization value that is increasing results. The current paper proposes a performance evaluation model intellectual capital based on a set of balanced performance evaluation measures.

The proposed model has the following characteristics:

- Includes IC in economic and financial reporting. Inclusion is necessary for company because intangible assets are critical to business success and obtaining competitive advantage.
- Breakdown of intellectual capital. This implies a dynamic approach and a continuous process of transformation of intellectual capital in income generating resources.
- Provide useful management information.
- The possibility of comparing. This model allows comparisons between different business realities, focusing on monitoring the dynamics of IC.

The aim of evaluating IC is to identify and use the intangible assets in order to gain competitive advantage. This model proposes three perspectives to evaluate IC according to its structure (fig. 5).
The relevance of the proposed IC evaluation model lies in its ability to offer periodically, to the company management, information feedback, that enable corrective actions for the IC improvement and also, for their IC management strategy redesign for a long-term and sustainable competitive advantages through retrieving and utilizing organizational knowledge. Under the competitive circumstances knowledge becomes a vital capital; a company must strive for a dominant position for surviving and develop itself in an increase market competition.

3.2. Case study – the proposed model test and validation

To demonstrate the usefulness of the proposed model for evaluating IC developed a case study of the organizational context of professional services companies. It was founded in 1991 in Romania and its turnover is of 42 million EUR and it has 660 employees (data available at the end of 2012).

Human capital

An important aspect is that the organization spends considerable resources on training for its employees, thus encouraging innovation and constant improvement. Being creative and innovative is a requirement within the company and the type of innovation is incremental. Regarding the fact that some employees could go to organizations competing company believes that its resources and capabilities are the main source of competitive advantage. While the company retains competitive advantage and employee satisfaction at the highest level there is no concern on this issue. All employees are expected to develop professional development plans that reflect their goals and ambitions for the future and how they propose to achieve personal goals. The company has a policy of rewarding the employees according performance evaluation on individual and team level, politics being a mixture of incentives and opportunities for career advancement.

Structural capital

New technologies are used to communicate with clients and representatives from other offices are teleconferences. Voice over IP technology is used in order to optimize communication costs. All works and
processes developed within the organization are performed by electronic means, all the files used in a certain activity is stored in an intranet that is used to track the progress of all projects. All authorized partners can access information at any time. A network of culture is present within the organization and is shared by all employees they exchange ideas through a variety of databases, in recent year central management focusing on knowledge management.

Customer capital

The company makes periodic benchmarking analysis regarding the level of performance of the competitors, but performs and various market research to understand how the market is positioned. The company is already a strong international presence, it expansion within new markets is usually on their own. In this innovative company is the result of interaction between stakeholders, culture, performance and ideas within or employees. It should develop creative approaches to solving client's constant, which is the only way they can truly offer quality services. The fact that the company has managed to maintain almost constant turnover means that markets recognize as a company that provides quality services truly innovative.

4. Conclusions

The proposed model for the evaluation of IC is based on existing literature, but also on own observations (for reference, theoretical and applied research), upon different aspects that were taken into consideration, in a variety of organizations over the last years. This IC evaluation model enables organizations to pay more attention to the definition and understanding of the IC components, and to evaluate its developing tendency periodically in terms of IC. The results of using this model lead us to conclude that the success of the organization lies in the high level of investment and recognition they have in intellectual capital. Moreover, the results indicate that the company which uses this intellectual capital model has superior results. Consequently, we highlight the importance of detecting, evaluating and utilizing IC for new ventures stressing the potential benefits that such analysis can have on the initial steps taken by an entrepreneur in venture formation and business development.

5. References


