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Organizational culture and intellectual capital: a new model

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Abstract

Purpose – The purpose of this study is to examine the connection between the concepts of organizational culture and intellectual capital to enable the proposal of a model to measure intellectual capital. This model highlights culture as an essential component of intellectual capital.

Design/methodology/approach – The study begins with an analysis of the connection between the concepts of organizational culture and intellectual capital. It then examines the principal models that are used to measure intellectual capital, focusing on their structure and the location of culture. The importance of this capital for organizations is emphasized.

Findings – The paper proposes a new model to measure intellectual capital. This model considers culture as the central nucleus around which the remaining integrated capitals configure. The importance of cultural capital is seen within organizations at two levels: the national culture; and the culture of the organization. These are essential features, and give internal logic to the proposed model.

Originality/value – The models of measurement of intellectual capital lack an internal logic which would synchronize the elements with the variables employed when characterizing intellectual capital as a body. There is a tendency to consider each of the elements or capitals mentioned as independent, without a nexus existing to connect them. This paper centres on the search for the stated internal logic and for the consideration of culture as a key element in this. This gives a new focus to the role that is played by the configuration of intellectual capital in each enterprise.

Keywords Organizational culture, Intellectual capital, Modelling

Paper type Research paper

1. Introduction

This study examines the connection between the concepts of organizational culture and intellectual capital to enable the proposal of a model to measure intellectual capital. This model highlights culture as an essential component of intellectual capital.

First, the concept of culture is defined. Then we examine individually the principal models that are used to measure intellectual capital, focusing on their structure and the location of culture. Next, the importance of this capital for organizations is emphasized. Finally, the proposed model is elicited and the established relationships between all the components of intellectual capital are explained, using culture as the central nucleus.

2. Concept of organizational culture

Numerous definitions can be found in the specialised management literature for the term "organizational culture". However, there has not yet been any definition agreed by consensus and commonly accepted by all authors. Therefore, this section tries to gather together the most significant contributions to its conceptualisation and

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structure, with the objective of designing a reference mark that describes in a more precise way what is understood as culture within a company.

The origins of the term are found in social anthropology, where it is defined by Tylor (1871) as "that complex whole which includes knowledge, beliefs, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society".

In sociology, the term "organizational culture" is used to explain the differences among managerial results in a qualitative way (Pettigrew, 1979). In the 1980s, the term became related to the debate over tangible and intangible aspects, considering organizational culture as the motor of the organization and defining it as "the values shared by the members of the organization" (Peters and Waterman, 1982). From then on, all authors have agreed that the identification of intangible aspects is a point of cohesion in culture (Leal, 1991). In any case, as company culture (including corporate culture) accounts for the installation and development of new strategies, its analysis is essential (Bueno and Morcillo, 2003). In fact, for many companies, organizational culture can end up being more valuable than its own tangible assets (Kaplan and Norton, 2004). These authors also focus on the anthropological roots of the term, defining it as "symbols, myths and rituals that form an integral part of the conscious or subconscious mind of the group".

In spite of the many existing contributions, there continues to be a gap in the methodology regarding the relationship that it presents with the managerial administration. From this point of view, some authors have developed instruments to measure it.

A significant study was carried out by Deshpandé *et al.* (1993), in which culture was defined as "a pattern of shared values and beliefs that help individuals to understand organizational functioning, and thus provide them with the norms for behaviour in the organization" (Deshpandé and Webster, 1989). They follow on to identify four cultural archetypes in the employment of processes (from organic to mechanics) and focus of the organization (internal or external). These are:

- culture type clan (organic and internal focus);
- adhocractic (organic and external focus);
- hierarchical (mechanic and internal focus); and
- market (mechanic and external focus).

Another relevant source is that of O'Reilly (1996). The employees classify 54 declarations of value according to the importance that they perceive culture has in their company. Once the results are analyzed, it describes organizational culture with a high level of reliability.

Equally important is the acknowledged study by Hofstede (1980). It proposes four cultural dimensions:

(1) power distance;
(2) masculinity;
(3) individualism; and
(4) uncertainty avoidance.

These have been studied at the level of nationality of the organization, appropriately considering the numerous dimensions that countries' cultural differences produce.

To conclude, although a definition by consensus does not exist, in respect to the construction of culture and a method to measure it, the authors can, however, confirm the existence of some common elements such as beliefs, values, norms and attitudes, with regard to what most of the papers identify. At the same time, one must define culture at a generic level, from the perspective of the particular organizational culture of the company, which is what the proposed model will reveal.

3. Delimitation and location of culture in the main models of measurement of intellectual capital

This section attempts to analyse the principal models that have been used to measure intellectual capital, highlighting in each of them the role of culture and its specific location.

As is shown in this section, it can be claimed that in the majority of models put forward up until now, culture is defined as an intrinsic component of the organization. Therefore it presents itself as independent from the denomination used by each model within the internal structure of the organization.

However, all of them lack an internal logic that would synchronize the elements with the variables employed when characterizing intellectual capital as a body. There is a tendency to consider each one of the mentioned elements or capitals (according to the denomination of each model) as isolated factors or independents without a nexus existing to connect them or to highlight the connection between each other and the influence that the organization exercises in its development.

Due to this point, the investigation centres on the search for the stated internal logic and for the consideration of culture as a key element in this. This gives a new focus to the role that is played by the configuration of intellectual capital in each enterprise.

3.1 Kaplan and Norton model: the Balanced Scorecard

This model was developed between the years 1992 and 1996. It is not a model specifically created for measuring the intellectual capital of an organization; rather, it tries to be a corporate management system and measure the results obtained at the heart of the organization, integrating for the first time the concept of intangible assets.

It represents an important advance from the previous models of management as it considers that, being based exclusively on indicators of a financial kind, its base is absolutely obsolete.

3.1.1 Structure of the model. The Balanced Scorecard is based on the idea that three groups of strategic individuals exist, all of them with different objectives, whose demands must be considered by the company. These are the customers, who demand quality in the products and services offered, the investors, who want the value of the company to increase and the personnel of the company, who look for attractive pay packages and job security.

The system that is presented is based on a group of indicators, integrated in the vision and strategy of the company (defined by the demands of the previous agents). Each indicator establishes cause-effect relationships that reflect the variations

experienced in the financial results. Therefore, it is necessary to distinguish two types of indicators:

(1) driver indicators – they condition and create others; and

(2) output indicators – they are the results conditioned by others.

The model presents four perspectives inside which each of the two types of indicators is located:

(1) *Financial perspective* – The financial indicators represent the final objective of the managerial result. They should be supplemented with others that reflect the managerial reality, i.e. cash-flows, product/service profitability, profitability of capitals, etc. These financial indicators would assume both past and present company image. Therefore, in the model they are not integrated with other financial or operational indicators that try to influence their future. Rather, they generate an outline where the relationship between the interdependences can be understood.

(2) *Customer perspective* – Once the sector of the target market is defined by the company, attempts are made to identify the values related to the customers that increase the competitiveness of the organization. Driver indicators are the quality of the relationship with the customer, and the reputation of the company among its competitors. The output indicators are the results from the financial perspective, i.e. market quota, customer loyalty, and so on.

(3) *Business process perspective* – This proposes an analysis of the internal processes in a way that makes them essential in the value chain. It searches for an adaptation of them leaded by the increase of financial yield and customer satisfaction. Three types of processes can be identified:

- *Innovation* – indicators such as percentage of new products, of patents or novel products in relation to the competitors.
- *Operations* – indicators of costs, quality, times of work, etc.
- *Post-sale service* – indicators of repairs in time of guarantee, their cost, time of answer and so on.

(4) *Learning and growth perspective* – This is the least developed perspective in the model. It is thought of as a group of values that enable improvement and continuous learning within the company. These values and their indicators are considered drivers of the rest of the perspectives.

The learning and improvement assets must be considered as an investment, versus the view that regards them as an expense. They can be classified as:

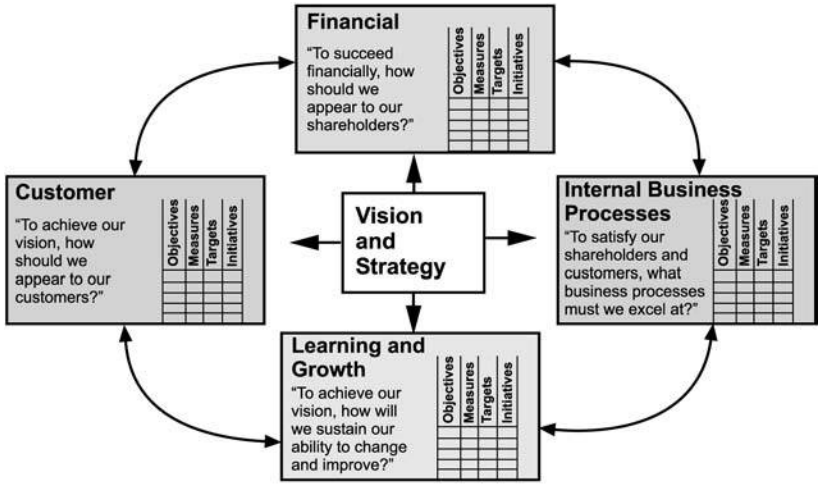
- *capacity and competition of employees* – indicators of productivity, formation necessities, labour satisfaction, absenteeism, etc.;
- *systems of information* – indicators of databases, own software, copyrights; and
- *culture-climate-motivation for learning and action* – indicators like work capacity in a team, accordance between the objectives of the employees with those of the company, and so on.

3.1.2 Location of the culture in the model. The Balanced Scorecard (see Figure 1) is distinct from the other theoretical contributions in respect to where it locates the concept of culture within the model. In the majority of the models (as will be seen), culture is understood as an element within the internal organization of the company. However, here it is better considered from the point of view of learning. Indeed, on classifying the assets from this perspective, a third of them are defined as culture-climate assets for learning and action.

Thereby, two points of view are identified in relation to organizational culture:

(1) The vision of the company, which in the model remains the nucleus of the relations between the perspectives, in a very similar way to the structure that culture takes in the proposed model that will be introduced later. The vision of the organization is the definition of the business, the first step to define the strategy and all their other decisions. From this point of view, an established relationship exists between culture and vision. Authors like Schein (1990) define organizational culture as "that group of beliefs that the members of an organization share over which is the best way to do things, defining the vision the company has of itself and its surroundings". Therefore, it is possible to show the connection between the nucleus of the Balanced Scorecard and the term "cultural organization".

(2) Culture and the climate of learning and improvement, which as has been mentioned previously, create the perspective of learning and growth into an asset. It is also where reference is made to the culture of the company from a more specific focus. In any case, the authors identify the indicators of this asset as the alignment of the objectives of the people and teams with the vision of the company. These reinforce the reciprocity between culture and the vision discussed in the previous paragraph and the idea of considering the former as the nucleus that connects the elements that shape intellectual capital.



Source: Kaplan and Norton (1996)

Figure 1.
Balanced Scorecard

3.2 Skandia Navigator

This is the first dynamic intellectual capital model. Its main instigator was Leif Edvinsson. It appeared for the first time in 1992 in the memory of the company Skandia. Its base is dependent upon the difference between the value of the companies' assets and those of the market. This implies that a series of intangible actives exist, which the market is disregarding nowadays as future bank flows.

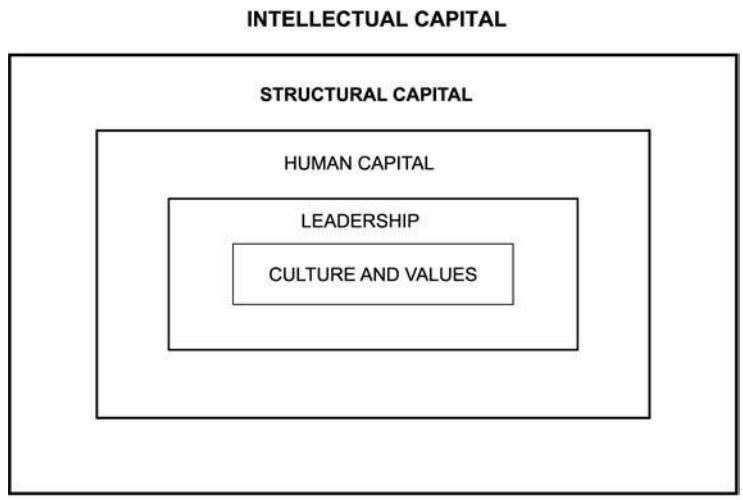
3.2.1 Structure of the model. Skandia divides the market value into financial capital and intellectual capital, focusing on the breakdown of the latter. On one level, intellectual capital is comprised of human capital and structural capital. A reciprocal relationship exists between both, as the latter makes up the infrastructure of the former, and, in turn, human capital helps develop structural capital.

This way, the composition of the intellectual capital is determined by a structure of layers. The values of the company can be found in the centre of Figure 2. Later on, this aspect will be examined. The following describes the configuration of both capitals:

(1) *Human capital* – composed of values, attitudes and habits of the components of the organization.

(2) *Structural capital* – described as the body, the base that supports human capital. Likewise, it is the capacity of the organization to transmit and to store the intellectual material that flows through itself. It is comprised of the following elements:

- *Organizational capital* – Company systems, tools and work philosophy, as well as organizational culture. Elements that accelerate the flow of knowledge through the organization. This can be divided into innovation capital (renovation capacity and results of the innovations obtained by means of commercial rights, intellectual property, managerial secrets, and so on) and process capital (techniques of work, procedures that increase the value of the product or service and programs that increase work efficiency).



Source: Edvinsson and Malone (1997)

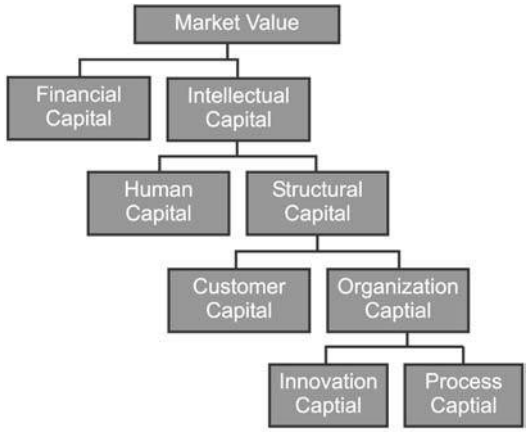
Figure 2.
Structure of intellectual capital

- *Customer capital* – assets related to the customers of organizations such as: customer loyalty, new types of customers, etc. (Figure 3).

However, as mentioned previously, its main advantage is that it is dynamic, since it considers the focuses under a temporary prism. Therefore, a tool named Skandia Navigator has been developed, which uses a metaphor whereby intellectual capital resembles a house.

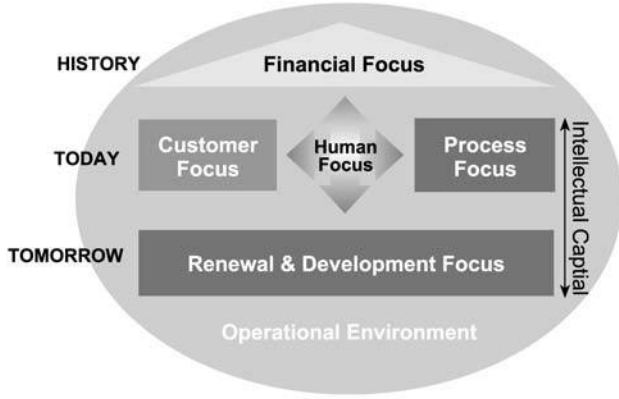
As can be seen in Figure 4, five areas or focuses exist where the company centres its attention, and among those areas, the value of intellectual capital of the organization within its environment is included.

Focusing on the metaphor of the house, the roof shapes the financial approach, the old states of accounting that make up the measurement of past history of the company



Source: Edvinsson and Malone (1997)

Figure 3.
Market value in Skandia



Source: Edvinsson and Malone (1997)

Figure 4.
Skandia Navigator

at any specific time. Working down towards the walls of the house, one advances towards the present, where the focuses of clients and of processes are found. The foundations of the structure look towards the future, and transmit an innovative approach and development. This measures the preparation of the company for the future, with the development of new products, strategic actions and so on. Lastly, in the centre of the house, a fifth focus exists, the human one, since the employees are understood as the heart and soul of the model. Without them, the house would not have inhabitants to allow the other areas to develop.

3.2.2 Location of culture in the model. As in the Balanced Scorecard model, culture can be perceived in two different situations:

(1) On the one hand, it appears as the nucleus of the model within the layered structure. If structural capital sustains the base of human capital, the latter forms the foundation of the leadership, culture and values of the organization. Although the central location of culture is similar to the model that the authors will propose at the end of this work, the idea that justifies this location is different. Edvinsson considers culture and organizational values as consequences of the company's human capital. From the point of view of the authors, culture connects the different capitals that form intellectual capital.

(2) On the other hand, culture establishes a relationship with the other capitals through the layers. However, in the proposed model, those relationships are all established through culture.

3.3 Technology Broker

This model was presented in 1996 by the founder and director of the consultant "The Technology Broker", Anne Brooking (Brooking, 1997). The starting point is similar to that of Skandia, as it takes into account that the market value of the company is the sum of the countable values or tangibles assets of it, and its intellectual capital. It also mentions the necessity of developing a methodology that enables the information related to the latter to be audited:

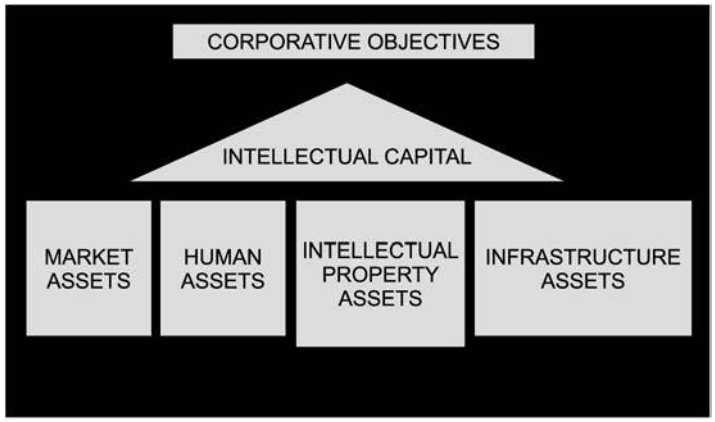
$$\text{Value of the company} = \text{tangible assets} + \text{intellectual capital}.$$

3.3.1 Structure of the model. The Technology Broker considers that the intellectual capital of a company can be divided into four categories or components (see Figure 5):

(1) *Market assets* – The potential of the organization with respect to their intangible assets related with the market: customer loyalty, distribution channels, franchises, company name, etc. The importance of these assets resides in their capacity to confer competitive advantages on the company market.

(2) *Human assets* – They include collective experience, creativity, capacity to resolve problems, managerial abilities and how the management handle the employees. These assets are not property of the company, which provides the necessity to give them a different treatment. The worker of this millennium should be trained and involved in a continuous learning process, and should be a knowledgeable worker.

(3) *Intellectual property assets* – Comprised of company secrets, copyright, know-how, patents, design rights, etc. Their importance is seen by the



Source: Brooking (1998)

Figure 5.
Technology Broker

protection that they provide for the products or features that the company do not want their competitors to imitate or know.

(4) *Infrastructure assets* – Technologies, methodologies and processes that allow the organization to function, for example, corporate culture, business philosophy, databases, and financial structures. It is composed of assets of very diverse natures. A common characteristic is that they represent elements that make the organization work, in that they provide the employees with a context. In this way, they bring security and quality to the company. They also establish a basis which human assets rely on when they want to know how to behave in a given situation.

The model of Brooking does not define any quantitative indicators to measure intellectual capital. It considers necessary the audit of it, based on a list of qualitative questions, after which it will proceed to value the intangible assets monetarily.

3.3.2 Location of culture in the model. Brooking includes culture inside the infrastructure assets, regarding it as corporate culture. She defines it as "the way the structure is made". It includes values, rites, rituals and heroes that are known and shared by the workforce of the company. A strong corporate culture can be understood as an asset if it reflects the business philosophy of the organization, while it becomes redundant if discrepancies exist within both concepts.

Brooking considers that culture is created from the top of the company and that it reflects the values of the business's founders. However, she equally suggests that, in big organizations, there are underlying cultural differences between different departments.

From the point of view of the authors the classification of culture as an infrastructural asset that considers elements of distinct natures, such as databases and business philosophy, is excessively ambiguous. A more specific structural process would be necessary with this type of asset. Equally, the authors believe that an organization's culture comes from very diverse surroundings, from the values that its own employees create, to the type of relationship it has with its clients and providers.

In this way, to reduce it to the values transmitted by the founders is to drastically underestimate its fundamental nature.

3.4 Model of the Canadian Imperial Bank

Herbert Saint-Onge (1996) established this model. It gives great importance to the two dimensions of knowledge, explicit and tacit. It identifies the tacit knowledge with intellectual capital, and considers it as the first dynamic creator of value in a firm.

3.4.1 Structure of the model. It considers the intellectual capital of an organization to be made up of three elements:

(1) *human capital* – the individuals' capacities;

(2) *customer capital* – cover, fidelity and benefits obtained from the customers; and

(3) *structural capital* – the capacity of the organization to detect the necessities of the market.

It is understood that in each one of these elements two levels of knowledge exist:

(1) explicit knowledge, which is articulated; and

(2) tacit knowledge, which includes intuition, perspectives, beliefs and the individuals' values that occur from their experiences.

Saint-Onge (1996) explains that tacit knowledge is at a far more superior level than explicit knowledge within the organization. The form it takes in each element of intellectual capital is the following:

- in human capital, it would be the beliefs, values, and considerations of the individuals;
- in customer capital, it is the individual and collective perception of the customers about the value of the products and the services offered; and
- in structural capital, it is the whole organization's way of thinking, the way they portray their culture, including their norms and values.

In any case, the link between intellectual capital and learning within the organization brings to light an important dimension. In this way, the creation of knowledge capital as a whole triggers the process of organizational learning.

This learning is understood on several levels:

- individual learning in each part of the company;
- team learning, aligning knowledge, and transferring knowledge and abilities;
- organizational learning that looks to facilitate the evolution of corporate culture guiding it to its surroundings; and
- the customers' learning, which enables the possibility for these things to play a fundamental role in the complete process of learning.

3.4.2 Location of the culture in the model. Organizational culture has an important role in this model. Its natural location is shown inside the structural capital. The Canadian Imperial Bank's model considers that this capital is divided into four categories:

(1) *systems* – the way in which the organization can carry out its processes (taking decisions, communication, etc.);
(2) *structure* – the distribution of responsibilities and definition of the position of each member of the organization;
(3) *strategy* – objectives of the company and the way they try to reach them; and
(4) *culture* – including individual opinions, shared beliefs, values and norms within the organization (see Figure 6).

However, it is understood that tacit knowledge, in spite of having an important impact in each one of these elements, stems from culture. A strong connection exists between strategy and culture so that if there is no coherence between them, it will be difficult to achieve success and competitive advantages.

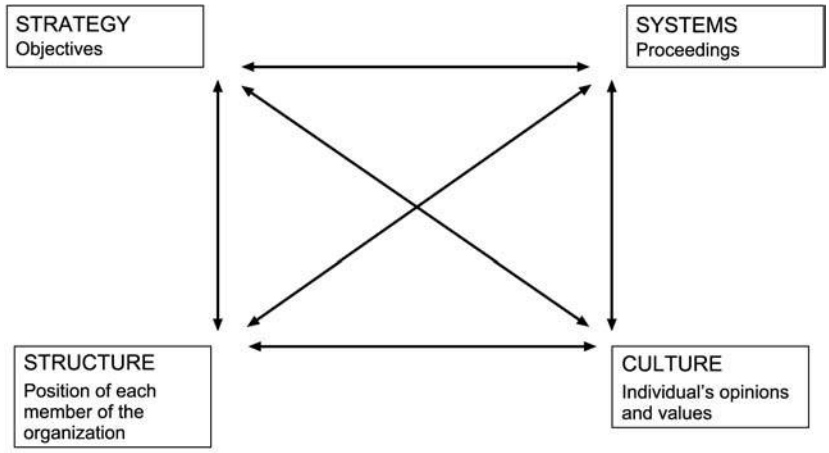
The culture of an organization acts as a filter of the perceptions of the surroundings, which thereby contributes to the adoption of certain strategies. Later, when specific strategies are developed, it would not be possible to implement them, or at least not with success, if culture and organizational behaviour are not aligned with this strategies.

To conclude, culture is understood as an element of structural capital. However, it is not defined as an element any more, but as an entity through which tacit knowledge flows. It also determines the development of competitive advantages in the firm.

3.5 The Intangible Assets Monitor

The Intangible Assets Monitor is a tool created by Karl Eric Sveiby to measure intangible assets through a system of indicators. Their choice depends on which strategy the company applies. The intangible assets show the difference between the countable value and the market value of an organization.

The measurement of these assets is a two-way process:



Source: Saint Onge (1996)

Figure 6.
Elements of structural capital

(1) toward the exterior, to inform the external agents with links to the company (clients, shareholders, suppliers); and
(2) toward the interior, to inform the directors about the evolution of the company.

3.5.1 Structure of the model. Sveiby arranges intangible assets into three categories:

(1) *Competence indicators* – These include competition between professionals in the organization, for example planning or presenting solutions. This category is fundamental, since the other two categories are based on it.
(2) *Internal structure indicators* – The structured knowledge of the organization like patents, models, informative systems, culture, etc., as well as the group of people whose main activity is the maintenance of this structure.
(3) *External structure indicators* – All the relationships with external agents such as customers, suppliers, the brand, and the image of the company.

For each one of these nuclei for intangible assets, Sveiby proposes three types of indicators:

(1) *indicators of growth and innovation* – reflect the future potential of the company;
(2) *indicators of efficiency* – information about productivity of the intangible assets; and
(3) *indicators of stability* – grade of permanency in the organization of these assets.

Sveiby advises that the balance produced by the Monitor should not exceed one page. Therefore it is recommended to use one or two indicators in each category suggested in the model (see Table I).

3.5.2 Location of culture in the model. Measurements of values and attitudes are considered within the indicators of stability in the internal structure. Sveiby points out that judgements of value are components of competition. It is useful to consider the attitude towards the workplace, customers and superiors. This concept is known as corporative culture from the opinion of the author. This is because it is included in the internal structure. It is located within the indicators of stability, since a negative measure of attitudes is a signal of problems for the organization in the future.

In this way, culture can be understood from an internal point of view, but must be defined as the employees attitudes, not only towards their job roles, but also towards their customers and their superiors. This demonstrates the relationship between the human block and the external block of the organization.

3.6 Model from the University of Western Ontario

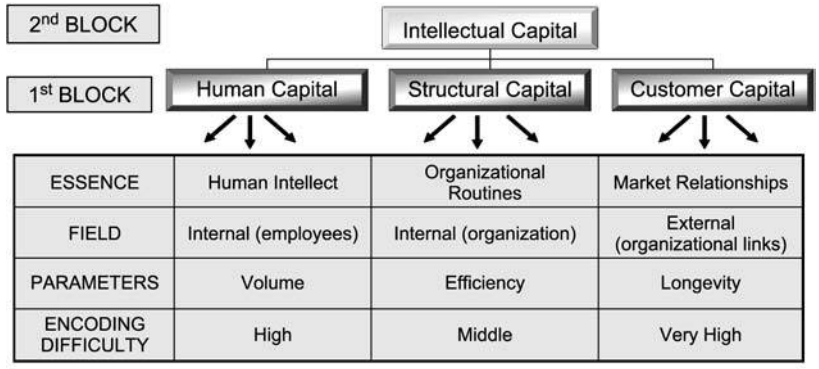
This model comes from a study developed by Nick Bontis to explore the impact of intellectual capital on responsible management from the University of Western Ontario. It is based on a pilot study developed from an analysis on principal components and partial squared minima. It suggests a causal relationship between the dimensions of intellectual capital and the organizational results.

3.6.1 Structure of the model. Bontis explains that intellectual capital is composed of a system of inter-relational blocks (see Figure 7):

	Competence	Internal structure	External structure
Growth/renewal indicators	Number of years in the profession Level of education Training and education costs Marking Competence turnover Competence-enhancing – customers	Investment in new methods and systems Investment in informational systems Customer contribution to the inner structure Providing new services and/or products New processes installed	Profitability per client/customer Organic growth Sales to new customers
Efficiency indicators	Professionals' rate/proportion Added value per professional Added value per employee Profit per professional Profit per employee	Rate of supporting personal Sales per supportive person	Success/failure index Profit per client Sales per client
Stability indicators	Professionals turnover Relative pay Seniority	Age of the organization Support staff turnover Rookie ratio Seniority	Proportion of great customers Customer satisfaction index Customers' loyalty ratio Antiquity structure Repetition frequency

Source: Sveiby (1997)

Table I.
Intangible Assets Monitor



Source: Bontis (1998)

Figure 7.
Conceptualisation of intellectual capital

- *Human capital* – Tacit individual knowledge that the members of the organization possess. This is defined as a combination of education, genetic inheritance, experience and attitudes about life and work. It is measured as a function of volume.

- *Structural capital* – Tacit knowledge that embraces the organization. It recognises the great variety of relationships required to manage the company in a coordinated manner. Without this, intellectual capital would only be human capital.
- *Customer capital* – Comprehensive knowledge within the areas of marketing and customer relations. It includes established knowledge about customers, suppliers and industrial associations or related governments. It can be measured as a function of longevity.

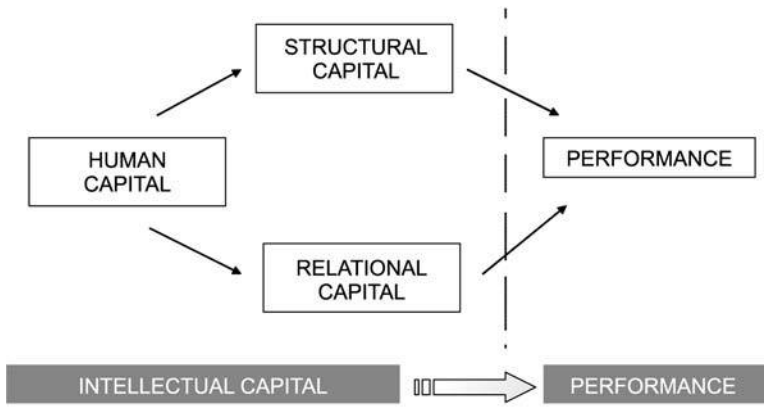
The main discovery that the study reveals is that while human capital exercises considerable influence on structural and customer capital, at the same time they both maintain a level of independence. Likewise, it demonstrates the fortuitous relationship between the capitals and responsible management. Therefore, the block or explanatory factor of the model is represented by human capital, whereas the relationships discovered can be represented as in Figure 8.

3.6.2 Location of culture in the model. Organizational culture appears as an essential element in the development of structural capital. An organization with strong structural capital needs to have a culture where the individuals can try new things, fail, learn or try things again. A culture that penalises for failures will have minimal success.

In this way, culture can be explained as a business philosophy that allows individuals to develop ideas that strengthen structural capital. Bontis suggests that cross-references between intellectual capital data and the cultural dimensions proposed by Hofstede (1980) can show interesting relationships between concepts.

3.7 Intellectus Model

During the year 2002, the Intellectus Knowledge Forum of Central Investigation on the Society of Knowledge developed a new model of measurement and management of intangibles. This new model assumed an advance from the previous and most recent



Source: Bontis (1998)

Figure 8.
Model from the University of Western Ontario

contribution from the Spanish scientific world to the analysis of capital intellectual. It is called the Intellectus Model, and its most significant contributions will now be presented.

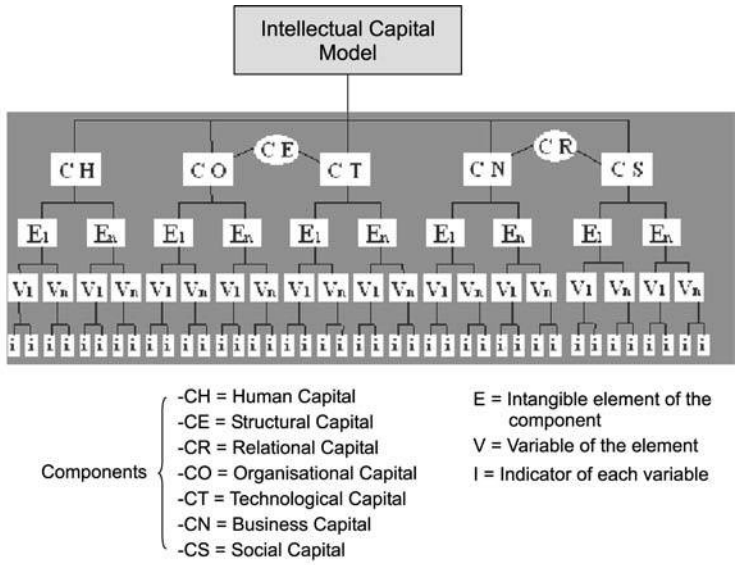
3.7.1 Structure of the model. The main new discovery is the location of intellectual capital in five blocks, a definite evolution from the previous model. In this way, it recognizes the need to differentiate within structural capital, between that which defines organizational capital (the administrative part) and technological capital. Equally, within relational capital it distinguishes between business capital, which is composed of relationships with fixed agents in the business process, and social capital, related to the rest of the surrounding agents.

Each one of these five components is integrated by mutual elements. At the same time, each element is composed of a series of variables, which make them unique objects to measure. Lastly, each variable needs some indicators to help to obtain its values. So, the Intellectus Model is structured into components: elements, variables and indicators (see Figure 9).

(1) *Human capital* – Knowledge that groups and people possess, such as the capacity to generate it, which is useful for the mission of the organization.

(2) *Structural capital* – Comprised of knowledge and intangible assets derived from share processes, which are owned by the organization. This capital remains even when people leave.

- *Organizational capital* – Made up of natural and implicit, formal and informal intangibles. These structure and develop effective and efficient activity of the organization.



Source: Knowledge Forum Intellectus-CIC, UAM (2002)

Figure 9.
Intellectus Model

- *Technological capital* – Consisting of intangibles directly linked with the development of the activities and functions of the technical, operational system of the organization.

(3) *Relational capital* – knowledge incorporated in the organization and people as a consequence of the value derived from the relationship with the representatives from the market and society in general.

- *Business capital* – The value of the relationships with the main connected agents in the business process.
- *Social capital* – Value of the relationships with the remaining agents in the organization's environment.

The elements that configure each of the five components are specified in Table II.

3.7.2 Location of culture in the model. As has been mentioned previously, culture is located in structural capital, specifically in organizational capital. The definition that the model gives to the concept can be summed up as "values, norms, and the shared and assumed actions of the main group of people from the organization that condition its behaviour and the corporative results". The integrated variables' cultural homogeneity, the evolution of cultural values, the social climate and the business philosophy are mentioned.

However, the document presenting the model points out that in the recent meetings of scientists and professionals about intangibles, they have considered introducing cultural capital connected with intellectual assets through its value in the strategies about knowledge. It is at this point that the authors of this paper present their contribution. It does not only include cultural capital as an independent element, but offers the consideration for the element of internal cohesion between the capitals. This proposal will now be submitted.

Organizational capital	Culture
	Structure
	Organizational learning
	Processes
Technological capital	Effort in I + D + i
	Provision of technology
	Industrial and intellectual ownership
	Results of innovation
Business capital	Relationship with customers
	Relationship with providers
	Relationship with shareholders, stockholders, institutions and investors
	Relationship with competitors
	Relationship with promotional and quality improving institutions
Social capital	Relationships with public administrations
	Relationships with means of communication and corporative image
	Relationships with environmental care
	Social relationships
	Corporative reputation

Table II.
Elements of the capitals in the Intellectus Model

4. The importance of culture as a central nucleus in the measurement of intellectual capital

Among the meticulous and varied literature that surrounds the concept of "organizational culture", there are numerous authors who give culture more importance than just being part of the basic foundations of a company's success. The theory mentioned by Flamholtz (2002) complies with this, as culture is regarded as "an area of essential organizational development, a strategic keystone for a successful company". From his point of view, Copeland (2001) indicates that the definition of culture of the company is a key step to the development of intellectual capital.

Likewise, it has been seen how Edvinsson, in his model of Skandia Navigator, positioned culture and the values in the centre of the original components of intellectual capital (Figure 2). In this way, it can be seen that to define culture as a simple element configured within structural capital is extremely limiting, considering the importance granted to it by managerial literature.

However, as the authors have indicated previously, the proposal model does not only make organizational cultural independent as a new capital, but also includes it as the link between the five capitals defined by the Intellectus Model. This consideration is due to contributions such as that of Smircich (1983), according to whom culture is more than something that the organization possesses. Therefore, it is seen as the nucleus or essence of the company.

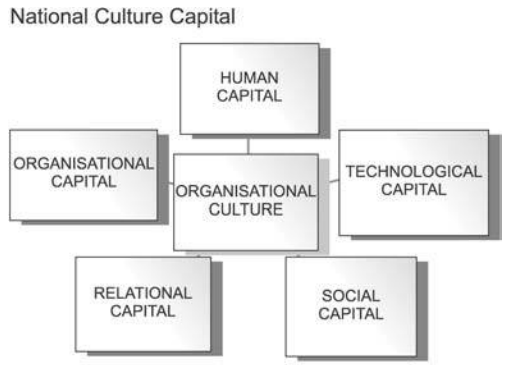
In the same way, Tierney (1988) claims that organizational culture is a net of interconnected relationships, which can feasibly be measured with a certain grade of reliability. Indeed, some investigators argue that there has been a tendency to focus on organizational culture as a series of independent elements, ignoring its multidimensional nature. It is a concept composed of an intimate interrelation of numerous variables (Schein, 1990). This, united from different definitions and components, whose diverse authors present detailed descriptions and empirical measurements for the concept of culture, brings us to a complex centre of interrelations between human capital, organization, technology, business and social factors.

4.1 Proposed model

The model the authors present (see Figure 10) is based on the investigation in the Intellectus document, which considers the possibility of organizational culture as a new capital in the measurement of intellectual capital. Due to its influence and conceptual tangle that culture presents in any modern entity, the proposal model to measure intellectual capital defines culture by firmly establishing its relationships with the rest of the capitals.

However, this proposal does not only attempt to present culture as a new capital in the model, but also considers it as its own centre, regarding it as a discriminatory capital within the organization which sustains relationships between the rest of the capitals, giving internal logic to the model.

Similarly, the authors consider culture focusing on two levels. The first is a generic level, which includes the rest and could be understood as national culture, given from the point of view of authors such as Chalminade and Johanson (2003). They sustain empirically the cultural differences that exist in relation to intellectual capital between different countries. The second level, specific organizational culture, is presented as a



Source: Own creation

Figure 10.
Proposed model

central nucleus between the relationships of the capitals that make up the intellectual capital of the company.

The points of connection between each of the capitals that make up the model are defined next using the division of capitals from the Intellectus Model as the authors regard them as the most advanced as well as the elements that form organizational culture in relation to each other.

4.1.1 Human capital. The elements that maintain a permanent form in the definition of culture are the values and the norms. One chain of thought considers that these norms and values, which shape culture, habitually come from the founders and directors of the organization. Another chain of thought, however, puts forward that the collective beliefs and systems of value of all the individuals working in the organization shape its culture (Marcoulides and Heck, 1993). In any case, the relationship between culture and human capital seems indisputable. This is a two-way relationship, as both feed on the characteristics of the other. Culture is influenced by the values, norms and constituted beliefs in the heart of the workers' block of the organization (whether they are executives or not), while human capital must be kept at an elevated grade with the culture that the organization possesses. Indeed, certain authors consider it necessary to carry out the selection process taking into account that the human resources recruited have to present a high adaptation of the philosophy of the company (Messmer, 1999). For Flamholtz (2002), the treatment that is given to the employers or human capital of the organization is one of the principal areas where culture is seen.

4.1.2 Organizational capital. This capital becomes the natural place where culture is located in the majority of models, so that its relationship seems clear. In the models of Bontis, Edvinsson, Intellectus, etc., they consider that culture, as part of the tacit knowledge that the organization possesses, must form part of its structural capital. Subsequently, the Intellectus Model, in dividing the mentioned capital into organizational and technological capital, relocates culture more specifically inside the former. Hence, the relationship between culture and the standards of the organization's yield are unquestionable, as with business philosophy and company ethics. However, in the opinion of the authors, as was mentioned earlier, it is highly restrictive to limit organizational culture only to this capital, as it has been recognised to possess far more importance and multidimensionality than this. Indeed, Tycrell

(2000) holds that culture is more a variable that emerges in the continuous interactive process between individuals and the structure than results from organizational structure. Therefore, the relationship with both human and structural capital becomes apparent, without limiting it only as an exclusive element of the latter.

4.1.3 Technological capital. Various authors refer to innovative culture as a source of competitive advantage based on knowledge and creativity. According to Bueno and Morcillo (2003), the culture of innovation has been understood "as a way of thinking and acting that generates, develops and establishes values and attitudes in a company prone to excite, take on or propel ideas and changes that bring about improvements to ensure its efficient running, even when it implies a rupture with the conventional or traditional". Also, there is a distinction between technological and innovative culture. The first is focused on the adaptation of people to technological changes (a relationship between human capital and technology), making them conscious of the fact that technology is a basic pillar for competitiveness; and awareness of new technological advances, contrasting it with the installations available and driving new investments that generate major added value. Innovative culture is established by the creation of flexible structures – the development of a corporate mentality of experimentation and generation of new ideas, to favour a predisposition to change, inter-departmental relationships and the assumption of risks.

Therefore, it can be observed how, again, culture remains the nucleus in its relationship from technological capital with the other areas of the organization. All of this is according to the characteristics of innovative culture that have been mentioned, which is orientated around technology.

4.1.4 Business capital. The orientation that presents organizational culture to customers and agents related with the managerial business is evident. The authors find definitions such as those of Taguiri and Litwin (1968), according to whom culture is "the environment or climate that is established in a company for the physical distribution of its members and the way that they relate with the customers and other third party members". Marcoulides and Heck (1993) created a model to measure the impact of culture on developed companies. Among the elements used to measure it are the ideologies and values that the company regards as being desirable when providing services to customers.

Businesses look to develop their organizational culture in order for it to have a positive impact on customer satisfaction. This is done through improvements to the way employers work and their relationships with each other. Therefore, again, culture is constituted as a neuralgic centre, which justifies personal relationships, organizational structure and its surroundings.

4.1.5 Social capital. As the organization's development is created by a culture looking to have a positive impact on customer satisfaction, it is also certain that it attempts to provoke this impact upon the remaining agents to which it is also connected (administrations, means of communication, etc). Therefore, social responsibility (or the way the organization behaves as a member of the community) is among the cultural values used by Flamholtz (2002) to measure the impact of culture on successful businesses.

In this way, culture, as far as it represent the values and norms or the established rules for behaviour within the organization, will have a lot to do with the relationship between the company and its social environment.

5. Conclusions

Taking its base from the capitals of the Intellectus Model, after considering it the most advanced in this matter, an innovative proposal to measure intellectual capital has been presented that considers culture as the main capital. This provides an internal logic, as it determines, through culture, the relationships between the remaining capitals that shape the model.

Cultural capital has been defined at two levels:

(1) national culture; and

(2) organizational culture.

National culture is based on the differences detected in the administration of the knowledge and intellectual capital among companies located in different countries, according to the particular characteristics that define its culture in relation to the dimensions proposed by Hofstede (1980).

With regard to organizational culture, the relationship to justify the connection with each one of the five integral capitals of the intellectual capital has been analysed, after revising the literature that places culture in the centre of this net of connections.

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