

BUILDING THE INTANGIBLE CUBE: ASSESSMENT OF RELEVANT ORGANISATIONAL DIMENSIONS OF INTANGIBLE ASSETS

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Summary

In 2012 we live in the Era of the Intangible. Organizations have to rely more on Intangible Assets (IAs) than on tangible ones to prosper and even to survive. However, there is a big confusion among scholars and practitioners regarding the analysis of IAs. This confusion appears, we believe, because IAs are currently being analysed in too many different perspectives. And honestly, we think we all lack broad and background perspective on all those analyses. The “Intangible Cube” we present provides precisely the background. The research question of this paper is: How many perspectives can we currently use in order to analyse the IAs (part 1 of the question), and how we can check if one perspective is more important than the other (part 2)?

In this context, we define six dimensions which we believe can address IAs. Knowledge Management refers to IA and its consequences in the Knowledge cycle; Intellectual Capital refers to IAs as mainly knowledge-based economic value, divided into Human Capital, Relational Capital and Structural Capital; Human Resource Development refers to IAs as organizational learning; Economics deals with the micro and macroeconomic consequences of IAs and with the market of IAs; Social Policy refers to IAs investment considered as a commodity which have social benefits and which are managed by social operators; and finally Management and Accountancy, in which we address the quite old fashioned view according to which IAs are strategic resources that must be accounted for and valued for money.

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The remaining question is: do organizations value them equally? We define and justify the six perspectives (addressing the first part of the question). We also outline some examples of questions which will form a questionnaire we expect to conduct in 2012/13. The outcomes will provide an insight in the interest of organizations in each perspective. Finally, we will compare the obtained position with the expected one, to address some key questions about why intangibles are still not widespread. We believe this paper addresses a new and decisive area in the field of intangible analysis, and of course in KM.

Key words: *Intangible Assets; Organizations; Value; Perspectives; Intangible management.*

1. INTRODUCTION: THE COIN AND THE CUBE

The goal of this research is to study the relevance of diverse intangible dimensions in organizations. The convenient combination of such dimensions may allow firms building Intangible Assets (IAs) to finally achieve a knowledge-based competitive edge.

We believe that, in current theoretical approaches, IAs are seen as goods or services from which return must be derived (Molloy et al., 2011). Accordingly, two basic questions must be answered: 1) What is the level of IAs in the organization? 2) What is the impact of IAs in the organization? According to this perspective, the value of assets and returns are two faces of the same coin, i.e. what we call the Coin Approach.

However, we also believe that IAs are such an important and deep phenomenon in organizations that, in order to understand them, at least six different scientific approaches may exist. Those perspectives are: Knowledge Management (KM), Intellectual Capital (IC), Human Resource Development (HRD), Economics (E), Social Policy (SP), and traditional management and accountancy (TMA). Those six different approaches are described in Table 1. We call those six perspectives the IAs “*Cube*”. By exposing “*the Cube*” we believe that there are at least these six perspectives from which IAs can be analysed. All those perspectives are complementary to understand the phenomenon of IAs and to manage IAs properly.

Hence, in the next sections we fully develop the concept. We begin by exposing the main concepts we address (section 2). Next, we analyse each of the Cube perspectives successively: Knowledge Management (2.1); Intellectual Capital (2.2); Human Resource Development and Learning (2.3); Economics (2.4); Social Policy (2.5); Traditional Management and Accountancy (2.6) and we discuss those perspectives (2.7). In the final section 3, we present both our conclusions and our plan for further research.

2. PERSPECTIVES TO ANALYSE INTANGIBLE ASSETS

Molloy et al. (2011) provide a justified comparison between tangible and intangible resources as well as review different key characteristics of intangibles. Re-

sources are both the tangible and intangible assets a firm either owns or accesses to implement its strategies (Barney, 1991). However, we still lack of a clear idea on how to manage intangibles and whether a firm is constituted by intangible (IC) plus tangible capital (TC) or whether IC mediates in the relationship between TC and performance.

Intangibles have three intriguing features that distinguish them from tangible resources. First, intangibles do not deplete or deteriorate with use (Cohen, 2005) and may even improve with their use (for example, a person's skills) [Chadwick and Dabu, 2009; Noe, 2001]. Second, multiple practitioners can simultaneously use intangibles (Marr and Roos, 2005). Finally, intangibles are immaterial, making them difficult to exchange, as they often cannot be separated from their owner (Marr and Roos, 2005). In contrast to tangibles such as commodities, efficient markets do not exist for intangibles due to their immateriality (Barney, 1986; Cohen, 2005; Hall, 1993).

In this context, what are the key dimensions of IAs? In the next subsections we fully justify our proposed six dimensions, providing some non-exhaustive examples of questions to be assessed within each dimension.

2.1. Knowledge Management

Knowledge Management (KM) is both a science and a field of activity (see line 1 of Table 1). As an activity, KM comprises the dynamic practices developed to extract value from the knowledge resource. Every time a knowledge transfer or conversion is done the business value grows (Sveiby, 2001). Those activities have been defined as a Knowledge Cycle (Nonaka and Takeuchi, 1995). The Knowledge Cycle is usually disaggregated into several parts:

- Knowledge Acquisition (KA): Activities that select and acquire knowledge from external sources.
- Knowledge Creation (KC): Activities that develop and create insights, skills, and relationships in the organization as well as generate internal knowledge.
- Knowledge Documentation (KD): Activities that institutionalize knowledge in the form of an organizational memory so that it can be transferred and reused in the future.
- Knowledge Transfer (KT): Activities that enable the exchange of knowledge between individuals, groups, and organizational units at different organizational levels.
- Knowledge Application (KAP): Activities that involve utilization of available knowledge in order to improve processes, products and services, as well as organizational performance.

However, some organisations perform better than others when undertaking KM practices. This has led researchers to an emerging element of hindered problems: the need for an unlearning context.

- Knowledge Unlearning (KU): Activities mainly at organizational level related to the capacity of organizations to reflect on their performance in order to promote improvement actions, to recognize mistakes as something natural and to suggest improvements, for example, from trial and error experimentation, finding obsolete routines (Cegarra-Navarro and Arcas-Lario, 2011).

Some examples of questions concerning this “face” are:

- 3.1.1) Does the firm hire new staff members who possess missing knowledge?
- 3.1.2) Do the employees in the firm share their knowledge/know-how with colleagues and others?
- 3.1.3) Does the firm endeavour to find a knowledge combination that contributes to its identity?
- 3.1.4) Is Customer feedback used to improve products/services in the firm?
- 3.1.5) Is the personnel of the company used to change their ways of solving problems?

2.2. Intellectual Capital

The second dimension is the analysis of IC. It was generated from the need to understand the difference between the market and the book values of companies (see Table 1, line 2). Therefore, IC analysis extended traditional accounting by exposing the importance of intangibles. A large number of studies has derived from that, most of them based on the “Coin” perspective. In these studies IC was defined, measured, accounted, evaluated, and its impact measured.

IC is sometimes defined “[...] as knowledge that can be converted into value [...]” (Edvinsson and Sullivan, 1996: 358). IC is usually disaggregated into three components: human, structural and a third component often called customer capital (narrow conceptualisation, (cf. in Marr and Adams, 2004) or relational capital (wide conceptualisation according to the European Commission, 2006 and to Viedma Marti, 2001). This means:

- Human Capital: a set of values, attitudes, qualifications and skills held by employees that generate value for firms;
- Structural Capital: is the worth and value created within the organization that remains when employees go home. Therefore, it requires a high level of formalization to avoid dependence on people and to remain within the organization. It consists of procedures, shared values, organizational culture, technological equipment, etc.;
- Relational Capital: is the result of the value generated by firms in their relations with the environment, including suppliers, buyers, competitors, shareholders, stakeholders, and the society. It is the result of an organization’s ability to inte-

ract positively with members of the community to whom it belongs to enhance wealth creation through their Human Capital and Structural Capital.

According to González-Loureiro and Pita Castelo (2012 forthcoming) and González-Loureiro and Figueroa Dorrego (2010), some examples of questions concerning this “face” are:

- 3.2.1) Do you feel your organization owns IAs?
- 3.2.2) What is the importance of IAs for your company?
- 3.2.3) What is the importance of the returns of those Assets in your company?
- 3.2.4) How do you value the Competences of your workers?
- 3.2.5) How do you value the routines of your organization?
- 3.2.6) How do you value relations with costumers / clients in your organization?

2.3. Human Resource Development and Learning

Some of the most important analyses regarding IAs have been made in the field of Human Resource Development (HRD) (Table 1 line 3). IAs investments in this specific field offer the possibility of having an impact on participants, their learning, their competences, their behaviour, or in other company outcomes, as stated by Kirkpatrick long ago (Kirkpatrick, 1959). This matrix of thought generated the HRD field as well as the Organizational Learning (OL) field. In this perspective, it is most important to define how investments in IAs influence individuals (competences, learning, behaviour) which consequently also influences organizational outcomes (productivity, quality of service...).

HRD is a strategic and a business approach to training and development of human resources in an organization for performance and organizational improvement (Garavan, 1995; Harrison, 2000). Becker and Gerhart (1996) suggested that the most fundamental implication is that the choice of HR systems can have an economically significant effect on firm's performance. Research is just beginning to establish the plausible range of these effects: reasonable changes in a HR system can affect a firm's market value by \$15,000-\$45,000 per employee (also cf. in Davidson III et al., 1996; Huselid and Becker, 1995, 1996) and can affect the probability of survival for a new firm by as much as 22% (Welbourne and Andrews, 1996). According to Abdullah (2009) there are four interrelated functions in HRD: Organization Development; Career Development; Training and Development; and Performance Improvement.

Some examples of questions concerning this “face” are:

- 3.3.1) Does the company provide training courses to its workers?
- 3.3.2) Is there a supportive service or supervisor in the firm to act as a personal advisor or coach?

- 3.3.3) Does the company have or participate in specific actions for leaders?
- 3.3.4) Is HRD a strategic field in the organization?
- 3.3.5) Has the organization developed conflict resolution systems in order to enhance company learning for future conflict resolution?

2.4. Economics

The basic economic analysis of IAs may have two starting points: as an investment or as a market (see Table 1 line 4).

As an investment, the operation should generate future benefits that would out-weight the costs. The investment can be made by individuals, organizations, or by the State. Rates of returns and added value can be attributed to each investment. The analysis can be made from both the microeconomic and macroeconomic point of view. The former perspective implies that returns generated by IA investments are measured in terms of: wages or employment for individuals; productivity, sales, market share, work ambiance or product quality for companies; income or exports for countries (Briggs, 1987; Whalen, 2009).

In macroeconomic terms investment in IAs generates transformation from a poor, less qualified, less competent and technically incipient society into a rich, qualified, competent and technological developed one. In the first type of society a vicious cycle exists regarding IAs (low investment and low return) and in the second type of society a virtuous cycle exists (high investment and high returns). Focus is put on human resources at the macroeconomic level because these economics “[...] address such difficult issues as efficiency, equity, stabilisation and growth [...]”, i.e. economic progress (Briggs, 1987: 1207)

As a market, economic analysis points out that markets exist for each type of IAs, (education, training, routines, brands, patents), which may be defined by the basic elements of any market (i.e. supply, demand, quantity, price). There is lack of research with regard to the failures of market in IAs, such as intellectual property rights in the open innovation paradigm (Chesbrough, 2003). Finally, market consists of private operators as well as of public ones, and the economic analysis gives valuable insights into the correctness of public operations in the IAs market.

Some examples of questions concerning this “face” are:

- 3.4.1) Are you aware of a market for intangibles?
- 3.4.2) Do you consider that intangibles have a macroeconomic effect?
- 3.4.3) Do you relate investment in intangibles with productivity and wages?
- 3.4.4) Do you relate investment in intangibles with employability?
- 3.4.5) Do you think the supply of intangibles is a problem you face?

2.5. Social Policy

In this “side” of the cube (line 5, Table 1) we investigate whether IAs are linked with some form of satisfaction of social needs and within a political framework and context.

Social Policy (SP) is an academic discipline which analyses the way societies develop policies to deal with basic social needs (Titmuss, 1950; 1958). A vast majority of operations (programs) that result in investment in IAs are created by the public sector or are at least created to satisfy some social or public goal. Those programs are accounted for in two major ways: physical indicators and financial indicators. In each case, the notion of “*what is made*” is fundamental.

This form of looking at IAs is linked with the notion of Welfare State (WS) (Esping Andersen, 1990). A WS is a social construct which tries to solve social needs in a planned way. A WS is opposed to a Welfare Society, in which there is no organized way of solving social problems. Therefore in a Welfare Society, individuals and groups have to basically take care of themselves, perhaps with some support from the outside world (national or international organizations and NGOs). Any WS is characterized by a Welfare Mix (WM). A WM is a composite of public, private and third sector actions, in order to build a WS (Esping Andersen, 1990; Deacon and Mann, 1999; Ferrera et al., 2000). The theoretical foundation of different kinds of WS is linked with the importance societies give to market failures and government failures.

The SP approach is important for the IA analysis and the creation of the Cube, because it implies that IA analysts must have in mind the deep political framework in which IA investment takes place.

Some examples of questions concerning this “face” are:

3.5.1) Do you consider that IAs are included in operations of public policy?

3.5.2) Have you used public funds to organize investment in IAs?

3.5.3) Do you think public regulations foster investment in IAs?

3.5.4) Are you aware of any European Program to foster IAs?

3.5.5) Do you feel investment in IAs fulfils social needs?

3.5.6) When you invest in IAs, do you feel that you eliminate a social need?

3.5.7) Do you feel your investment in IAs help preventing social problems like exclusion?

2.6. Traditional Management and Accountancy

We believe that for a manager, the most fundamental way of understanding the phenomenon of IAs is to address them as any other organizational asset (line 6, Table 1). In this perspective, IAs are managed and accounted as organizational resources. This is the most common approach in many cases, namely SMEs, third sector organizations and even public bodies.

Virtually all literature on intangibles highlights that dealing with intangible resources and assets is a relevant problem of traditional management and accountancy (TMA). Particular characteristics of intangibles, such as non-consumption for use, total availability and so forth as described by Molloy et al. (2011), makes them difficult to be understood by TMA. Just as Spender (1989, 2011) keeps on reminding us, the issue is whether value is created by adding tangible and intangible capital (TC+IC), or whether it is a question of a moderator effect (TC*IC) in the process of value creation. This points out that conventional accounting has failed to determine the value of IAs while Boards keep on demanding returns from money invested in the traditional way from TC. This implies that Boards still push line managers to make tangible resource allocation decisions while neglecting even the existence of intangible ones.

Some examples of questions concerning this “face” are:

3.6.1) From a management point of view, do IAs matter?

3.6.2) From an accountancy point of view, do IAs matter?

3.6.3) Are IAs a source of profit or surplus in your organization?

3.6.4) Are you concerned with the value for money of IAs in your organization?

Table 1: Summary of the main dimensions of Intangibles

Dimensions	User	Problem	Basic Questions	Assessment Methods	Some authors
Knowledge Management	Knowledge Manager	Impact on organization	<ul style="list-style-type: none"> • K. acquisition • K. creation • K documentation • K. transfer • K. application • K. unlearning 	Knowledge sharing, transfer, creation, renewal dynamics, learning and unlearning	Nonaka and Takeuchi, 1995; Andriessen, 2008; Kianto, 2007; Cegarra-Navarro and Rodrigo Moya, 2005; Edwards, 2010
Intellectual Capital	New Accountants	Impact on organization	<ul style="list-style-type: none"> • Human Capital • Structural Capital • Relational Capital 	Balanced Scorecard; Skandia Navigator; Tobin Q; Pulic VAIC.	Tobin, 1969; Edvinsson and Sullivan, 1996; Pulic, 2000; Stam, 2010
HRD and learning	HRD expert	Impact on agents involved	<ul style="list-style-type: none"> • Individual Development • Organisational Development • Career, planning and development 	Interviews, Questionnaire, Participant - Observer	Kirpatrick, 1959; McLean and DeMars, 2006
Economics	Human Resource Economist (Micro or Macro)	Impact on individuals, organizations or on society	<ul style="list-style-type: none"> • Wages • Employment • Productivity • Exports • Incomes 	Micro: Control Group Input Output Methods Macro: Supply and demand methods. Input Output	Becker, 1993; Snower, 1996; Heckman et al., 1999
Social Policy	Public administrator	Social good, political context, social needs	<ul style="list-style-type: none"> • Quality of life • Public safety 	Progress reports	Titmuss, 1950, 1958 Esping Andersen, 1990; Deacon and Mann, 1999; Ferrera et al., 2000
Management / Accountancy	Private Manager Traditional Accountant	Impact on organization	<ul style="list-style-type: none"> • IAs stock and renewal • Performance (rates) derived from the use of IAs 	Return on investment (ROI)	Fitz-Enz, 2000

2.7. Discussion

KM is one of the most important perspectives for studying IAs. Indeed we think that KM analysts should not overlook the political setting in which the intervention they study takes place. Countries are not equal, not only culturally but also politically, and public intervention may be decisive for the success of KM. Basic economic or accountancy questions have also to be taken into consideration, because money and scarce resources are still at the root of any organization at the end of the day. Competences are quite related to KM, but sometimes it is apparent that KM and HRD, or organization learning analyses tend to compete with each other instead of being complementary or supportive among them for the deep understanding of companies. Finally, even if relations between KM and IC are quite strong, at their roots they differ. KM is at the root of the problem of Knowledge and IC can be seen as a way of solving the problem of the difference between the Market Value (MV) and Book Value (BV) of companies. Even if Knowledge is related to IC (as it is), Knowledge is not IC: it needs to be transformed and converted to economic value. And even if the Knowledge cycle is related to IC (as it is), Knowledge analysis is different from finding the difference between MV and BV.

IC always considers valuable knowledge as an asset that should be increased and whose effects should also be the highest possible. The relevance of these studies is out of the question. But we believe that all of the other dimensions of the Cube should be used to complement that perspective. IC and IAs are socially and politically generated, and the social and political environment should be taken into consideration. There is a market for IAs that can be analysed through Economics. IAs will always be an investment for organizations, a problem for managers and a question for accountants. IAs generate competences and are the base for knowledge creation.

The HRD perspective is certainly different from the others. It is not a question of politics, accountancy, economics, KM or IC. What matters is the definition of soft assets and their consequences. This field is very much focused on the notion of competence. Not to analyse IAs from this point of view would be a gross underestimation of the importance of the phenomenon. But to analyse IAs only in terms of competence and forgetting other points of view would also be a mistake.

The importance of IAs as the investment and market approach means that other five perspectives should also be complemented by economic insight. Hence, it becomes clear that Economics may, can, should and must provide valuable ideas, methods and impacts in order to show how to manage IAs.

The relevance of the SP approach relies on the deep political setting in which IA investment takes place. Regardless of the other five ways that might be used to analyse IAs, SP brings to the fore that all IA investments are socially and politically allocated. And even if the main focus of a researcher is on other dimensions, we believe it is very important to have in mind the possible differences in SP settings that may exist with regard to investment in IAs.

3. CONCLUSIONS AND IMPLEMENTATION OF THE STUDY

IAs are a decisive phenomenon for the success of organizations in the 21st century. IAs are extremely complex to be defined, measured and accessed. Six main perspectives of analysing IAs are KM, IC, HRD, Economics, Social Policy and Traditional Management and Accountancy. Each of those perspectives is important for organizations. Each perspective does not eliminate or substitute any of the other five, but contributes to a new and important insight to the IA phenomenon.

We aim at developing a questionnaire with specific questions on all the mentioned six perspectives. Each question will address the importance of components of a part of the Cube from 1 (not important) to 7 (extremely important). A subsequent statistical analysis will show the relevance of each dimension of the Cube according to organization's assessment. Additional analysis will show the key relationships among those dimensions. We think these results will be a relevant input for building an eclectic managerial paradigm to deal with IAs.

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STVARANJE NEOPIPLJIVE KOCKE: PROCJENA RELEVANTNIH ORGANIZACIJSKIH DIMENZIJA NEMATERIJALNE IMOVINE

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Sažetak

U 2012. godini, živimo u Eri neopipljivog. Kako bi se razvijale i opstale, organizacije se sve više moraju oslanjati na nematerijalnu imovinu (NI) a sve manje na materijalnu. Međutim, postoji puno neslaganja oko analize nematerijalne imovine između znanstvenika i praktičara. Mišljenja smo da je uzrok neslaganja postojanje previše različitih perspektiva kroz koje se proučava nematerijalna imovina. Mišljenja smo da nam svima nedostaje pozadina svih tih analiza. "Neopipljiva kocka" koju predstavljamo predstavlja upravo pozadinu koja nedostaje. Pitanje koje istražujemo u ovom radu je: Koliko perspektiva možemo koristiti kako bi analizirali nematerijalnu imovinu (1. dio pitanja), te kako možemo provjeriti je li jedna perspektiva važnija od druge (2. dio)?

U ovom kontekstu definiramo šest dimenzija za koje vjerujemo da mogu koristiti u analiziranju nematerijalne imovine. Upravljanje znanjem odnosi se na NI i njezine posljedice u ciklusu znanja; intelektualni kapital se odnosi na NI kao na ekonomsku vrijednost temeljenu na znanju, podijeljenu na ljudski kapital, relacijski kapital i strukturni kapital; razvoj ljudskih potencijala odnosi se na NI kao na organizacijsko učenje; ekonomija se bavi mikro i makroekonomskim posljedicama nematerijalne imovine i tržištem NI; socijalna politika se odnosi na ulaganje u NI kao u proizvod sa socijalnim koristima kojim upravljaju socijalni subjekti; te na kraju upravljanje i računovodstvo, sa staromodnim pogledom na NI u kojem je nematerijalna imovina strateški resurs s mjerljivom vrijednosti za novac.

Ostaje pitanje koje glasi: vrednuju li ih organizacije na jednak način? Defini-ramo i objašnjavamo ovih šest perspektiva (baveći se prvim dijelom pitanja). Također dajemo primjere pitanja koji će se pojaviti u upitniku iz ankete koju planiramo provesti 2012./2013. Odgovori će dati uvid u interes organizacija za svaku perspektivu. Na kraju, usporedit ćemo dobivene rezultate s očekivanim, kako bismo se pozabavili ključnim pitanjem – zašto nematerijalna imovina još uvijek nije široko prisutna. Vjerujemo da se ovaj rad bavi novim područjem u području analize nematerijalne imovine, kao i u području upravljanja znanjem.

Ključne riječi: *nematerijalna imovina; organizacije; vrijednost; perspektive; upravljanje nematerijalnom imovinom.*

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