

DISCREPANCIES AND CONTRADICTIONS OF INTELLECTUAL CAPITAL MEASUREMENT MODELS

Simona Survilaitė

Mykolas Romeris University, Lithuania
simona.fortress@gmail.com

Abstract

Purpose – the main idea of measuring intellectual capital is that organisations, institutions and enterprises can successfully manage and control intellectual capital with the consequences that it increases company’s value added and assures normal and stable activity. Nevertheless, many authors indicate that intellectual capital is a complex and sophisticated concept, which is difficult to capture, measure and manage. Intellectual capital measurement models are controversial due to inconsistent and different perspectives, point of views demonstrated by management, distinction between academic theory and practical execution. The main purpose of this scientific paper is to present contradictions appearing while trying to capture, measure and manage intellectual capital.

Design/methodology/approach – scientific literature review.

Findings – the knowledge era has brought a new perspective into every organisation, institution and management strategies are becoming more related with intangibility. The concept of intangible assets can be analyzed and investigated through intellectual capital point of view. Nowadays academic literature is full of intellectual capital scientific papers and can be categorized into three main groups: intellectual capital as a concept, intellectual capital structure and structural parts, intellectual capital measurement models. This scientific paper is prepared to analyze the third group, which concerns mostly of how to capture, measure and manage intellectual capital.

Research limitations/implications – the most challenging aspect is the discrepancies and contradictions in the measurement of intellectual capital. The differences of various enterprises broaden the perspective of intellectual capital and multiple points of view and attitudes are formalized into different methods of intellectual capital capture, measurement and managing.

Practical implications – the universal model of intellectual capital measurement could help enterprises to focus on the intellectual capital management itself. The main goal and concentration to the intellectual capital management and not to the understanding the concept would save time and increase the productivity and efficiency in every day’s procedural activities.

Originality/Value – the ability to understand and implement intellectual capital evaluation methodology is essential for every enterprise. As a consequence, the efficiency and productivity is increasing and the value of the company is growing.

Keywords: intellectual capital measurement models, knowledge based view, knowledge management, value creation.

Research type: literature review.

Introduction

Economics is perceived as an important engine of welfare of the people and provides an indicator of the quality of life in multiple countries. The main input into the economic representation is added by various enterprises operating in different countries. Managers, directors and owners are using different methods in order to increase the value of enterprises. According to Mačerinskienė and Survilaitė (2012), enterprises faced the transition period from tangible assets point of view to intangible assets perception. Overall, intellectual capital is analyzed as a basis of intangible assets. Intellectual capital is a concept which is broadly investigated as a factor of company’s success and is considered as a value producer. What is more, many enterprises are measuring and calculating intellectual capital in order to increase their value. Nevertheless, many authors (Demartini and Paoloni, 2013; Mouritsen and Larsen, 2005; Hipp and Grupp, 2005; Mention and Bontis, 2013; Cabrita and Bontis, 2008; Collins and Clark, 2003; Sharabati et al., 2010) indicate that intellectual capital is a complex concept, which is difficult to capture, measure and manage. Intellectual capital measurement models are controversial due to inconsistent and different perspectives, point of views demonstrated by management, distinction between academic theory and practical execution.

- The problem of the scientific paper is how to evaluate and assess intellectual capital measurement models.
- The object of this paper is models evaluating intellectual capital.
- The aim is to compare various intellectual capital measurement models.
- The objectives of the article are as follows: to define intellectual capital assessment and evaluation models and to compare methods used to disclose intellectual capital.

Methods of research:

- comparative analysis of scientific literature.

Theoretical aspects of intellectual capital

The theoretical approach of intellectual capital can be defined in two different perspectives: from the definition point of view and from the structural point of view. The early intellectual capital literature corresponds to these perspectives. Many researchers of intellectual capital (Edvinsson, 1997; Bontis, 1998; Mouritsen et al., 2003; Mouritsen and Larsen, 2005) understand it as a bunch of knowledge, which belongs to a company and increases value of a firm. In addition to knowledge, intellectual capital is defined as the sum of experience, skills, technology, procedures and routines, customer relationship and business connections. As a consequence, all intellectual capital elements can be classified into larger groups in order to have a broad picture of the concept itself.

The discrepancies are appearing due to different point of views and attitudes adapted in the process of categorization of intellectual capital elements. Many authors (Saint – Onge, 1996; Stewart, 1997; Bontis, 1998; Roos, 1998; Brinker, 1998; Zéghal and Maaloul, 2010) indicate that intellectual capital is the composition of *human* capital, *structural* capital and *customer* capital. Nevertheless, other authors are classifying intellectual capital into similar, but not common groups. Bourdieu (1986), Putnam (1993), Swart (2006) specify that intellectual capital is the composition of *human* capital, *structural* capital and *social* capital. Ramirez et al. (2007) instead of *social* capital introduce *relational* capital. The difference between social and relational capital is slight and signify the same structural parts, such as social networks, trust and values, norms and sanctions.

Brooking (1996) is concentrating into intellectual capital as the aggregate of *market assets*, *human centered assets*, *intellectual property assets* and *infrastructure assets*. Robinson and Kleiner (1996), Edvinsson and Malone (1997) are investigating intellectual capital as a composition of two structural parts: *human* capital and *structural* capital. What is more, some authors classify intellectual capital into external and internal structure: Petrash (1996) classifies intellectual capital into external structure, internal structure and human capital, while Sveiby (1996), O'Donnell and O'Regan (2000) classify intellectual capital into staff competence, external structure and internal structure. In addition to this, some researchers provide a focus on capital types regarding classification of intellectual capital. Draper (1997) categorizes intellectual capital as follows:

- *Human* capital;
- *Structural* capital;
- *Customer* capital;
- *Organizational* capital;
- *Innovational* capital;
- *Process* capital.

Van Buren (1999) also categorizes intellectual capital from the capital type point of view, but *process* capital has a broader perspective and comprises two types of capital: *structural* and *organizational*. Structure of intellectual capital, according to Van Buren (1999) is as follows: *human* capital, *innovational* capital, *process* capital and *customer* capital.

Sullivan (2001) categorizes intellectual capital into two main structural parts: *human* capital and intellectual property. Bounfour (2003) extends intellectual capital and divides intellectual capital into four main structural parts: *human* capital, *structural* capital, *market* capital and *innovational* capital. Namvar (2009) implemented a tree of categories explaining which type of structural part is created from:

- Human capital;
- Structural capital:
 - Relational capital;
 - Organizational capital:
 - Innovational capital;

- Process capital.

Huang and Kung (2011) take into consideration the ecological aspect and indicate that intellectual capital structural parts are green human capital, green structural capital and green relational capital. The perspective is understood as a simple and usual intellectual capital, but with the presumption that ecological and nature-friendly decisions are taken into consideration during the annual goals creation, implementation and completion of a respective enterprise.

Dumay and Cuganesan (2011) emphasize that intellectual capital is a complicated network of knowledge resources that belong to a company. As all companies have multiple activities, are focusing on different strategies, their need for intellectual capital is also different.

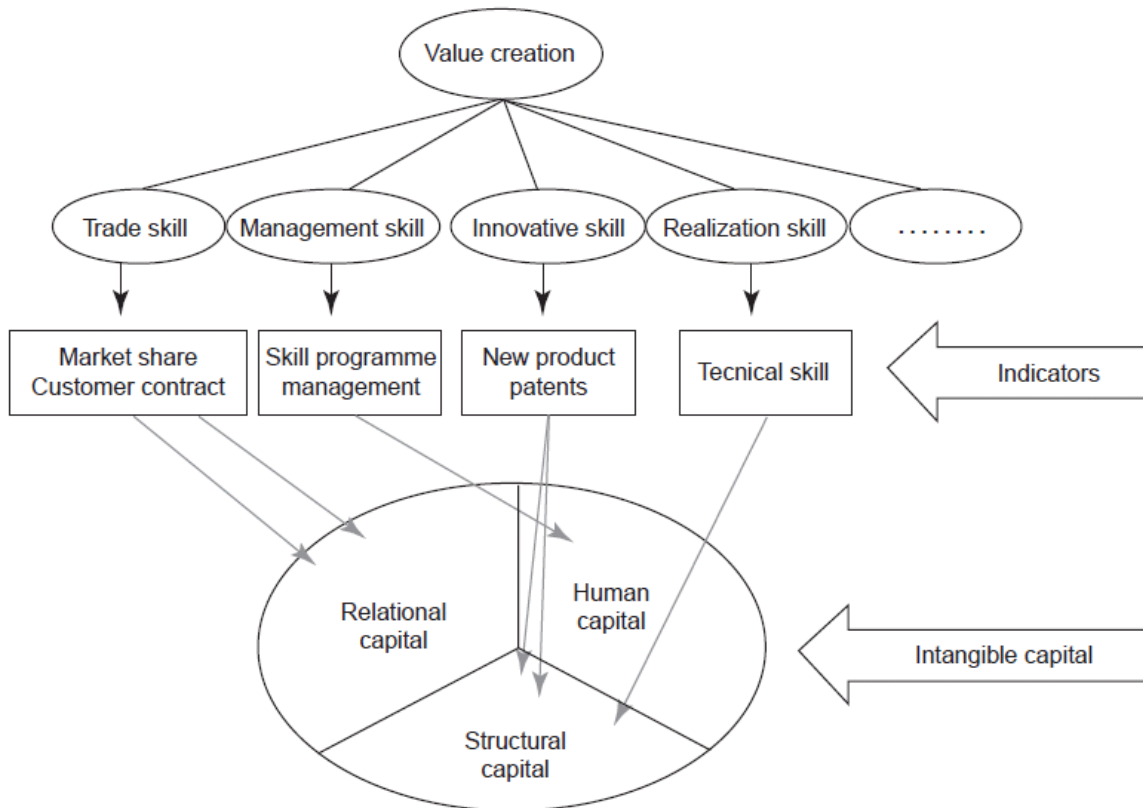
Montemari and Nielsen (2013) state that evaluating and assessing intellectual capital is vital in value creation. Managers are implementing yearly goals in order to comply with strategies of the enterprise they are working in. The main task is to correctly identify and assess intellectual capital resources and how they are working in value creation. This assignment is not easy and requires a high level of knowledge and competency. Chiucchi (2013) approves opinion that intellectual capital is not measured appropriately and there is a gap in revealing how intellectual capital really works in practice. Tamošiūnienė and Survilaitė (2013) also accentuate the importance of intellectual capital in value creation and emphasize intangible aspect of value added of respective enterprise.

Assessment of intellectual capital

Montemari and Nielsen (2013) were using a causal mapping technology in order to investigate intellectual capital measurement and management. Intellectual capital is a dynamic concept and causal mapping technology helps to identify elements affecting and increasing value creation, in addition to this, relationship between each element is captured, assessed and controlled in a more effective and easy way. According to Montemari and Nielsen (2013), “cognitive maps have the potential to facilitate this task, by making explicit individuals’ knowledge of the way in which the company generates value”. The causal map was constructed using nodes and arrows, where nodes meant elements of intellectual capital and arrows meant the causality. Nodes are the value drivers and arrows the causal relationships. Researchers indicate that such causal mapping facilitates and visualizes interconnections between variables that help to increase the value of the company. As a result, managers can achieve their targets following the sequence of the map. Ambrosini and Bowman (2002) accentuate that causal mapping technology is a convenient way to analyze and investigate such complex and dynamic concepts as intellectual capital. The knowledge management helps to increase the effectiveness of intellectual capital disclosure and provides the feedback in order to comply with strategies and goals implemented by a respective enterprise.

Demartini and Paoloni (2013) is using a visual model in order to identify, measure and assess intellectual capital. Figure 1 shows main value drivers that foster and

increase value creation, indicators of intangible capital which can be measured and assessed in order to achieve desired and determinate goals. First of all, intellectual capital assessment must be performed through circular process from strategic planning of enterprise to intellectual capital measurement, assessment. The final step is to check for capitalization in order to give a feedback if strategic plan of an enterprise is going well and what additional steps are needed to perform further.

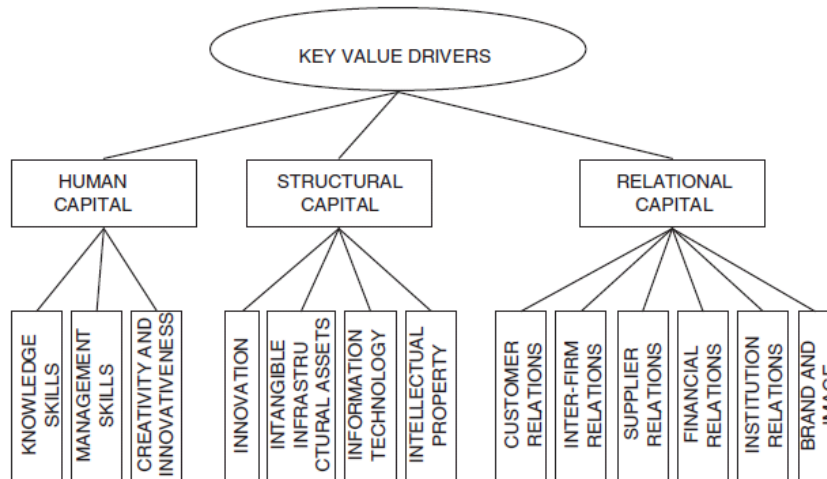


Source: Demartini and Paoloni (2013)

Figure 1. Visualizing intellectual capital

The intellectual capital in the model is understood as the composition of three elements: *human capital*, *structural capital* and *relational capital*. Intellectual capital assessment portion is completed with the help of resources that are needed to be acquired or reinforced in order to lead strategic purposes of a respective enterprise. The intellectual capital assessment is performed through calculation of intangible variables. Intellectual capital elements are expressed using financial statements; nevertheless, the issue is that meanings are approximate. Final step is performed using intangible asset report and capitalization report of the intangible assets. The evaluation and assessment is provided to management and stakeholders. Their decisions, discussions and remarks lead to solution if a respective enterprise is managing intellectual capital effectively and if any additional steps are needed to be taken further.

Grimaldi et al. (2013) proposed intellectual capital defining, assessing and managing tool. The advantage of the proposed tool is the ability for managers to identify value drivers that have the most significant impact on value creation. Figure 2 represents key value drivers which can be assessed, measured and managed in order to increase value added of the respective enterprise.



Source: Grimaldi, Cricelli and Rogo, 2013

Figure 2. The hierarchical structure of value drivers

Grimaldi, Cricelli and Rogo (2013) evaluated the impact of value drivers using the analytic hierarchy process and pair-wise comparisons method. The difficulty appears while trying to transform intangible values into numeric values. The interpretation of value added drivers depends on the experience, education, professional and personal skills of responsible individual or a group of individuals. Precisely management board and stakeholders are taking all responsibility to understand and evaluate the process appropriately. According to Grimaldi, Cricelli and Rogo, the main drivers of intellectual capital are knowledge and management skills, creativity and innovativeness (*human capital*), innovation, intangible infrastructural assets, information technology, intellectual property (*structural capital*), customer relations, inter-firm relations, supplier relations, financial relations, institution relations, brand and image (*relational capital*).

Conclusions

The concept of intellectual capital is broadly investigated by academic community and business environment. The challenging theory can be interpreted in different point of views and perspectives. Researchers are mainly interpreting intellectual capital as a total amount of knowledge, skills, experience, motivation, education, policies and procedures, client and customer capital, intellectual property, routines, other structural

parts that belong to a respective enterprise. What is more, categorization of intellectual capital elements evaluating and assessing intellectual capital is a vital component of value creation. The main contradiction in various intellectual capital measurement models is the understanding of intellectual capital concept itself. Intellectual capital is defined differently by diverse scientists and economists and this discrepancy interfere with the evaluation of intellectual capital itself.

All in all, the assessment of intellectual capital depends on various aspects and can be analysed through multiple perspectives. The evaluation system is more connected with the type of a respective enterprise, size, activity company is performing and similar factors. The most important challenge for scientists and managers is to visualise the process of intellectual capital capture, assessment and managing. The visualisation of the process provides a feedback and a strong chain of tasks that need to be performed further in order to maintain and develop strategic goals of a respective enterprise.

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