PERFORMANCE MEASUREMENT AND INTELLECTUAL CAPITAL: MAIN FRAMEWORKS AND RESEARCH AGENDA

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Abstract. *It is widely accepted the importance that intellectual capital possesses regarding organisational assets. Intangible assets are difficult to quantify, at last from an objective perspective so is the link between investment/possession of these assets and organisational performance. This states a big problem that makes that many organisations do not invest as many resources as they should in order to acquire the intangible assets that would make them become more competitive. Therefore, this research highlights the main works that cover this topic offering some solutions to overcome this problem by linking and even integrating intangible assets into a performance measurement system in order to provide a basis for decision-makers. Additionally, a research agenda is stated where the main points that could be followed, from a research point of view, in the next years are highlighted.*

Keywords: *intellectual capital; performance measurement; organizational assets.*

Introduction

A company's capability to create value depends on its ability to implement strategies that respond to market opportunities by exploiting their internal resources and capabilities (Penrose, 1959). Therefore, managers need to understand what the key internal resources and drivers of performance in their organisations are. Traditionally, those resources were physical, such as machines and equipment, and financial capital. In today's economy traditional tangible assets seem to become increasingly transient and rarely provide a long-term competitive advantage. This reflects the belief that intangibles assets are a fundamental resource for corporate growth and organizations

need to put into work procedures for managing their intangible assets. In the last years, the concept of Intellectual Capital (IC) has emerged as a key to analyse and evaluate the intangible assets of organizations.

This paper is organized as follows. First, in the next point, it presents the main IC definition and management models. Then, it highlights the main advantages of measuring IC in organizations, pointing out the main lacks of the current existing performance measurement systems in this ambit. Based on these gaps, the paper presents then an approach to integrate IC within a PMS. Finally, the main conclusions are stated as well as future research work in form of a research agenda.

Literature review

In the last decades, several models have been developed for managing the IC. All of them attempt to identify, classify, measure and manage the company's IC. Some models are focused on the global IC of the company such as the Skandia Navigator (Edvinsson & Malone, 1996), the Intangible Assets Monitor (Sveiby, 1996), the Intellect Model (Euroforum, 1998). On the other hand, other frameworks are focused on the intangibles related to the defined strategies such as the MERITUM Guidelines (2002) or the Intellectual Capital Management System (Viedma, 2001). However, none of these models implement or suggest the integration within a performance measurement system, which would contribute the advantages of its use.

Table 1. Main definitions of Intellectual Capital

References	Definition
Hall (1992)	It is set up by intangible property and intangible resources.
Edvinsson and Sullivan (1996)	It is the knowledge that can be converted into value.
Brooking (1996)	It is the result of four main components, which are the market assets, human-centred assets, intellectual property assets and infrastructure assets.
Sveiby (1997)	It is related to three categories of intangible assets: internal structure, external structure, and human competence.
Roos, Roos, Dragonetti and Edvinsson (1997)	It is composed of (and generated by) a thinking part, i.e. the human capital, and a non-thinking part, i.e. the structural capital.
Stewart (1997)	It is an intellectual material that has been formalized, captured and leveraged to produce a higher-valued asset.
Edvinsson and Malone (1997a)	It is the sum of human and structural capital. In more detail, it involves applied experience, organizational technology, customer relationships and professional skills that provide an organization with a competitive advantage in the market.
Bontis, Dragonetti, Jacobsen and Roos (1999)	It is a concept under which are classified all organization intangible resources as well their interconnections

In the literature, the concept of IC has been defined from different management perspectives (Marr, 2005; Marr & Chatzkel, 2004) as shown in Table 2. For instance, accounts prefer to talk about intangibles and according to IASB (2004), define them as "non-financial fixed assets that do not have physical substance but are identifiable and controlled by the entity through custody and legal rights". From a human resource (HR) perspective, IC refers to skills, knowledge, and attitudes of employees. From a

marketing perspective, intangibles such as brand recognition and customer satisfaction are at the heart of business success, whereas from at the information technology (IT) perspective, intangibles are seen as being software applications and network capabilities (for an in-depth discussion of the different perspectives on IC please refer to Marr (2005). As shown by the above definitions, there is no agreement on what constitutes a good or sufficient definition of IC. Finally, IC is an important theme in different disciplines and is looked at from different perspectives such as economics, strategic management, finance, accounting, reporting and disclosure, human resources, and marketing and communication. However, there are few works developed related to the IC in the field of performance measurement.

Table 2. Main perspectives of intellectual capital

Perspective	Author(s)
Economics	OECD (1999); Lev (2001)
Strategy	Itami (1987); Hall (1989, 1992, 1993); Klein and Prusak (1994); Edvinsson and Sullivan (1996); Brooking (1996); Sveiby (1997); Roos et al. (1997); Roos and Roos (1997); Stewart (1997); Edvinsson and Malone (1997b); Boisot (1998); Teece (1998); Bontis et al. (1999); Nonaka, Toyama and Konno (2000); Marr and Schiuma (2001); Kaplan and Norton (2004)
Finance	Lev (2001)
Accounting	Lev (2001); IASB (2004)
Reporting and Disclosure	Lev (2001); IASB (2004)
Human Resources	Becker (1964)
Marketing and Communication	Brooking (1996)

The Intellectual Capital Management Models are focused on the establishment of one definition of IC, the components or dimensions of its structure, the intangible assets that belong to each component or dimension, and the indicator used to measure the identified intangible assets. Some models, as result of their activities, elaborate one report with two proposals, one as an internal management tool and the second as an external spreading tool of information for informing to the stakeholders about the real value of the company and not only about its financial value. Only some of the recently developed models of IC identify the need of linking the intangible assets with the strategy of the company, such as the European Project MERITUM (2002). Such a project was the first model that proposed the identification of the strategic objectives of the company and the critical intangible assets related to each of these strategic objectives as one of the main steps of this project. Moreover, the RICARDA project establishes that the first step to creating a report of Intellectual Capital for Regional Networks and Clusters is the definition of the regional network or cluster's objectives in medium and long term and the second step is concerning to the identification of each intangible assets that affect them.

Measuring intellectual capital

Nowadays, IC has become a determinant resource for enterprise to retain and improve competitive advantages. Because of its abstract nature, the IC is very difficult to measure, having become a challenge for business managers to evaluate the performance of IC effectively.

Gopika and Aulbur (2004) identified as benefits of IC measurement firstly the identification and mapping of intangible assets, which allows the company knowing its resources of competitive advantages in the future. Secondly, the recognition of knowledge flow patterns within the company. The last two benefits drive to the prioritization of critical knowledge issues, which allow the acceleration of learning patterns within the company thanks to the best practice identification and diffusion across the company, by presenting a strong business case for the best practice. Besides, the measurement of the IC permits a constant monitoring of asset value as well as to find ways of increasing the value of the company and the understanding of how knowledge creates interrelationships and increases innovation. From the point of view of the employees, the benefits are with regard to the increasing of collaborative activities and a knowledge sharing culture as a result of increased awareness of the benefits of knowledge management. Also, the employee self-perception of the organization and their motivation are increased. Finally, it creates a performance-oriented culture.

Measurement of IC will result in significant benefits to the organization that will help to determine business strategy, process design as well providing a competitive advantage.
Additionally, Bontis (2001) carried out an exhaustive literature review in which he highlighted the following main limitations in the existing measurement systems:
- The existing approaches relate to the organization as a whole and do not account for individual departments or knowledge workers.
- They do not balance past-orientation with future predictions, or quantitative financial measures with qualitative perceptual and process measures.
- Behavioral dynamics and its impact on organizational economics are not measured.
- There is no system for measuring process effectiveness in capturing tacit knowledge transfer.

At present, measuring a company's Intellectual Capital is quite common. According to Nordic survey, two-thirds of Finnish companies measure their Intellectual Capital regularly. Despite the fact that measuring Intellectual Capital is considered important, only 35 percent of the companies know how Intellectual Capital should be measured and reported (Nordika Project, 2002). Although different measurement systems for measuring Intellectual Capital have been developed, none of them has been accepted for common use. According to Sveiby (2001) the approaches for measuring intellectual capital fall into four categories: Direct Intellectual Capital Methods (DIC), Market Capitalization Methods (MCM), Return on Assets Methods (ROA) and Scorecard Methods (SC). These methods offer different advantages and disadvantages.

Scorecard Methods, in particular, have been developed as a tool for management and although all the scorecard methods have many similarities, they can be categorized into two different types: the (traditional) balanced performance measurement

methods and Intellectual Capital measurement methods. The balanced performance measurement frameworks, e.g. the Balanced Scorecard (Kaplan & Norton, 1992) and the Performance Pyramid (Lynch & Cross, 1991), have been developed for measuring and managing an organization's performance from several perspectives. IC is often related to one or more of these perspectives. However, in the IC measurement methods, e.g. the Skandia Navigator (Edvinsson & Malone, 1997) and the Intangible Assets Monitor (Sveiby 1997), the main rationale is the measurement of IC. Financial and other physical assets are not paid as much attention as the Intellectual-Capital-related factors.

Kaplan and Norton (2004) indicated that the intangible assets are hard for competitors to imitate, which makes them a powerful source of sustainable competitive advantage. The Learning and Growth Perspective of the Balances Scorecard have long been considered its weakest link and Kaplan and Norton (2004) admitted it (see their response to "Letter to the Editor"). To improve this the authors included in this perspective the intangibles assets essentials for implementing any strategy, which are classified in three categories: Human Capital (the skills, talent and knowledge that a company's employees possess), Information Capital (the company's database, information systems, networks and technology infrastructure) and Organizational Capital (the company's culture, its leadership, how aligned its people are with its strategic goals and employee's ability to share knowledge). Additionally, and to link these intangible assets to the company's strategy and performance, these authors developed a tool called "strategic map".

Bernard and Adams (2004) indicated that there are almost no references at all in Kaplan and Norton's recent work to the practitioner or academic research already carried out on the topic of intangible assets. And, although the terminology used to describe and categorize intangible assets is far from being cohesive at the detailed level, there has recently been a general convergence towards a three-pronged framework consisting of Human Capital, Organizational (or Structural) Capital and Relational Capital (Meritum Guidelines, 2002). Therefore, it is not clear why Information Capital is considered by Kaplan and Norton (2004) separated from Organizational Capital as most of the research in this field agree.

Also, in the definition of Informational Capital is included the company's strategic IT portfolio of infrastructure and applications, where infrastructure comprises hardware such as central servers and communication networks, which are in fact tangible assets infrastructure assets and should not be categorized as intangible assets

As well, the concept of Relational Capital is completely missing from Kaplan and Norton's (2004) definition of intangible assets. The Balanced Scorecard includes a Customer Perspective and it could be argued that customer relationships could be included into this perspective. In fact, Kaplan and Norton (2000) argue that this perspective should contain the customer value proposition. Even if relationships might be included the issue remains that according to Kaplan and Norton's (2000) definition of intangibles assets, Relational Capital is not included, which defies the views of most researchers working in this field.

At this point, several gaps have been identified in the above literature review such as the lack of consensus among the researchers and the practitioners about the

definitions of IC, the IC components, and the IC indicators. Many and various have been the attempts to measure the intangible assets of the companies through different IC models. Kaplan and Norton (2000), instead of creating a new model to measure the intangible assets, have integrated the measurement of the intangible assets within their Balanced Scorecard. Several researchers have criticized this attempt, having being identified several gaps in the way they have done such a merge.

Intellectual capital and performance measurement systems

It is important to design a robust PMS to gauge the performance of the enterprise's IC (intangible assets). The basic purpose of any measurement system is to provide feedback, related to the organisation's goals, which increases the chances of achieving these goals efficiently. Measurement gains true value when used as the basis for timely decisions. Another purpose of measuring is not to know how your business is performing but to enable it to perform better. The ultimate aim of implementing a PMS is to improve the performance of your organization. If you can get your performance measurement right, the data you generate will tell you where you are, how you are doing, and where you are going.

In this sense, the work developed by Boj Viudez, Rodríguez-Rodríguez and Alfaro-Saiz (2014) presents a methodology to link intangible assets and organizational performance (measured by a Balanced Scorecard). This approach integrates the intangible assets into a PMS instead of doing the opposite, to integrate a PMS into an IC management model. This is because the IC management models are usually focused only on intangibles assets, taking into account neither the tangible assets nor the relationship among the intangible and the tangible assets nor how the intangible assets create value into the company through the tangibles assets. As Kaplan and Norton (2004) stated unlike, tangible assets, intangible assets almost never create value by themselves. They need to be combined with other assets. This fact is neither considers by the IC management model nor by any PMS. The present proposal takes this fact into account.

One of the main advantages of incorporating an IC management model within a PMS is the integration in a structured manner of the total assets - tangible and intangible - of an organization. In the current context of competitiveness, it is necessary to measure the performance of such intangible assets in order to obtain the highest benefits and associated competitive advantages.

This proposal is based on the work developed by Alfaro, Ortíz and Poler (2007) called PMS IE-GIP. Then, this PMS is the performance measurement system in which the proposed IC model is integrated. PMS IE-GIP adopts the classic Kaplan and Norton's (1992) balanced scorecard approach and enriching it by introducing, among others, some strategies associated to each of the defined objectives. These strategies are ways of action that will support the consecution of the objective they are linked to.

Hence, the methodology analyzes how the different intangible assets influence in the achievement of the strategies defined as critical. Then, it proposes the usage of the multi-criteria decision aid method ANP (Saaty, 1996), to support the complex decision-making process concerning with the election of the intangible assets linked to each

strategy as well as the election of the indicators used to measure them. This methodology has been only applied to a service organization (research center), which means that it should be further applied to another type of organizations.

Conclusions and research agenda

This paper has reviewed the main definitions and management models of intellectual capital focusing on the measurement of the intangible assets. It has identified several gaps such as the lack of agreement on the indicators to be used to measure intangible assets. Moreover, the few attempts to integrate the intangible assets within a performance measurement system such as the classically balanced scorecard - which reduces its action to the learning and growth perspective - are not sufficient to reflect the complexity inherent in an organisation's intangible assets. Only one work has been identified as suitable to allocate the intangible assets that influence on the achievement of the elements of a PMS.

As a research agenda, the next topics could be taken into account:
- Work on the definitions of IC, its components, and the IC indicators. Reaching consensus on these issues is of key importance.
- Use new quantitative techniques further ANP. These techniques could be Fuzzy, multivariate statistical techniques (if historical data is available), etc.
- Application of Boj et al. (2014) methodology to another type of organizations (Service, product/service).
- Development of new proposals that cover and show the links between the intellectual capital and organizational performance, incorporating the intellectual capital into a PMS.

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