

**MEASURING INTANGIBLES TO UNDERSTAND AND
IMPROVE INNOVATION MANAGEMENT.
PRELIMINARY RESULTS**

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Abstract

This paper presents the preliminary results of the MERITUM research project funded by the TSER Program of the European Union. A thorough review of the literature on intangibles in general, and on definitions and classifications of intangibles in particular was carried out, which led us to the conclusion that there is a lack of a common theoretical background and an absence of widely accepted definitions and classifications of intangibles. Taking into consideration the results of recent empirical studies, the paper attempts to provide answers to the specific questions on indicators raised by the OECD. In that sense the following results can be highlighted: The effort up to now has concentrated on the definition of the intangibles that companies are measuring (the variables) and not much on the precise indicators used to identify those variables. Only one case study has been carried out so far, in which indicators have been defined. The intangibles under scrutiny were human resources, organizational developments, customers and market development, and technological processes. Companies are using their measures of intangibles for management purposes.

Key words Intangibles. Indicators. Innovation management. Intellectual capital

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Introduction

This paper is a summary of the research completed up to date within the Project called MERITUM (MEasuRing Intangibles To Understand and improve innovation Management), funded by the TSER Programme of the European Commission. Research groups from six European countries are involved in the project: Denmark, Finland, France, Norway, Spain (co-ordinator) and Sweden.

The paper is structured as follows: Section 2 addresses the questions posed under the different headings of the OECD Guidelines for short reports, suggested for this meeting. Section 3 provides an overview of the main papers produced up to now in relation to the classification of intangibles. Section 4 refers to the different conferences, seminars and meetings taking place about this issue as an indicator of its importance world-wide. Finally, Section 5 deals with the future stages of the project and its expected results.

2. OECD Guidelines

2.1. Background of the report

As mentioned above the MERITUM project is a research project funded by the TSER (Targeted Socio-Economic Research) Program of the European Union. It started in November 1998 and will be developed over a 30 month period. The research institutions involved in the project are:

- IADE/UAM (Spain) Co-ordinator
- ETLA/SHH Group (Finland)
- HEC (France)
- NSM/SNF Group (Norway)
- SU (Sweden)
- CBS (Denmark) Associated Partner

The aim of the project is to improve the policy-making capabilities of the European Union in the realm of science and technology policy, and particularly innovation policy, by providing a consistent basis for the reliable measurements of intangible investments.

The objective is to produce a set of Guidelines to measure and disclose information on intangibles that will improve the decision making process of managers and stakeholders. To do so, four activities are foreseen:

- Activity 1: The main objective is to produce a classification of intangibles that is theoretically significant as well as useful for empirical analysis. This classification will be tested and eventually modified throughout the rest of the project.
- Activity 2: It is aimed at analyzing management and control systems at the firm level by means of in depth case studies, as well as at revealing European best practices in measuring investments in intangibles, in appraising the outcome from those investments, in using those outcomes for management decision making and innovation management in particular, and in disclosing information on intangible asset values for the use of stakeholders

- Activity 3: It is intended to assess the relevance of intangibles for equity valuation. Based on a large database of firms listed in European capital markets, the analysis will focus on analysis of the differences between book value and market value of equity, particularly in technology intensive companies. Research will be aimed at assessing to what extent investors take into consideration intangibles not currently included in the current accounting model.
- Activity 4: As a result of the previous activities, a set of Guidelines for the Measurement and Disclosure of Intangibles will be produced. The validity of the Guidelines will be tested both with those who will use them to produce the additional information, that is, managers at the firm level, and with those who are expected to use information prepared according to the Guidelines, that is, external stakeholders such as investors, financial analysts, accounting standard setting bodies or innovation policy makers within the European Union.

In sum, the project will produce an operational conceptualization of intangibles, will suggest a procedure to measure and disclose them properly, and will test the results in order to ensure that companies are able to provide such information and that it is useful both for management and policy purposes.

The project is at a very early stage. Only 6 months have passed since its official starting date, and only Activity 1 has been partly accomplished, Activity 2 has just been launched, and the work plan for Activity 3 is almost completely designed. Therefore the following pages are more the result of our reflections and literature review and less the result of empirical research. Nevertheless the pilot case studies already finished provide some clues about what the final picture may look like.

2.2. Identification and Measurement of Indicators

First of all we must say that the word “indicators” is in our view the final step of a long way to go. As it is well known indicators are series of organized data that allow decision-making at different levels (company, government, etc.) (OECD, 1992). Unfortunately in relation to intangibles and intellectual capital we are far away from that final step. We are still in the process of defining the theoretical grounds and selecting the explanatory variables. However, from a methodological point of view it is worth going in parallel, that is to check simultaneously what companies are measuring, or what they think they should be measuring, and the indicator used for that purpose.

As stated elsewhere (Cañibano and Sánchez, 1998; 4) there is no widely accepted definition of “intangibles”. It is actually an adjective that accompanies different concepts such as assets, investments, resources, phenomena, etc. However the fact that the term is very often transformed into a noun, is a good proof of the difficulties in finding the right qualification.

Within the MERITUM project the following specific activities are being developed:

1. A thorough review of the literature.
2. A reflection on the definition and classification of intangibles.
3. An empirical analysis aimed at identifying the activities undertaken by companies (variables to analyze) and the measures actually used, as well as what

firms think they should measure. In some cases the precise indicators used for these measurements are tested.

The review of the literature is already finished (Johanson et al., 1999a) Canibano et al (1999a) Some papers about definitions and classification of intangibles are in progress: (Almqvist, 1999; Ahonen, 1999; Mouritsen, 1999; Canibano et al, 1999b; Catasus, 1999; Eklöv, 1999; Eronen, 1999; Gröjer, 1999; Johanson, 1999; Martensson, 1999; Roberts, 1999; Stolowy and Jeny, 1999). A brief summary of the ideas contained in these papers is provided in Section 3 of this paper. Finally, the empirical analysis carried out or to be made by the members of our group may be summarized as follows:

- Denmark. Intellectual capital accounts. Reporting and managing intellectual capital. (Danish Trade and Industry Development Council, 1997) Completed and published before the MERITUM project started.
- Sweden. Measuring and managing intangibles. Twelve case studies. (Johanson et al. 1999b; Johanson, 1999)
- Spain. Measuring intangibles. Discussion of selected indicators. (Canibano et al. 1999)
- Finland, Norway and France are starting the empirical research.

Although the firms addressed are knowledge intensive companies that are supposed to be active in intangibles management, the approach chosen differs as *the state of the art* and business culture in each country are rather different. For instance, the Swedish research group is asking what the companies are doing, while the Spanish research group is mostly concerned for what firms think they should do. The chosen approach has obviously much to do with the degree of consciousness of the company in relation to intangibles and its history with respect to those measurements. Thus the first approach can be followed when the company is already measuring its intangible activities and using them for management purposes. The second approach may also be used for this first group but it is the only possible approach for companies that still do not measure their intangibles or have only just started to do so.

2.2.1. Important indicators

What specific indicators have been identified as being important (covering for example, R&D, innovation, technology and intellectual property rights; human resources; organizational and workplace structure; market development, customer and supplier networks; and software.

As a matter of fact the variables identified as important by the companies, for which indicators have to be built, go a step forward with respect to the so-called core components of intangibles (www.oecd.org/dsti/sti/industry/indcomp/prod/intang.htm). Things like R&D or intellectual property rights are not tackled, perhaps because they have been measured for a long time and they do not pose as many measurement problems as new intangibles, such as human resources or organizational development.

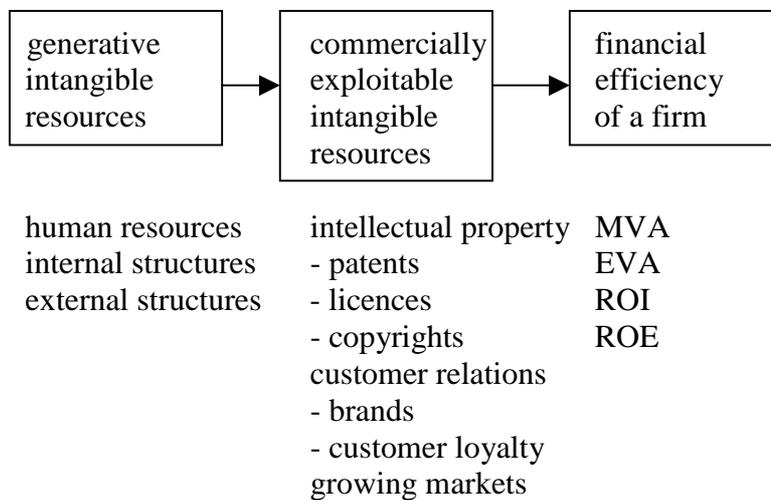
The intangibles identified in the Swedish case studies are a mixture of individual competencies (knowledge and capabilities), organizational competencies (databases, technology, routines and culture) and relational (relations, reputation and loyalty)

resources. The Swedish analysis finds that the intangibles that firms consider as the most important can be grouped in four categories: 1. Customers or market capital 2. Employees or human capital 3. Internal processes, organization, structure, etc. 4. Development¹

In a similar way the variables identified by the Danish report, used by the Spanish in its case study are: 1) Human resources 2) Customers 3) Technology and 4) Processes. The specific indicators defined for each category are described in the Spanish case study presented to this meeting (Canibano et al. 1999b)

The Finnish analysis, which is about to start, will investigate the following reference framework:

Frame of reference: intangible resources and expected returns



The figure is based on the presumption that commercial intangibles are the outcome of efficient use of generative intangibles. Thus, for example, patents are either the output of a competent personnel or intelligent acquisition decisions. In both cases the generative intangibles increase the commercial intangible resource base, which in turn may lead to increasing returns expectations for the firm.

The Finnish project aims at answering the following five questions:

1. Which intangibles are more closely related to the financial performance of the company?
2. What indicators does the company use to measure these intangibles?
3. How does the company develop these intangibles?
4. How does the company control the development of these intangibles?
5. How does the company measure the effectiveness of the intangible resource development?

¹ The details of this analysis can be found in the paper presented directly by the Swedish research group to this meeting.

The Norwegian MERITUM partner has already contacted 25 companies that are considered 'first practice' cases of working with intellectual capital. A high response rate was found when the questionnaire was mailed out, though the process is still ongoing. The 25 companies were selected on the basis of their manufacturing background, on the grounds that Intellectual Capital (IC) is not only an issue for service companies. It is assumed that a focus on IC in capital-intensive manufacturing will provide a significant leverage of results and competencies. In addition, the issue of (measurement of) competencies and competence development is placed in focus. This is due to the fact that IC as such cannot count on wide recognition within the Norwegian business and policy communities, while competence-based management most certainly can. The 25 companies selected showed significant differences in size and spanned all industries. Furthermore, an attempt was made to select companies that are also financially distressed in order to counter the argument that IC is just a hobby for the good times.

2.2.2. Robustness of the definitions and measures

How robust are the definitions and measures of those indicators?

The discussion presented above suggests that a number of questions regarding the robustness of the definitions and the measures may not be answered yet.

Each partner will try to prove the robustness of several indicators and measures by means of a survey of companies from different industries. Each additional case study will be a test for all the previous work. As discussed earlier, the firms in our sample were selected using different criteria depending on each country business culture, though a common idea is that they are known for being interested in measuring intangibles, which implies that they are already doing it or that they would like to do so.

Additional checks will be performed first by calling upon the Advisory Group, a number of relevant institutions from each partner country that are implied on the project. They are governmental bodies, standard setting agencies, financial analysts, entrepreneurs associations, trade unions, etc., which gave support to the project and are highly interested in the results. Finally, a survey of a sample of European companies will be carried out in order to check whether the indicators suggested at the end of the project are feasible, reliable and interesting for the firms.

2.2.3. Origin of the Information: Existing frameworks vs. new measures.

How have they been developed? Within existing reporting frameworks (e.g. financial reporting, non-financial management discussion, official statistical reporting, or other frameworks)? Or are they new measures?

As expected the financial reporting does not provide adequate information on intangibles. However as the companies selected are all working with these issues, all the public information they provide is, or will be, taken into consideration. Nevertheless, most of the information is, or will be, obtained through personal interviews and discussions. Both financial and non financial indicators are being developed.

2. 3. Enterprise-level indicators for internal use

What progress has been made in developing enterprise-level indicators for internal use? Are the measures robust?. Can they be reliably observed and measured?

What are they used for internally? Are internal indicators linked with measures of performance of the enterprise? What are the costs and benefits of developing such indicators? Are there confidentiality issues linked to these indicators?

Taking into consideration what has been previously said, and being management the main focus of the analysis, the internal perspective is the most developed one for the moment. Finding the links with measures of performance is one of the objectives of our research. The hypothesis is that companies will pay more attention and will measure and manage primarily those intangibles, which are likely to have greater effects on its performance. However the cause-effect relation is not easy to establish and to demonstrate. In many cases it is the perception of the company, and not a proved fact, what moves it in a particular direction. However, some of the Swedish firms perform statistical analysis regarding the relationship between intangible measures and performance, quite successfully.

Although, in most of the cases, precise relationships between intangible measurements and performance are not yet established a clear idea emerged from some of the case studies (Swedish and Spanish): Measurement without further action makes no sense. In other words *measurement of intangibles asks for immediate management of intangibles*. For example, there is no point in evaluating customer satisfaction if no action is taken afterwards to ameliorate the unsatisfactory aspects. It does not matter whether the precise effect of an action or activity is properly assessed, it is very likely not to have the adequate tools for that assessment, however the action is needed.

Confidentiality is being tackled in some of the analyses already made. Thus the Spanish company studied has been asked to give its opinion about the disclosure of every suggested indicator. The general position is in favor of disclosure except for some indicators related to the employee satisfaction survey.

2.4. Enterprise-level indicators for external use

What progress has been made in developing indicators for external use? Are the measures robust? Can they be independently and reliably observed, measured and verified? Are they in use for external information or reporting purposes? What has prompted their external use? Are they comparable to indicators from other companies?

Who are the external users of such indicators? Are external indicators linked with measures of performance of the enterprise? What are the costs and benefits of developing such indicators? What advantages and disadvantages do companies see in disclosing information on intellectual capital? Are there particular confidentiality issues linked with these indicators?

The external use of the information on intangibles has not yet being tackled in depth within the project, although, as mentioned, some inquiries on the disclosing possibilities

have already been made. It is very true that many companies are already diffusing their information on intangibles, being the main characteristic of the current process the heterogeneity of such disclosure. There are no standards established for measurement and, accordingly, there are no standards for information disclosure. That is precisely one of the objectives of the MERITUM research project, to answer all the questions of this heading.

An expected outcome of this project is a set of Guidelines about *what should be disclosed*. To do so the following opinions will be taken into consideration:

- Those of the companies studied. Their “best practices” will be an important input
- Those of the users of information. Most stakeholders’ opinion will be taken on board through the Advisory Group support
- Those of other companies that eventually would have to produce and disclose the indicators. A survey to a large sample of companies will be made.

2. 5. Conclusions

Do companies generate some form of intellectual capital indicators for internal or external purposes? Has public policy played a role in facilitating or hindering development of such indicators? Can public policy play a role to facilitate future development of intellectual capital indicators?

As could be expected from the youth of the research project our results are still very preliminary. The number of cases is so short that they are not representative. It is clear however that companies are more and more aware of the importance of intellectual capital and more willing to measure and manage it.

It seems that public policy has not yet played a remarkable role. Governments interest is however increasing, for example the Danish Government supported the research that gave rise to the study mentioned (Danish Trade, 1997), some Swedish Governmental institutions are funding this research project, some Spanish official institutions are providing support (advise, data, etc.) to the project as well, etc. The role of public institutions should increase in the future, but that role is yet to be defined.

3. Definitions and classification of intangibles

As mentioned before the MERITUM research project started in November 1998 and will be developed over a 30 month period. During the first six months we dealt with the “Classification of intangibles” (Activity 1) and, at the same time, some other studies related with later activities have been initialized.

This activity was intended to analyse the existing classifications of intangibles and to deduct alternative classifications based on the theories of accounting, finance, organisation and innovation theory. The one or several classification(s) obtained should help promote understanding and communication among researchers, managers, users of financial information, and policy makers.

Therefore, a specific objective was to examine the properties of existing classifications of intangibles. Once this was achieved, we planned to accomplish the following objectives during the next period: a) to test the different classifications through the other activities of the project, particularly using the companies surveyed during activity 2 “Management Control Study”, and b) to change and redefine the classifications.

Several working papers have been developed up to now (Almqvist, 1999; Ahonen, 1999; Mouritsen, 1999; Canibano et al, 1999b; Catusus, 1999; Eklöv, 1999; Eronen, 1999; Gröjer, 1999; Johanson, 1999; Martensson, 1999; Roberts, 1999; Stolowy and Jeny, 1999). They were discussed at a meeting that took place in Stockholm on March 12-13, 1999. One conclusion from the meeting was that accounting and accounting classifications about intangibles are *under being*. Another conclusion was that the papers point at several opportunities to construct *alternative classifications* based upon different theories, or based upon practice.

In the following paragraphs a small part of each paper is cited, often the concluding part. No attempt has been made to make this as a coherent text because all the papers still are under revision. The nine papers have been divided ad hoc under three headings

1. How do companies classify intangibles?
2. Understanding accounting classifications
3. Ideas for (re-) classification

HOW DO COMPANIES CLASSIFY INTANGIBLES?

Johanson (1999) has interviewed 11 Swedish companies that are perceived to be the most advanced ones in terms of the development of ideas and measurements of intangibles or intellectual capital.

None of the firms analyzed seems to provide any definition or classification of intangibles. Rather, they define and classify measurements of intangibles. This means that most of the intangible resources are defined by how they are measured

This leads to the following theoretical conclusion: Firms that are conscious about the importance of intangibles for their long-term sustainability and growth try to recognize and measure intangibles that enable results. These ‘enablers’ are not assets in an accounting sense but are customer and employee perceptions of individual competence (knowledge and capabilities), organizational competence (databases, technology, routines and culture) and relational (relations, reputation and loyalty) competence.

At a basic level, classifications of intangibles are simple because they are utilized to visualize and thereby communicate how both intangibles and tangibles interact to realize the firm’s visions. However, these simple classifications do not contain exhaustive or exclusive classes since this is of no interest to the firms. The intangibles seen as important are under continuous change.

Finally, do firms need a classification of intangibles for internal managerial reasons? Obviously, they need some basic form of classification to be able to communicate their

visions. However, is further division needed? Perhaps it is, inasmuch as in the analytical process categories are divided until enabling intangibles are found.

Cañibano et al. (1999b) follow a similar approach. In the Spanish case the starting point is a group of firms (the first one is studied in the paper) which are conscious about the relevance of intangibles within the company, have started in some cases to measure and disclose information on some intangibles, and are willing to develop an intellectual capital account. The purpose paper is to develop a set of indicators that can be used for the measurement of intangibles within the firm

For the pilot case study included in the paper, and based on previous works, intangibles are classified into four categories:

1. Human resources
2. Customers
3. Technology
4. Processes

As in the Swedish study, information about the firm perception of individual competence (human resources), organizational competence (technology and processes) and relational competence (customers) is collected. For each category, distinction is made between What there is? (statistical information), What is done? (ratios) and What happens (Effects).

Regarding the indicators suggested, the firm had to answer whether they considered a given indicator as interesting (if not, they were asked to provide an alternative), if it was feasible and if it could be disclosed.

This first case study allows to draw some conclusions about the utility and effectiveness of the proposed indicators. For example the need to define more clearly some of the proposed indicators and the necessity to make them more comparable between firms clearly emerge. It also appeared that different industries may need different indicators which requires a clear definition in order to enable comparability among industries.

Further case studies will be developed among firms belonging to the banking, telecommunications, electronics, pharmaceuticals and software industry, that are part of an initiative called the “Intellect Club”. Most of them have started to measure their intellectual capital and are willing to discuss their experience with other firms as well as to try to develop new indicators.

As a result of the experience gained through the case study an attempt is made to provide a definition of intangible resources and intangible investments as well as to present a model that allows the analysis of both within companies. Such definitions are as follows:

“Intangible resources” which include “assets” and “skills” are understood in a dynamic sense, that is companies are undertaking activities to acquire externally or produce internally those resources, and also to measure and manage them. Although the activities undertaken are always costly, companies are not always able to measure and keep track of those costs. In general such costs are considered as “intangible

investments” which can be defined as a set of expenditures (sometimes not expressed in financial terms), that may or may not appear in the corporate financial reports, and either give rise to new “intangible resources” or allow a more efficient use of existing ones. These “intangible resources” are likely to increase the future value of the company, in general and its innovation capacity in particular.

UNDERSTANDING ACCOUNTING CLASSIFICATIONS

Stolowy and Jeny (1999) have approached in their paper the classification problem from a *financial accounting* point of view, i.e. surveying accounting standards issued in different countries. First they start with the definitions of intangibles and then with the recognition criteria for purchased intangibles and internally generated intangibles (capitalized or not capitalized).

However, from the examination of the sample countries’ own regulations, suggested that three types of classification for intangible assets emerge in accounting.

- The inventory-type approach results in lists of intangibles recognized by the accounting standards as potentially capitalizable.
- The accounting standards also suggest a simplified distinction between research and development costs, goodwill and other intangible assets, such as patents, licenses, etc. (This classification could be considered as a variation on the first).
- Finally, as stated above, an implicit classification system appears to be emerging from the recognition criteria for purchased or internally generated intangibles (reference to the market, socio-legal recognition, risk level and value measurement).

Gröjer (1999) approaches the classification issue from a classification theory point of view.

The value of classification is, according to Rudner (1966), associated with its ability to function as a heuristic device. In that respect, financial accounting data do not necessarily need to have value relevance as such. Their value is connected to their ability to function as a background towards which ongoing business events can be interpreted.

From the framework of classification theory, the criteria for a ‘good classification’ involve three components: exhaustiveness, exclusivity and simplicity. To be exhaustive, means to classify all objects, states or events in the universe of discourse.

Consistency is thought to be one requirement for the basic accounting assumption of comparability. To be consistent a classification needs to have exclusive classes, which implies very precise definitions of such classes. In contrast exclusive classes are also an argument for *rigid uniformity*.

The simplicity concept was discussed in terms of four dimensions. Except from technical/logical aspects of simplicity, the important point here concerns the concept of *usefulness*, i.e. how the users perceive a classification. In classification theory, simplicity has no reference to faithful representation, which is often the strongest argument against rigid uniformity and standardization. Nonetheless, looking upon

financial accounting data as a background for interpretation, the question arises regarding the extent to which the interpreter is able to use changing backgrounds.

There are two main lessons to be learned from classification theory. One is that the value of classifications lies in their usefulness as a *heuristic device*, i.e. as a helpful construction. In that respect simplicity as opposed to faithful representation becomes the key concept.

The task of classification construction is not necessarily a scientific one, i.e. to select appropriate attributes. The scientific task is mainly one of testing and validation. The outstanding question is to resolve whether the criteria used in classification theory to determine what a 'good classification' is, are optimal for testing accounting classifications.

Catusus (1999) investigates classifications in the being through interpreting what the different classification in environmental accounting can be expressions of, and how that analysis can be used in classifying intangibles.

The classification models studied, e.g. for environmental accounting (EA) and for accounting for intangible resources (AIR), are not produced in the vacuum. They are invented, produced and communicated in specific settings. The classification models in use should be aligned with their contextual settings. Classification models are the mechanism, the tools that make it possible to produce facts.

The two new sets of accounting, AIR and EA can be viewed as a vast critique against traditional accounting. The accounting ideal is no longer to view the organization as a juridical person with its boundaries. Rather, the ideal is that accounting should take care of the physical *and* non-physical environment of the organization as well as the intangible *and* the tangible status of the organization. The divides point out the blind spots and the conquerable spaces of the organization.

Proposing classification models are, following Latour (1987) means to create facts. The suggestions of classification models can be seen as suggestions of production of a set of boxes, metaphorical or not, into which the environment and/or the intangible resources can be put. These black boxes determine not only how we do accounting, but also the bureaucratic or knowledge production in the organizations. By initializing or by being a part of or even by eliminating accounts the classification model is a part of the construction of arguments. These arguments can be seen as links between the environment and the organization. And the arguments must be of a high quality since the environmental issue or the intangible issues are not the only issues fighting for attention in the organization. Accordingly, the classification models will work when the right people are convinced.

IDEAS FOR (RE-) CLASSIFICATION

Roberts (1999) stresses the importance of dividing between *management of* and *management by means* of intangibles.

Management of IC

Basically, two purposes of use of Intellectual Capital (IC) can be distinguished:

The first one is that of IC as an object; it requires managing, needs controlling and a framework of measurement parameters is to be built on top of it. IC in this purpose of use is simply a thing that needs further dissection before it can be managed. Deconstructing it -for example, into human capital, structural capital and social capital - is a way of preparing it for management: ripening it for the development of managerial tools and instruments. IC thus becomes a category of management technology and can be classified as yet another managerial toolbox element, next to, for example, profit centers, investment appraisal, incentive systems and cost allocation. We call this the *Management-of- IC*.

Management by means of IC

The second purpose is that of IC as a functional rhetoric. Adhering to the language and terminology of IC provides a powerful mechanism for mobilization and change. IC is loaded with imprecise but meaningful terms and implications. IC places unique human competences and capabilities at the forefront, reduces the role of formal organization to one of coordination and stewardship instead of ownership and possession, and creates an identity of taking pride in knowledge and oneself - the knowledge owners. Precise definitions are not really needed.

The institutional environment of IC can accelerate and support the IC rhetoric. For example, national and international policy makers talk about turning entire countries into knowledge economies, while unions and employers talk about the scarcity of competences and how to incentivate and reward these. And, least but not last, academics have countless workshops on what IC means and how it can be turned into an object of study. I call this *Management-by-means-of- IC*.

Management-of-IC requires a deconstruction of the concept in order to answer the what-question. It also requires an analysis of its wider assumptions of use as an object. That is, the organizational and managerial context in which it is required to function.

Several breakdowns of IC exist, each of which are equally useful for developing a system of visualization, measurement and manageability. The accounting discipline is particularly instructive in this respect. Its operationalisation and technical concepts are particularly well placed to turn IC into a 'manageable' piece of the organization.

We are all aware of the typologies or 'boxes' that presently circulate on the IC market - Sveiby's, Skandia's, Brooking's, Stewart's, the IASC's, various national GAAP's etc. Each of these typologies is useful in its own right because each serves a clear purpose of turning IC into a manageable object. The preferred word is 'the operationalisation of IC'.

The breakdown of IC creates categories such as human, structural, social, organizational, relational capital etc. Each having its own focus and thus creating direction in finding and developing further tools and instruments. Given that each category can refer back to a managerial (sub)discipline, each with a history of developmental arguments and available tools, a grounded set of IC tools is likely to be developed fast.

Eklöv (1999) asks the question why objects, states and events become auditable and if auditability has to be given another content for intangibles.

According to the International Accounting Standard (IAS) 38, the newly issued standard on intangible assets issued by the International Accounting Standards Committee, whether or not an intangible asset may be recognised depends to a large extent on how the asset was acquired.

So far, the tracing has disguised two different means of describing auditability, the view inherent in IAS 38; the mechanistic view, opposed by the holistic view using Dirsmith and McAllister.

Lacking the natural referent because intangible assets of different kinds are creations of actions within enterprises as an effect of knowledge transformation, the dilemma of auditability in IAS 38 is evident. We cannot recognise intangible assets unless we can agree of a convention of how to accept these phenomena being recognised and valued. They cannot be recognised unless we change our view of auditability. Of course, it can be argued that there is not any big difference between the so called tangible assets and intangible assets in this respect, but, and this we must not forget, many of the tangible assets do have a natural referent (machines, buildings, etceteras). This is the next step in the paper, to explicitly express the logic of auditability in IAS 38, and its consequences for classifications of *all possible* intangible assets.

Eronen (1999) investigates the importance of including human resources among intangibles and develops a structure of human resources as a base for classification.

The value relevance of HR-information disclosure was empirically tested. The results were that the disclosed HR-information did not seem to have an effect on the market value. The amount of the disclosed information did not have any effect, nor did the level of details of the HR-disclosure.

There was, however, one exception of the general trend, namely the HR-cost disclosure, which seemed to be statistically significant. The coefficient for the HR-cost disclosure was negative, though, except for the period of 1995-97. This implies that the cost information is generally interpreted as 'real' costs, not as an investment. On the other hand, a closer look at the applied database used revealed some changes concerning the structure of the HR-cost disclosure. Previously the HR-costs were merely related to absenteeism and pensions, whereas currently (concerning particularly the period of 1995-97) the emphasis was on the training and development. Thus, it might be the case that the interpretation of the HR-cost information has lately been rather selective, training and development receiving the greatest attention and (according to the theory) being considered as an investment initiative.

The results rise some issues that may deserve further consideration. Firstly, it seems that the disclosure itself is not an issue. Or, since the referred research period is 1983-97, the disclosure has at least *not been* an issue. Secondly, it seems that the capital markets get the necessary HR-related information from sources other than the traditional annual reports. Indirectly, this speaks for the efficient markets. Thirdly, the lack of standards and benchmark levels for HR-related information might be reflected in the results. Furthermore, the HR-information groups constructed for the database collection are fairly static. It is probably not so surprising, that static information published once a

year with no clear benchmark values does not appear to convey information on the value of the firm.

Ahonen (1999) divides the intangibles into two main classes dependent on their distance to profit-making.

One way to approach various types of intangibles is to look at their distance to actual profit-making. Then those intangibles which are usually related to excess profits – brands, patents, licences, monopolies – can be classified as commercial intangibles, and those which lie behind the commercial intangibles can be called generative intangibles. Generative intangibles are a precondition for creating commercial intangibles. So for instance patents are created by innovative individuals in innovative work communities.

Generative and commercial intangibles can be divided into individual and structural intangibles. In such a division the individual intangibles are qualities linked directly to individuals. The most obvious such quality is the knowledge and the skills of the personnel. Also the individuals of the external environment of the company can possess qualities which have relevance for the profit making capacity of the company. Customer loyalty and supplier loyalty are such individual characteristics. In some cases customer and supplier loyalties can be structural qualities. This is the case when loyalty has been transformed into long lasting contracts. Then the intangible moves over from the individual intangible resources to structural resources.

Structural intangibles are not directly associated to individuals but to relations between individuals and groups of individuals. Corporate culture, which includes the values, the principles, and the communication of the company, is the most obvious element of this type of intangibles. Also the structural intangibles are divided into generative and commercial intangibles. Again, the generative structural intangibles are a prerequisite for the commercial intangibles.

4. Conferences, seminars and meetings

A large number of conferences, seminars and meetings to discuss intangibles are taking place world-wide. This is a good indicator of the growing importance of this issue. Several members of the research group are attending and presenting papers to the following ones:

- EIASM (European Institute of Advanced Studies in Management) Workshop on Accounting for Intangibles and the Virtual Organization. Brussels 12-13 February 1999.
- Swedish Workshop included in the World Life 2000 Series of Workshops in preparation for the European Conference in January 2001. To manage and account for intangibles. Brussels. 15-16 February 1999.
- Brookings Institution's. PProject on "Understanding Intangible Sources of Value". Meeting with the Human Capital subgroup in Washington 24 March 1999.
- 22nd Annual Congress of the European Accounting Association (EAA). Bordeaux, France. 4 - 6 May, 1999.

- European Center for the Development of Vocational Training. "Reporting on Human capital" Thessaloniki, Greece 24-25 June, 1999.
- The 15th Nordic Conference on Business Studies. Helsinki 19-21 August, 1999.
- The 2nd Intangibles Conference: *Intangibles: Management, Measurement and Organization*. The Vincent C. Ross Institute of Accounting Research and The Intangibles Research Project at Stern School of Business, New York University. 27 - 28 May, 1999.
- International Symposium: *Measuring and Reporting Intellectual Capital: Experience, Issues and Prospects*. Organised by the OECD; the Ministries of Economic Affairs, and of Education, Culture and Science of the Netherlands; the Nordic Industrial Fund, in Amsterdam. 9 - 11 June 1999.
- Summer Course of Universidad Complutense de Madrid: *Knowledge Management and Intellectual Capital in Organizations*, in El Escorial, Madrid, 26 - 28 July, 1999.
- AECA (Spanish Association of Accounting and Business Administration) Annual Congress in Zaragoza, Spain, 23 - 25 September, 1999.
- III International Symposium on Management for the New Millenium: Knowledge Societies. Cluster del conocimiento (Knowledge Cluster). Bilbao. Spain. 30 September- 1 October, 1999
- Ernst &Young Conference on intangibles. Boston, 27 -29 October 1999.

Apart from this all the research groups involved in the MERITUM project meet periodically.

5. Future steps and dissemination of results

As mentioned in Section 2, only the Classification of Intangibles (Activity 1) has been partly accomplished. The Management Control Study (Activity 2) has already started, some case studies have been made and many others are in the pipeline. The Capital Market Study (Activity 3) has been designed and will start shortly. The background and objectives of this latter activity are as follows:

5.1. Capital Market Study

The purpose of the capital market activity is to determine to what extent intangible investments play a significant role in the valuation of companies. If (as expected) the conclusions of our analysis lend support to the hypothesis that intangibles are value relevant, (i.e., they are taken into account by investors in the price setting process), then they would imply that the accounting model must include relevant information on the intangible assets of companies. Therefore, documenting the usefulness of intangibles for equity valuation represents a consistent basis to conclude that there is a need for a set of guidelines for the disclosure of information on intangibles.

Recent studies have documented a significant decrease in the relevance of accounting information for equity valuation during the last decades. Researchers have emphasized the importance of intangibles in the case of firms operating in fast-changing, technology based industries, where the potential for future wealth creation is more likely to be a function of investments in innovation than to be linked to the historical cost of their

assets. Consequently, we conjecture that investors are likely to assess the value of corporations taking into account their intangibles (generally not reflected in financial statements), and therefore, that there is a need to modify current accounting models in order to include information on (the value relevant) intangible elements.

The following paragraphs are a summary of the main issues which will be investigated within the framework of this Activity.

Empirical Analysis of the relationship between Intangible Investments and Market to Book ratios.

The market value of shareholders' equity reflects investors' perceptions on the firm's potential for future wealth creation. The book value of equity is the accounting estimate of the firm's value resulting from deducting debt from the book value of assets (the accounting estimate of the economic value thereof). Therefore, the difference between the market value and the book value of equity must be (to a large extent) due to the existence of intangible assets not reflected in the balance sheet.

Holding other value-relevant attributes constant, we would expect to find (on average) higher market-to-book (MB hereafter) ratios the greater the firm's amount of investments in intangible assets. Thus, a simple and straightforward test for the existence of value relevant intangible assets would be to estimate the median or average MB ratios for different industries and run a statistical test of the differences. We could do this by means of a rank test (comparing the values of the MB ratio with an index of the importance of investments in intangibles in a given industry) or using dummy variables representative of the high (low) importance of intangibles in the industry.

Several other ideas arise in relation to this. Previous empirical studies have documented the explanatory power of the MB ratio for future stock returns. If the MB ratio of firms with significant investments in intangibles is positively biased due to the understatement of the book value of equity, the explanatory power of the ratio should be different for these firms. As a result, it would make sense to test whether the ability of the ratio to explain the cross-section of stock returns differs across industries and varies with the degree of importance of intangibles. For this purpose we could test the explanatory power of the MB ratio by means of regressions, then throw in the model a proxy for the importance of investments in intangibles and test its incremental explanatory power.

There is another way to look at the same problem. Ohlson's model suggests the value of a firm is a function of its current book value of equity plus the net present value of its future residual earnings. If intangibles are taken into account in the price setting process the difference between the market and the book value of equity would be positively biased because of the understatement of the book value of equity. If intangibles are not considered by investors in their valuation models, the MB ratio would still be positively biased for firms with important investments in intangibles. The estimated value of the firm would only be accurate if the positive bias in the estimation of residual earnings could compensate the negative bias in the book value of equity.

Therefore, based on a large sample of firms listed in European stock markets, will calculate the difference between their market-to-book ratios and the net present value of their estimated future residual earnings. We would expect that difference to be systematically higher for firms with greater investments in intangibles.

The loss of Relevance of Accounting Information for Equity Valuation as a result of the growing importance of intangibles

Collins, Maydew and Weiss (1997) have documented that both, the joint and the incremental explanatory power of earnings and book values for stock prices have diminished during the last forty years. That may be due to some extent to the increasing relevance of intangibles not included in the annual reports. Therefore introducing a proxy for the value of intangible assets should complement the explanatory power of accounting fundamentals.

We will test this extending the CMW analysis to include a third explanatory variable representing intangibles and test its incremental explanatory power.

Event study

As a result of industry or firm specific characteristics and/or economic events, the value or nature of certain intangible assets may be subject to significant changes. If intangibles are among the fundamental determinants of the firms' future earnings flow, a change in their value is likely to induce a change in stock prices. Therefore, we will identify changes in the value of intangibles as a result of specific events and run an event study intended to determine whether investors consider intangibles convey relevant information on stock returns.

Among the items of information we will consider is the composition of the board of directors. Searching in the Excel database we will build a sample of firms releasing information on this issue and analyze the stock price reactions around that date. Since EXTEL also provides information on relevant news disclosed by companies, we will identify changes in the amounts invested in R+D, human capital and other intangibles in order to assess the price reactions around specific event dates.

Risk, Bid-Ask spreads, IPOs and Intangible assets

If investors attach a higher level of risk to the future flow of earnings from intangible assets than to the stream of earnings from tangible assets, they are likely to discount future earnings with different risk factors. Therefore, for a given level of abnormal return, the observed return on the stock of firms intensive in intangible assets should be higher. We will also estimate traditional proxies for risk and determine whether they differ across firms depending on the importance of intangibles in their structure.

Bid ask spreads are understood as a measure of the uncertainty the market has with respect to the value of a firm. Since market participants may see intangible investments as riskier (and more difficult to value) than tangible assets, the bid-ask spread is likely to be higher for firms in industries in which intangible investments represent a significant proportion of the total value of the assets.

IPOs also provide an interesting research opportunity. As in the case of the bid-ask spread, we will test for the existence of a consistent relationship between stock price behavior following an initial public offer and the importance of intangibles in the firm. This is expected to be partly due to the uncertainty surrounding the value of intangibles.

The role of intangibles in investment analysis

In order to better understand the relevance attached by investment analysts to intangibles in practice, we will design a case study and ask a group of analysts to provide an evaluation of the current financial position of the firm and its future prospects. The design of the case will be the critical point in this study. We will choose a firm analysts are not familiar with and use two groups: the experimental group should have all the information which is relevant for the valuation of the company. The control group will not be provided with the information on intangibles we consider of relevance. We will also test whether analysts in the control group request that information in order to make their assessment on the value of the firm.

The role of intangibles in risk analysis for credit decision making

The Swedish research team has access to credit evaluations made by a Swedish bank that claims they take intangibles into account in their decision making processes. Based on that information, we will try to detect type I and type II errors in the credit decision making process. For that purpose we will run an analysis of a sample of cases in an attempt to see whether the cause of their financial distress has to do with exploited and/or exploitable intangibles.

The value relevance of specific intangibles

A particularly interesting research issue is the value relevance of specific intangibles. Obviously, when it comes to testing the association between prices and investments in intangibles the most significant problem is one of measurement. We need to identify a small set of intangibles for which we can develop feasible measurement criteria (trying not only to measure their historical cost but, as long as possible, approach their value). In so doing we intend our analyses not to be restrictive, so that they provide reliable evidence on the value relevance of intangibles as well as on the importance of a set of guidelines for the measurement of, and disclosure of information on intangibles.

Among the intangibles whose value relevance will be assessed using simple measurement criteria would be:

- Innovation (Research and Development). We will estimate the cumulative stock of investments in R+D assuming a certain depreciation rate.
- Customer related intangibles (Advertising, customer loyalty, market share, etc.). Cumulative investments in advertising will be calculated along a certain period and a depreciation system will be applied to estimate the acquisition cost of the intangible.
- Human Capital (Board of directors, employees). Expenses in the development of intellectual capital or deviations in labor costs from industry averages will be used as proxies for the importance of such intangible in a given firm.

- Quality of the relationship with suppliers will be measured in terms of changes in supply costs, average payment periods and returned supplies.

The lack of relevance of free cash flows

Since firms intensive in intangibles are likely to allocate important amounts to investments not reflected in the balance sheet, both their book value of equity and their assets will be understated. But the same applies to their free cash flow. If free cash flow is considered as the fundamental basis for firm valuation, estimates are likely to show a significant negative bias.

Consequently, we will use different valuation models (discounted free cash flow vs. Ohlson's model) in order to compare their accuracy in the case of intangible intensive companies.

5.2. Supporters and users of the research results

It is worth mentioning that the project is supported by a number of relevant and well known institutions in order to ensure that the objectives and opinions of users are taking into consideration. They constitute the project's Advisory Group. All of these supporters have been informed of the project's development and we keep the commitment of sending them our results. They will be the first evaluators of the Guidelines which will come out from the project.

- OECD
- AECA, Accounting and Business Administration Spanish Association (Spain)
- ANIEL, Spanish National Association of Electronic & Telecommunication (Spain)
- ICAC, Accounting and Auditing Institute (Spain)
- Financial Analyst Spanish Institute (Spain)
- Securities and Exchange National Commission (Spain)
- Technological Innovation COTEC Foundation (Spain)
- Electrical Utilities Unit (Spain)
- CEOE, National Confederation of Employers (Spain)
- COB, Securities and Exchange Commission (France)
- Accounting National Board (France)
- The Ministry of Labour. State Secretary (Sweden)
- The Swedish Ministry of Trade and Industry. Division for Structural and Ownership Policy (Sweden)
- The Coalition of Service Industries (Sweden)
- The Work Life Institute (Sweden)
- The Council for Work Life Research (Sweden)
- The National Board of Technological Research (Sweden)
- The Federation of Swedish Industries (Sweden)
- The Swedish Public Relations Association (Sweden)
- The Swedish Central Organization of Salaried Employees (Sweden)
- NHO, Confederation of Norwegian Business and Industry (Norway)

- The Research Council of Norway (Norway)

All partners have also other contacts with different organizations in order to exploit and disseminate the project results. For example the Spanish research group is cooperating with the following organizations: Knowledge Cluster (Bilbao)²; Intellect Club (Madrid)³ and the European Master Program in Society, Science and Technology⁴

² This is an organization placed in the Basque Country, promoted by enterprises which helps the firms to develop their knowledge management. They organize courses, seminars, working sessions with international as well as national experts while providing specific consultant services to the firms.

³ The Intellect Club was created in May 1998, within the University Institute Euroforum, with the following objectives: 1. To promote the development of Intellectual Capital Management and Measurement. 2. To encourage the exchange of national and international experiences in Intellectual Capital Management. 3. To spread this Knowledge by means of research and publications. 4. To provide an environment that helps the members to identify those processes in which there are significant deviations from the best practices. 5. To become a reference group in the development of models and experiences in Knowledge Management and Intellectual Capital Measurement. At present nearly 50 Spanish companies and institutions are members of this Club.

⁴ This Program is developed by the Autonomous University of Madrid (UAM) together with other 13 European Universities. They all take part of the European Interuniversity Association on Society, Science and Technology (ESST). Within this Program the European students taking the specialisation period at the (UAM) spend four months in companies making their Master thesis. During academic course 98-99 some of the students are researching on measurement of intangibles and intellectual capital supervised by the members of the Spanish MERITUM research team.

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