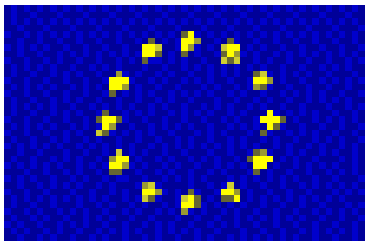
MERITUM PROJECT



"GUIDELINES FOR MANAGING AND REPORTING ON INTANGIBLES (INTELLECTUAL CAPITAL REPORT)"

GUIDELINES FOR MANAGING AND REPORTING ON INTANGIBLES (INTELLECTUAL CAPITAL REPORT)[1]

Abstract

It is widely accepted nowadays that since the end of the 20th century the Economy has become significantly different from the industrial economy previous to the mid-20th century. Economists consider that the main feature of this new economic environment is the essential role played by intangibles as a fundamental determinant of value creation in business companies. Since management information systems and accounting principles and standards do not allow for a full recognition and disclosure of a wide range of intangibles (acquired or internally produced), many academics and professionals have stated in recent years that management, investment and credit decisions made on the basis of financial statements that do not reflect the intangible determinants of corporate value, may result in significant economic losses both for firms and for their suppliers of goods, services or capital.

Since there is presently no common international framework for the identification, measurement and disclosure of information on the intangible determinants of corporate value, but only scattered efforts around the world, it seems appropriate to devote efforts to the development of a set of general guidelines to help companies identify, measure and monitor their intangible sources of value. The objective of these guidelines is to increase management efficiency and to assist companies in the process of producing and disclosing timely, relevant and comparable reports, that allow their providers of capital to draw efficient estimates of the future benefits and risks associated with their investments opportunities.

The Guidelines presented in this document attempt to provide a common framework for the identification, measurement and control of intangibles as well as to suggest criteria for the disclosure of information on the intangible determinants of the firm's value.

Therefore, they are addressed both to firms in the initial stages of the design and implementation of an Intellectual Capital Management System (ICMS) as well as to firms with some previous experience, which are concerned about the external disclosure of the information on intellectual capital they already produce and use for internal purposes.

The Guidelines attempt to provide assistance initiating firms in the process of developing their ability to identify, measure, manage and value their intangible assets. The next section provides justification for the Guidelines, section three presents a conceptual framework comprising a set of definitions and a classification of intangibles

[1] These Guidelines are an outcome of the MERITUM Project funded by the European Union within the framework of the TSER Programme, in which researchers from the following institutions have been involved: Copenhagen Business School (Denmark), the Research Institute of the Finnish Economy and the Swedish School of Economics and Business Administration (Finland), Groupe HEC (France), Norwegian School of Management (Norway), IADE-Autonomous University of Madrid and the University of Seville (Spain - Coordinator), and Stockholm University (Sweden).

which will provide the basis for the design and implementation of the proposed management system. Based on an extensive analysis of best practices observed in a set of European companies, section four introduces a model for the identification, measurement and management of intangibles. The model describes the three phases to follow in the design and implementation of a corporate management system for intangibles: identification, measurement and action. Sections five and six could be of special interest both for the inexperienced firms and for those with experience in the management of intangibles but interested in improving their ability to disclose relevant information on the intangible determinants of their value. Section five highlights the importance and describes the integrating elements of the Intellectual Capital Report, which is suggested as a tool for the disclosure of information on intangibles. The report is composed of three elements: First, a Vision of the Firm, comprising a statement of the management team on the corporate strategic goals and their related intangibles; second, a Summary of the Intangible Resources the company has and of the Intangible Activities carried out to develop, maintain or increase them; and third, a System of Indicators to measure resources owned and activities executed. Finally, section six contains some information that could be useful in practice for the preparation and disclosure of an Intellectual Capital Report.

CONTENTS

Acknowledgements

The Guidelines for Managing and Reporting on Intangibles presented in this document are the result of the research carried out by members of the MERITUM project between November 1998 and May 2001. A long research process was followed, starting with a thorough analysis of the economic nature of intangibles and a discussion on their definition and classification, and ending with a *Delphi* analysis thanks to which this document gathers the consensus of a group of experts with renown reputation in the field of Economics and Business Administration.

Neither the research developed nor the elaboration of these guidelines would have been possible without the generous funding provided by the European Union within the Targeted Socio-Economic Research (TSER) program. This is why our first acknowledgement must necessarily be addressed to the European Commission for the trust placed on us, first based on our proposal and, subsequently, during the time we have been involved in the development project's development.

While being a necessary condition, financial aid is not sufficient in itself for attaining the goals pursued by researchers. Undoubtedly, a fundamental factor is the support rendered by individuals and both governmental and non-governmental organizations, always eager to share their knowledge with the researchers. A clear example of this can be found in each and every institution integrating our *Support Group*, which have contributed decisively to the completion of MERITUM researchers' efforts and to which we are specially grateful.

During the almost three years invested in the MERITUM project, we have relied on the invaluable help of our *Steering Committee*, integrated by prestigious professionals and academics, who have offered their counseling, critical comments, suggestions and support whenever we have need them. To them we owe, to a big extent, whatever positive outcome of our research.

Anyone familiar with the essence of research work will understand the difficulty of achieving a consensus on issues that stir up the interests of researchers at the forefront of a given area of knowledge. In our case, achieving this consensus was an essential requisite for meeting our research goals and was possible thanks to the generous collaboration of a group of European experts, participants in the Delphi Analysis, who have contributed with their opinions to the elaboration of the Guidelines for Managing and Reporting on Intangibles presented in this document. To them all we are indebted and sincerely grateful.

A detailed list of components from the different groups mentioned above can be found in Annexes 2, 3 and 4.

1. Introduction

It appears to be widely accepted nowadays that the world has rapidly moved from an industrial economy, in which economic growth was considered to be mostly determined by the employment of material resources, towards a knowledge-based economy in which wealth creation is associated with the development and maintenance of competitive advantages based on intangible elements that are frequently grouped under the generic term *knowledge*.

Although there is no clear and unique definition of the so-called *knowledge-based* or *knowledge-driven* economy, it can be understood as the outcome of a set of structural changes.[2] First, knowledge is increasingly considered as a commodity and, as such, is subject to economic transactions. Second, the degree of connectivity among knowledge agents has increased dramatically. Third, Information and Communication Technologies (ICT) are considered as the main vehicle for knowledge diffusion, facilitating the emergence and development of new and intensive global networks of knowledge agents (European Commission 2000a).

The transition towards a knowledge-based economy is changing the business model (Goldfinger, 1997). A closer examination of the multiple sources of knowledge creation undertaken within the framework of MERITUM[3] project has revealed that the knowledge on which innovating firms base their activities has become broader and more complex. Organizations operating in the knowledge society are increasingly requiring strong relations with their environment in order to acquire and share essential knowledge for the development of their business.

Since knowledge is a source of competitive advantages, firms must develop their ability to identify, measure and manage it. Thus, there is a need to identify both existing knowledge and the elements that allow or prevent its development, both at the national and at the firm levels. The accurate measurement of the acquisition, production, and use of knowledge is as essential as complex. In the words of Anne Carter (1996), "when measuring knowledge we are not even wrong". Although some attempts to measure knowledge have been made so far, both at the micro and the macro-economic levels, there is still a long way to go.

The erroneous measurement of knowledge, due to rapidly outdating industrial management models and financial reporting practices, may lead to an inefficient[4] allocation of material, financial and human resources, not only by firms but also by their suppliers of goods, services and capitals.

To prevent these problems from arising in the future and to overcome those that could presently exist, research efforts should be devoted to improving our understanding of

[2] Nakamura (2001) describes some of the most significant changes in the world economy over the last decade.
[3] See Annex 6
[4] We understand an efficient allocation as that which conducts to a maximum utility or economic return (difference between the resources generated and the investment made) for a given level of risk, or as that which minimizes the agent's risk for a given economic return.

how knowledge is produced, accumulated and destroyed, and of the ways in which knowledge can be used to generate wealth. To this extent, the identification, systematization and generalization of good practices in the management of intangibles need to be encouraged. Additionally, in order to improve the ability of financial statements to offer an adequate picture of the firm's financial position, it will be necessary to develop new reporting practices that reveal the intangible determinants of the firm's financial position.

The purpose of the Guidelines for Managing and Reporting on Intangibles (hereafter, Guidelines) is, on one hand, to assist companies in the development of their ability to identify, measure and control its intangibles in order to increase the efficiency of their management and to improve their financial performance. On the other hand, the Guidelines attempt to provide a useful guide for firms willing to disclose information on the intangible determinants of their value creation capability in order to help the providers of capital to efficiently estimate the future payoffs and the risks associated with their investment opportunities.

It is important to stress that since these Guidelines aim at providing a broad framework for the management and disclosure of information on intangibles for organizations of any kind. Therefore, they must be considered just as a starting point. Further work will be required in order to develop a more detailed and specific guide, which could include additional elements, such as working documents for the measurement process or business cases of firms that have undergone the entire process, from identification to monitoring.[5]

The rest of the document is structured as follows. The next section justifies the need for the Guidelines for Managing and Reporting on Intangibles. Section three presents a conceptual framework which covers the theoretical premises on which this proposal is based and introduces the definitions and the main concepts that must be understood for the development of management and reporting systems that take intangibles into consideration. Section four describes the process that should be followed within the firm for the design and implementation of an information system for the management of intangibles and their subsequent monitoring. Section five contains a guide for the preparation of a report on the intangible determinants of the firm's value and, lastly, section six presents some remarks that we hope will be useful for companies in the process of producing a report of this nature.

[5] This is the starting point of E*KNOW-NET, a thematic network on intangibles financed by the European Commission under the STRATA program, that started up in September 2001

2. The need for Guidelines

In recent years, the idea that information systems do not allow for an efficient management has become widespread, since they do not capture a wide range of intangibles that, within the economic context previously described, are among the fundamental determinants of firms' success. It is also widely agreed that annual reports do not provide a sound basis to draw efficient estimates of the future payoffs that can be expected from companies, nor to assess the risk associated with them.

As a result of several remarkable changes in the economy, the key drivers of value creation are now mainly of intangible nature.[6] Since they are not directly observable, their identification and measurement, while being crucial, entails a great difficulty.

Despite the growing importance of intangibles as a source of sustainable competitive advantage, both internal and reported information on intangibles is scarce. To a big extent, this can be attributed to the restrictive requirements imposed by accounting standards in most countries for the recognition of intangible investments as assets in the financial statements.[7]

As a result, the ability of financial statements to provide an accurate view of the firm's financial position seems to have decreased over the last few decades, along with the increase in the importance of intangibles. This is usually linked to the growing divergence that researchers have found between the market value of companies and their book value computed according to Generally Accepted Accounting Principles (GAAP). As it was emphasized by the European Commission in its report *Towards a European Research Arena*, "the European financial market has not yet sufficiently discovered the economic value of investment in knowledge" (European Commission, 2000b, p.7). For the information provided by companies to the financial markets is primarily based on traditional tangible investments in fixed assets, whereas value is more and more relying on investments in intangible assets.

Research published during the last decade has documented the existence of significant problems arising from the insufficient information on intangibles (or the lack thereof) that determine the firm's financial position and can be a source of important economic losses for persons or institutions that take their decisions on the basis of the financial information that companies report periodically.[8]

In the field of management, the lack of ability of information systems to adequately reflect intangibles can result in the loss of business opportunities based on intangible resources owned by the firm but not identified or exploited by managers.

In this regard, it is interesting to bear in mind that managers may find incentives not to invest in intangibles as, although they may contribute to value creation, according to

---

[6] This statement has been discussed in depth and rigorously documented by Nakamura (1999).

[7] Cañibano, García-Ayuso and Sánchez (2000) provide a detailed analysis of the accounting criteria for the recognition and valuation of investments in intangible elements.

[8] Lev (2001:91-103) presents an interesting discussion of some of these problems.

accounting standards they must be immediately expensed and result in a decrease in current earnings and book values.

One of the main problems resulting from the lack of information on acquired or internally produced intangibles is insider trading. If managers exploit information that is unknown to the providers of capital not directly involved in management, they may earn positive abnormal returns that could result in losses for the stakeholders. Since financial analysts do not have sufficient information on the intangible determinants of the firm's value, their earnings and growth estimates might be over-optimistic or over-pessimistic. Since these estimates are taken by market participants as a basis for the design of investment strategies, the first case could lead to an under-valuation of companies that would eventually facilitate hostile takeovers and reduce the firm's capability to access resources, while the second case could produce an over-valuation of the shares that would result in losses for investors who take long positions once the market adjusts prices in the presence of new information previously not reported by managers.

On the other hand, the lack of knowledge on the firm's intangibles will be a source of uncertainty over its future earnings, that could translate into an excessive volatility of stock prices. This will lead investors to attach high levels of risk to the firm (a higher cost of capital), thus making it harder for the company to obtain funding for innovative projects and, therefore, lowering its future earnings.

Finally, the disclosure of a greater amount of reliable information on the firm's intangible investments may help overcome the problems currently affecting the validity of the results of innovation studies. For it will facilitate the design and implementation of public policies aimed at increasing economic growth and social welfare by promoting innovation.

Over the last few years, different companies have made substantial progress in identifying and measuring their intangibles as well as in disclosing them in their financial reports and other publications. However, that process has been heterogeneous and the results of those measurements are neither comparable nor verifiable.

Therefore, a common international framework is needed for measuring, reporting and monitoring intangibles. A possible way to generate this common international effort is to formulate and agree upon a set of Guidelines for Managing and Reporting on Intangibles, which will allow us to overcome the existing problems described above and to prevent those and other similar problems from arising in the future. It must be kept in mind that these guidelines are as yet not meant to change accounting standards. As is broadly accepted (OECD, 1999), changes in those standards may be needed in the future but, for the moment, the measuring and reporting effort should be a trial process adhered to on a voluntary basis.

The arguments supporting the need for a set of Guidelines for the management and disclosure of information on intangibles span a wide scale. First, the Guidelines may help firms to develop information systems that account for intangibles and result in improvements in management efficiency. But, additionally, their use would lead to the disclosure of information on intangibles that would be comparable throughout time and across companies and would allow investors to estimate more precisely future earnings and the risk associated with different investment opportunities, thus reducing the

possibility of insider trading, avoiding biased or wrong earnings estimates, inefficient valuations and unjustified volatility. This would contribute to an increased social awareness of intangible investments which would facilitate both, a greater efficiency in the allocation of economic resources and the design and implementation of public policies.

To help companies develop their capability to identify, measure and control their intangibles and to supply comparable information to their providers of capital, these Guidelines have to rest necessarily on a common conceptual background. The next section presents the conceptual framework of the Guidelines.

3. Conceptual Framework

During the last few decades we have witnessed an unprecedented increase in the use of the terms *intangibles*, *intellectual capital* or *knowledge* in reference to a set of factors that represent sources of corporate earnings. However, these terms are frequently employed indifferently, without a clear definition, not always homogeneously, and often applied to different concepts. For this reason it is essential to agree upon common definitions.

The terms *Intangibles* and *Intellectual Capital* are used to refer to the same concept. Both are applied to non-physical sources of future economic benefits that may or may not appear in corporate financial reports. However, these two terms tend to be used differently: *Intangibles* is an accounting term, whereas the *Intellectual Capital* was coined in the human resources literature and is mainly used in this field (Vickery, 1999). However, it is convenient to take into account that when the term *Asset* is associated to *Intangible*, it should only refer to intangible investments that, according to accounting standards, may be recognized and reflected in the firm's balance sheet. Therefore, while *Intangibles* and *Intellectual Capital* can be considered to be equivalent, the concept *Intangible Asset* is more restrictive, representing the set of *Intangibles* or elements of *Intellectual Capital* that are susceptible of being recognized as assets in accordance with the current accounting model.[9]

3.1. Intangibles

There is no broadly accepted definition of *Intangibles*. It is actually an adjective that goes along with different concepts, such as assets, activities, resources, etc. However, the adjective is often used as a noun, and this is good proof of the significant difficulties that exist when trying to determine a correct definition (Cañibano and Sánchez, 1998).

Nevertheless, the wide variety of definitions of Intangibles that can be found in the literature have some common features (Cañibano, Garcia-Ayuso and Sanchez, 2000a). They are generally defined as non-monetary sources of probable future economic profits, lacking physical substance, controlled (or at least influenced) by a firm as a result of previous events and transactions (self-production, purchase or any other type of acquisition) and may or may not be sold separately from other corporate assets.

[9] Hereafter, it will be assumed that *Intangibles* and *Intellectual Capital* represent similar concepts and, consequently, they will be used indifferently throughout this document.

Essentially, the economic notion of intangibles does not differ significantly from the accounting definition presented above. However, from the perspective of Financial Accounting, the crucial aspect of intangible assets is to elucidate whether the corresponding acquisition or production costs can be recognized as an asset in the balance sheet or, alternatively, must be charged as an expense in the profit-and-loss account. To be recognized as an asset, an item must fulfill several restrictive requirements; notably, it must have a reliably measurable relevant attribute and be *separable*. As a consequence, there is a great variety of intangible investments that may be considered as assets according from an economic point of view, but may not be recognized as such in the balance sheet in view of current financial accounting standards in most countries.

Items recognized as Intangible Assets are presented in the balance sheet with further information disclosed in the footnotes. However, there are no complementary explanations provided on intangible expenses directly charged to the profit-and-loss account.[10] Thus, users of the financial statements have an incomplete picture of the intangibles owned or controlled by business companies. They only observe the intangible investments that fulfill the accounting criteria for recognition as assets. Moreover, there may be intangible liabilities that are not reflected in the annual accounts either by means of allowances or in the notes to the financial statements (Caddy, 2000, Harvey and Lusch, 1999).

Some examples of intangible assets can be found in the balance sheet: copy rights, franchises, patents, trademarks, brand names, etc. In contrast, elements of intangible nature such as advertising and promotion expenses, marketing research expenses, restructuring costs, organization costs, training costs, corporate culture, customer loyalty, employee satisfaction, etc., are not normally included separately in the balance sheet, appearing only aggregately under Goodwill after the acquisition of a company or at the time of the first consolidation of a group's financial statements.

3.2. Intellectual Capital

Intellectual capital is the combination of the human, organizational and relational resources of an organization. The definition of these three categories is presented in Box 1.

Box 1. Classification of Intellectual capital

Human capital *is defined as the knowledge that employees take with them when they leave the firm. It includes the knowledge, skills, experiences and abilities of people. Some of this knowledge is unique to the individual, some may be generic. Examples are innovation capacity, creativity, know-how and previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education.*

[10] While FASB (2001), through its SFAS n.142, has established the obligation to disseminate information on R&D expenses that are imputed to earnings, there are still many intangible investments that do not satisfy the accounting criteria for recognition and therefore do not appear clearly identified in the financial statements.

Structural capital *is defined as the knowledge that stays within the firm at the end of the working day. It comprises the organizational routines, procedures, systems, cultures, databases, etc. Examples are organizational flexibility, a documentation service, the existence of a knowledge centre, the general use of Information Technologies, organizational learning capacity, etc. Some of them may be legally protected and become Intellectual Property Rights, legally owned by the firm under separate title.*

Relational capital *is defined as all resources linked to the external relationships of the firm, with customers, suppliers or R&D partners. It comprises that part of Human and Structural Capital involved with the company's relations with stakeholders (investors, creditors, customers, suppliers, etc.), plus the perceptions that they hold about the company. Examples of this category are image, customers loyalty, customer satisfaction, links with suppliers, commercial power, negotiating capacity with financial entities, environmental activities, etc*

As a result, the concept Intellectual Capital is embracing all kinds of intangibles, either formally owned or used, or informally deployed and mobilized. Intellectual Capital is more than simply the sum of the human, structural and relational resources of the firm, it is about how to let the knowledge of a firm work for it and have it create value (Roberts, 1999). This can be achieved by creating the right connectivity between those resources through the appropriate intangible activities.

3.3. Intangible Resources and Intangible Activities

The different intangibles considered in the three categories of intellectual capital defined in Box 1 can also be classified into Intangible Resources and Intangible Activities, according to their static or dynamic character.

Intangible resources, following Hall's (1992) proposal, can be considered as assets in a broad sense; i.e., intellectual property rights, trademarks, certain information technologies such as data bases, networks, or considered as skills, i.e., capabilities and competencies, such as those in human capital. The intangible resources of a company, a static notion, can be measured at any given time. Thus, worker competences (human capital), intellectual property rights (structural capital), customer satisfaction or agreements with suppliers (relational capital) would be considered under this category.
Intangible resources can also be analyzed in a dynamic sense. Companies are undertaking activities to acquire or internally produce intangible resources, to sustain and improve existing ones, and to measure and monitor them. Although the activities undertaken are assumed to be costly, companies are not always able to measure and keep track of these costs. These dynamic activities thus imply an allocation and use of resources that are sometimes not expressed in financial terms, and, consequently, may or may not appear in the corporate financial reports.

Intangible activities may give rise to new intangible resources, or improve the value of existing ones. For example, by re-qualifying them, or by increasing their ability to co-operate with other resources and, thus, improve their connectivity. Intangible activities also include the activities aimed at monitoring and evaluating the results of those

connectivity improvements. Examples are training activities (to improve human capital); R&D (to improve technological capabilities within structural capital); specific marketing activities (to attract loyal customers and improve relational capital); surveys to assess employee or customer satisfaction (to monitor the effectiveness of improvement activities).

Box 2. Intangible Resources and Intangible Activities

- ***Intangible resources (static notion)*** *are the stock or current value of a given intangible at a certain moment in time. They may or may not be expressed in financial terms.*

- ***Intangible activities (dynamic notion)*** *imply an allocation of resources aimed at:*

a) developing internally or acquiring new intangible resources,
b) increasing the value of existing ones, or
c) evaluating and monitoring the results of the former two activities.

Figure 1. Intangibles static and dynamic vision

Static Notion	**Intangible resources**		
	Assets	**skills**	
Dynamic notion	**Intangible activities**		
	To develop or acquire new intangible resources	To increase the value of the existing intangible resources	To evaluate and monitor intangible activities

3.4. Management of Intellectual Capital and Intellectual Capital Reports

There are considerable differences across European companies in the approaches followed for the measurement and disclosure of intangibles. While some firms, particularly in Northern Europe, have made considerable progress over the past decade to produce information and report on their intellectual capital, many other firms are becoming aware of the need to do so.

The former firms have developed their own methods to measure and monitor intangibles for management purposes, and to disclose what they consider adequate stakeholder information. Nevertheless, these Guidelines may help them compare their

management and information-disclosure practices for intangibles with those that have been proposed after an exhaustive analysis of a broad sample of European firms and a survey of the opinions of a set of experts in Economics, Business Administration, Finance, Accounting and Auditing. Rather than in showing them how to start managing their intellectual capital, the value added of these Guidelines for those firms relies mostly in their ability to show them how to do it in a harmonized way that will result in comparable results.

In contrast, firms that still have not developed and implemented an information system to manage their intangibles, but wish to do so and realize that their disclosure might considerably affect their financial and market performance, could find in the next section a useful guide for the Management of Intellectual Capital, since it results from the analysis of practices from experienced firms. Their "best practices" have been compiled and analytically organized to produce a model that can be applied by the newcomers becoming increasingly aware of the importance of intangibles, and realizing that their disclosure might considerably affect their market performance.

Section 5 deals with the presentation of the Intellectual Capital Reports. It is the result of the analytical process described in Section 4 and indicates the main elements an Intellectual Capital Report should contain. It reflects both what companies actually disclose about what they do and what markets and stakeholders may want to know. Therefore, companies that have developed their own management process can disregard Section 4 and go directly to Section 5.

However, it must be kept in mind that the process of managing and reporting on Intellectual Capital is highly idiosyncratic and unique to each and every firm. There is no universally valid recipe; each company should develop its own process. At the same time, the rationale underlying the use of these Guidelines is to ensure that the results of such processes will be comparable with those of other companies, as is presently the case with financial statements. This is a difficult trade-off and very likely to suffer from teething troubles in these first attempts. We want to move from the current situation, where information on intangibles is scarce and based upon incomplete and heterogeneous conceptualizations, to a new scenario in which we will have homogeneous, reliable, verifiable and comparable information on the intangible determinants of the value of companies.

The process will surely take time thus making these Guidelines instrumental by i) encouraging companies to produce information on their intellectual capital, ii) providing a common conceptual framework, and iii) showing best practices in managing intangibles by European companies, and iv) suggesting a common procedure to report on those intangibles.

4. Management of Intellectual Capital

This section describes the usual steps taken by a firm aware of the importance of its intangibles for success that is willing to adapt its management control system to explicitly taking into consideration intangibles. The following statements are based on the analysis of firms that consider the management of intangibles as a strategic issue

closely linked to their ability to create value and believe that intellectual capital is a key part of their business process.

The identification of intangibles singles out and leverages certain key assets that otherwise would have been overlooked and enhances the firm's awareness about the relevance of these assets in the value creation process. The effective management of intangibles might increase the firm's commitment with its intellectual capital.

There has been a debate over the last years about the purposes that firms may have when attempting to measure their intangibles. Some are management-related purposes, some are external purposes, i.e., to provide useful third-party information on the real value of the firm. However, this difference between internal and external use of the information on intangibles tends to blur since outsiders' perceptions of how value is created by the firm increasingly take account of internal management systems (Vickery, 2000). As a result, firms must have both internal and external uses in mind when designing their Intellectual Capital Management systems.

The model we propose as a representation of the approach followed by companies when developing their intangible management system can be split into three non-linear and related phases:

1. Identification of intangibles
2. Measurement
3. Action

4.1. Phase 1. Identification of intangibles

The starting point must be a definition of the vision of the firm, that is, a statement of the organization's mission and of the related strategic goals. Firms then need to identify those intangibles that are critical to their strategic objectives. Those critical intangibles are the main factors, the key drivers, which contribute most to the value creation process. They embrace the core competencies the company possesses or needs to develop in order to attain its objectives.

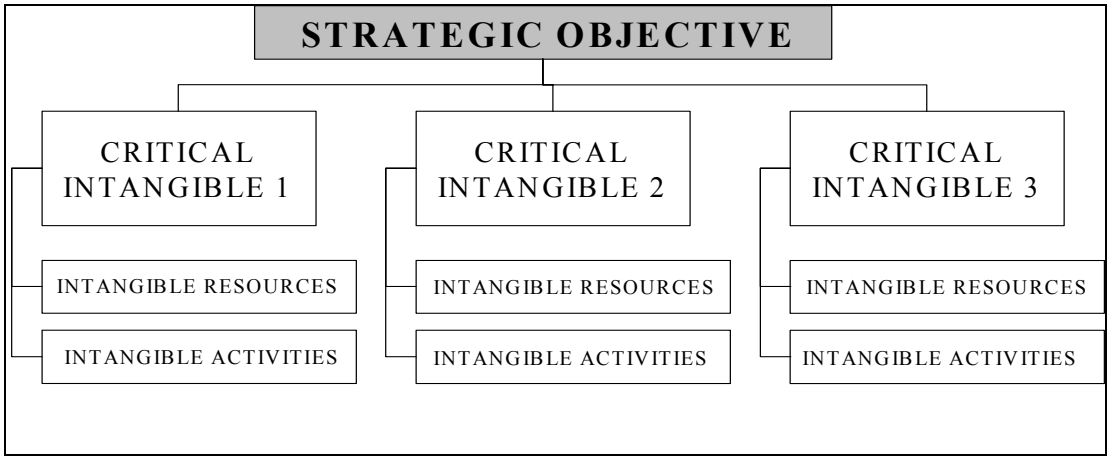
To obtain that information, the firm has to answer questions such as: *where are we?, where do we want to go?, what are our challenges? what have we got and what do we need in terms of intangibles?* Usually, the answers to these questions emerge as a result of internal discussions or brainstorming sessions.
Companies are concerned both about the status of their intangible resources and about the actions that should be undertaken in order to maintain and improve those resources. On the one hand, it is important not to focus only on those activities that might increase the level of critical intangibles, but also to consider those that might hamper or even diminish their intangible resources. On the other hand, companies must also consider their future strategic objectives. They need to link current intangible activities with their long-term strategy, which might contain certain objectives that are presently not considered.

In sum, the first step is the identification of the strategic objectives of the firm. Then, management should identify related intangible resources and define the activities that

are likely to affect those resources. Finally, the firm should define the support activities that allow an adequate monitoring and follow-up of all the intangible activities and their impact on crucial intangibles resources.

As a result of the identification process, a network of intangibles emerges, providing the firm with an accurate picture of current critical intangible resources, of those that need to be developed in the future, and of the activities related to its strategic objectives (see Figure 2).

Figure 2. Network of intangibles



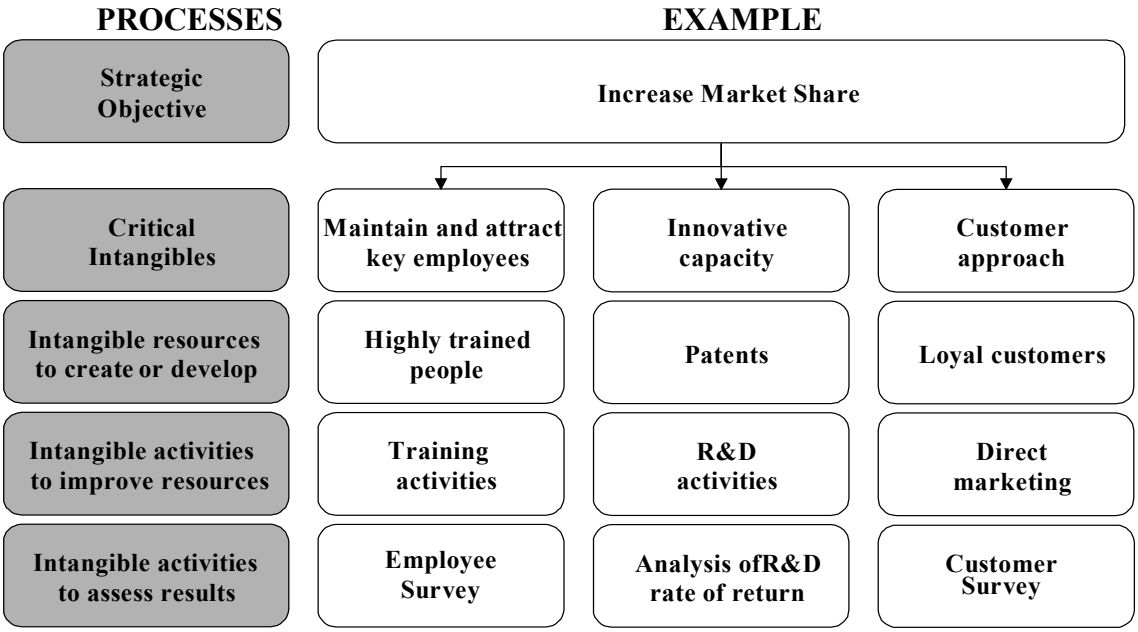
At the top of the breakdown, we find a set of critical intangibles that might help maintain or enhance a firm's competitive advantage or attain its strategic objectives. These critical intangibles are *abilities* the firm has or needs to develop. Examples of critical intangibles are: Adaptiveness to market changes, Human Resource commitment, Innovative capacity, and Customer approach.

A concrete example of that breakdown using the concepts defined in paragraph 50, can be found in Figure 3. The example is a very simple one, where the three columns of resources and activities refer to one of the established categories of intellectual capital.

For example, highly educated people and training activities are related to human capital, patents and R&D expenditures are linked to structural capital, and loyal customers and an increase in direct marketing are tied to relational capital. It is important to note that the breakdown may change over time, as the company may identify different intangible resources and activities to manage at different points in time.

Similarly, it may be the case that not all intangible resources are assigned the same relative importance in terms of management and monitoring. Some can be considered as crucial and deserve special attention whereas other may be deemed less important, but will still need to be managed and accounted for.

Figure 3. A breakdown of intangibles – a first example.

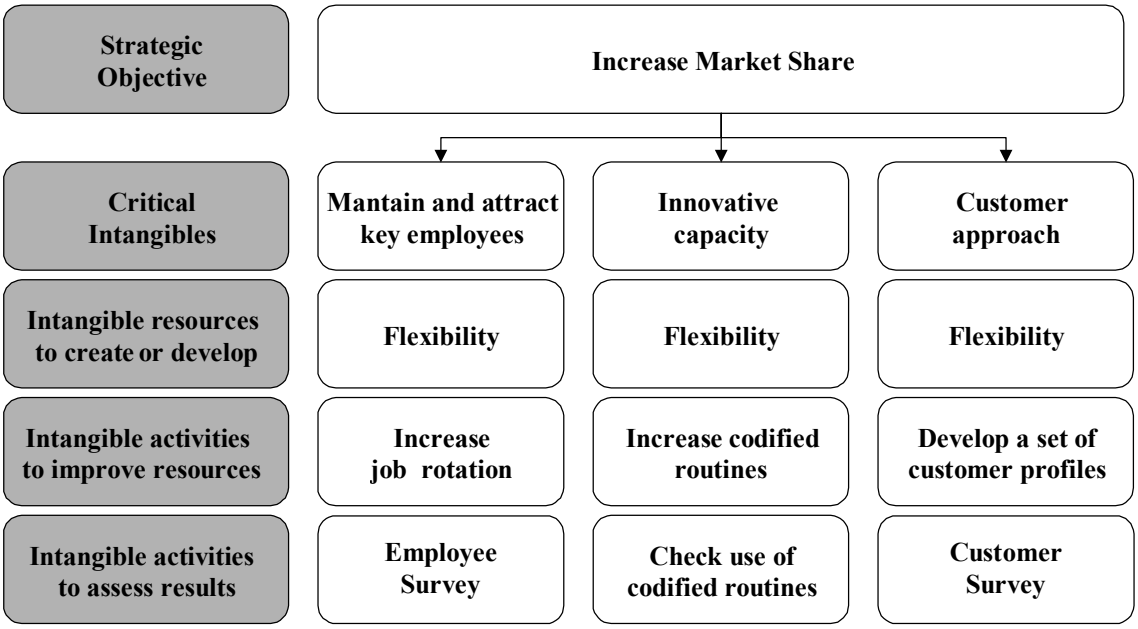


However, practical reality may be more complex, and a wide range of activities and resources might affect each critical intangible. For example, as shown in Figure 4, an important intangible resource that may affect the three critical intangibles is flexibility. In order to increase this resource, the company can either increase job rotation (acting thus on its human capital), or better codify the routines that allow fast socialization of new employees (acting on structural capital), or develop a set of customer profiles each of which tied to a specific set of actions (acting on relational capital). At the same time, an increase in job rotation may increase the need for codification routines thus creating a closer relationship between human and structural capital, but may negatively affect employee satisfaction and, consequently, decrease an individuals' interest in learning and further development.

In many cases, the firm does not know exactly what the precise impact of each activity on the resource will be, but a reasonable estimation can be made based on past experience.

In order to better assess causality between actions and results, a final set of activities needs to be developed. Assessment of results is crucial as it defines the organisation's ability to learn from its actions and to improve continuously on them. Its result is the creation of routines that increase intellectual capital permanently. We will come back to these latter types of activities when analysing the 3rd phase.

Figure 4. A breakdown of intangibles – a second example.



4.2. Phase 2. Measurement

1. Once the critical intangibles have been identified and the causal network of relations has been established, the firm needs to define specific indicators that serve as a proxy measure for each intangible. Thus, a set of indicators is defined and developed for each intangible.

2. Companies may wish to check whether or not the indicators fulfill the characteristics summarized in Figure 5 below.

3. An indicator is **comparable** if it is computed and presented following generally accepted criteria, so that users may make comparisons over time and across companies.

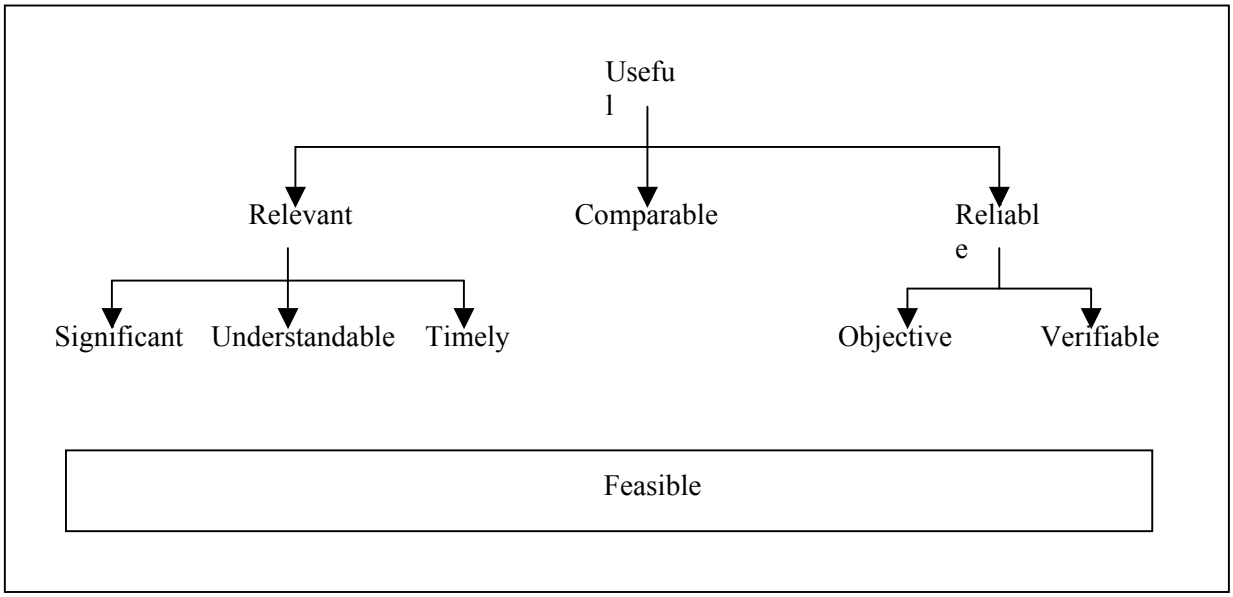
4. An indicator is **reliable** if the information it provided is trustworthy: It must be objective, truthful and verifiable.

5. An indicator is **objective** if its value is not affected by any bias arising from the interests of the parties involved in the preparation of the information disclosed by the firm.

6. An indicator is **truthful** if the information it presents reflects the real situation of the firm with respect to the issue it refers to.

7. An indicator is **verifiable** if it is possible to assess the truthfulness of the information it provides.

Figure 5. Characteristics of indicators



8. An indicator is **feasible** if the information required for its computation can be obtained from the firm's management information systems, or if the cost of modifying those systems to obtain the required information is lower than the benefits arising from the use of the indicator.

The indicators can be general (and, therefore, comparable across firms and industries, e.g. the ratio of R&D expenditures to turnover or the revenue derived from R&D projects developed over the last five years), industry specific (the comparison makes sense only within the same industry, e.g. the percentage of back-office personnel in banking or the number of different jet models that pilots from an air carrier can fly), or firm specific (the definition differs from company to company and comparisons are hard to make or do not make sense, e.g. the time between a customer's report of a failure and the repair of the X-type server or the Y-type phone line).

Indicators might be either financial or non-financial both, if they are used to measure intangible resources and intangible activities.

In any case, it is important that indicators provide a clear idea, to the extent possible, about the link between the firm's intangible resources and activities and, the wealth created with them.

The set of indicators used by the firm is a dynamic set. If they are to be useful for management purposes, they should reflect changes and the learning effects accomplished by the organization. As a result, it may be necessary to redefine indicators frequently. Simultaneously, if the company and its stakeholders must visualize the dynamics of a situation, it may be necessary to make comparisons across periods. Consequently, a core and stable set of indicators should be kept over a relatively long period of time.

Examples of possible indicators for all the intangibles mentioned in Figures 3 and 4 are shown in the table below:

INTANGIBLE	INDICATOR	Type*
Highly trained staff	% of employees with higher education, intermediate, grammar school	NFI
Training Activities	a) Total number of training hours received by managers relative to total training hours b) Total training cost per key employee c) Average satisfaction of the employees with competence development	NFI FI NFI
Employee Survey	a) Average satisfaction of the employees with training activities b) Cost of the survey c) Average satisfaction with leadership	NFI FI NFI
Patents	Number of patents filed over the last year	NFI
R&D activities	R&D expenditures	FI
Analysis of R&D rate of return	R&D as a percentage of turnover	FI

INTANGIBLE (Cont)	INDICATOR	Type*
Flexibility-Structural Capital	a) % of projects that are based on interdepartmental co-operation b) Average employee satisfaction with the work organization	NFI NFI
Increase codified routines	% of critical processes that have a Manual	NFI
Use of codified routines	% of critical processes that follow the Manual	NFI
Flexibility-Relational Capital	Average order response time, from customer order until final delivery	NFI
Select and act on key customers	a) % of sampled customers in the customer satisfaction survey b) Average satisfaction among key customers	NFI NFI
Loyal customers	a) % of long-term customers (5 years or more) to total number of customers b) % of turnover related to long-term customers	NFI FI
Direct marketing	Direct marketing expenses as a percentage of total costs	FI
Customer survey	a) Average satisfaction of the customers with the firm's products and services b) Cost of the survey c) Average satisfaction with meeting firm representatives	NFI FI
Flexibility-Human Capital	a) % of workforce with above-average working hours b) Cost of tele=work as a percentage of total labor costs	NFI FI
Job Rotation	% of workforce with yearly job rotation	NFI

*NFI: Non-Financial Indicator; FI: Financial Indicator

Measuring accurately the cost of an intangible activity, and to assess its impact on the firm's performance indicators (earnings, sales, market share, market value, etc.), appears to be a daunting task. First, because it is not always possible to identify a cost with each and every intangible activity. Secondly, because the impact of a particular intangible activity on future performance may only be reliably measured in very specific cases and is, therefore, more the exception than the rule (for example, the effect of R&D expenditures on patent registrations, are two indicators directly related).

Despite these difficulties, most of the companies that disclose Intellectual Capital Reports show these two sets of indicators - indicators on intangibles, and performance

indicators that are most likely to be affected by intangibles. This is an example of good practice with respect to the categories of indicators to disclose.

4.3. Phase 3. Action

The action phase entails the consolidation of the intangibles management system and its integration within the firm's management routines. It can be conceived as the recognition of a learning process that runs parallel with the previous phases. Both the firm's intellectual capital stock and the effect of the different activities on intangible resources are evaluated in this phase. As a result, strengths and weaknesses should be identified and needs for additional intangible activities will arise. The learning process affects both intangible resources and intangible activities. Activities undertaken during this phase are supporting processes that enable the transformation of measurements into actions, and improve existing routines and interpretations.

From a conceptual point of view, it is possible and useful to distinguish between activities that:

a) develop intangible resources internally or acquire them externally. For instance, develop activities to attract new employees with a specific knowledge, or the acquisition of a new information technology in order to create new internal communication routines.
b) increase the value of existing intangible resources. For instance, training activities may increase the value of Human Capital while advertising may increase customer loyalty.
c) assess the effects of the previous activities. For instance, surveys of employee satisfaction and customer satisfaction are activities that provide the firm with information on the return of their investments in both types of satisfaction. Simultaneously, and as a result of the so-called 'Hawthorne-effect', the survey activities themselves could increase satisfaction levels as employees and customers become aware of the firm's commitment to the satisfaction issue.

The action phase comprises the evaluation of the effects of earlier investments in intangibles on the intangible resource position of the company. As a result of the monitoring effort, new intangible activities may eventually be developed and implemented. In the action phase, the firm should evaluate the effects on both the internal and the external users.

However, in practice, distinguishing between development/acquisition, value increase, and assessment activities is problematic. For example, a 360-degree evaluation carried out by some companies as part of their human resource management activities may increase the value of certain intangibles (e.g. the satisfaction of employees whose motivation increases as they feel they can evaluate their bosses) but may also be useful to verify, for example, the perceived effectiveness of training activities on performance. In a 360-degree evaluation system all managers of the company are evaluated by their peers and also by employees who work at upper and lower hierarchical levels.

A number of supporting processes might facilitate the integration of intellectual capital management within the firm's internal management processes (Johanson et al. 2001a, 2001b). The following examples are some of the most frequent of such processes:

(1) Recognition and measurement processes

- Human and customer surveys executed on a regular basis and in a systematic way can act as a solid base for measuring and recognizing the importance of intangibles

(2) Reporting processes

- Continuous and well structured internal reports to as many management levels as possible
- Investor relation information (reports) to analysts and other stakeholders

(3) Evaluation processes

- Evaluation of single indicators by each manager in combination with dialogues between the management levels
- Statistical analysis of the indicators providing a view of the trend followed in previous periods.

(4) Attention processes

- Time is set of for meetings focusing on the status and trends regarding different intangibles
- Structured dialogues and work counseling meetings are held on a regular basis
- Internal benchmarking activities (identification of best practices)
- The indicators and measures are connected to the salary bonus system

(5) Marketing processes

- Internal and external marketing activities revealing the intention and purpose of the production of measures and indicators

The examples of supporting processes listed above, or of any other of a similar type, are part of the action exercise. They are not equally relevant. The company should define its own priorities. The most important routines are those truly process oriented and try to codify organizational capabilities around lessons learned and insights gained. The results, in combination with statistical analysis, affect *knowledge* and, thus, encourage intangible activities.

In sum, the action phase is part of a highly dynamic process, where the evaluation of results and eventual design of new activities might occasionally overlap with (parts of) the identification and the measurement phases. It is the culmination of the process of implementing an intellectual capital management system in the firm. The stronger the integration of the action phase within the organizational routines, the more consolidated the intangible management process and, therefore, the higher its recognition at external and internal levels.

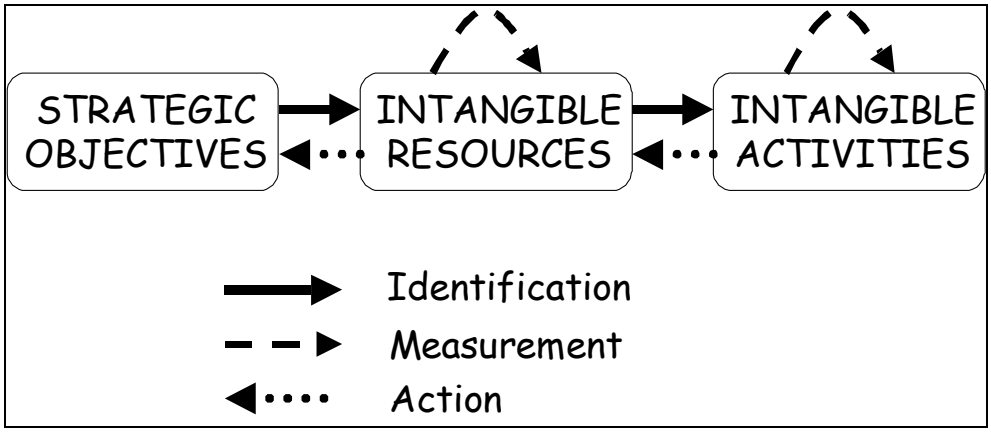
The frequency and characteristics of the monitoring exercise will vary for the different intangibles at stake and will be highly specific to the firm and the industry. For it will depend on the nature of the intangible and on its criticality for that particular firm.

For example, some banks perform a customer satisfaction survey on a monthly basis. The same frequency would also be adequate to check the use of the company Intranet,

but would be less appropriate to evaluate employees' identification with the firm's strategic objectives.

The three phases of Intellectual Capital Management can be summarized in Figure 6.

Figure 6. A comprehensive model for the management of Intellectual Capital



The model should be understood in a dynamic sense. Theoretically, the firm starts by identifying and measuring its intangible resources at a given time (t). Then it develops different activities that might affect them and measures its intangible resources again in period t+1. As a result, the firm monitors the different changes in its intangible resource levels as a consequence of its management actions. In practice, the different stages of identification, measurement and action tend to overlap.

5. The Intellectual Capital Reports

The Intellectual Capital Report is the report the company discloses on its Intellectual Capital. It is the logical conclusion of the Intellectual Capital Management process: communicating to stakeholders the firm's abilities, resources and commitments in relation to the fundamental determinant of the firm's value.

An intellectual capital report contains information on the work carried out by the firm in order to develop, maintain and manage its intangible resources and activities, highlights the connectivity among the three elements of Intellectual Capital (Human, Structural and Relational capital). It is the connectivity among these three elements, what – if organized properly – produces value. At the same time, an intellectual capital report refers to the expected evolution of those intangibles linked with the strategic objectives. It is composed of the following three parts:

a) *A vision of the firm* (strategic objectives, core competencies and key intangible resources) which presents the firm's main objectives and strategy and the key drivers (or critical intangibles) to reach those objectives.
b) *A summary of intangible resources and activities* describing the intangible resources the company can mobilize and the different activities undertaken to improve the value of those resources.
c) A *system of indicators* for the intangible resources and activities, intended to allow external parties to estimate correctly the firm's future expected earnings and risk. In that sense, it is useful to both, external parties and to management

alike to disclose not only the indicator but also its expected trend and its relation to the company's future earnings and growth.

5.1. Importance of disclosure

For intellectual capital reports to be relevant there has to be a relationship between the disclosure of information on intangibles and management activities. Therefore, two requirements must be in place:

- First, based on a well-defined strategy, the firm has to have a stated commitment to sustain and develop its intellectual capital.

- Second, in order to adequately communicate its strategy both internally and externally, the firm must disclose, at least partially, information on the efforts made to sustain and develop its intellectual resources.

The first condition puts the Vision of the Firm, that is, its strategic objectives, into context; i.e., to put the management of intellectual capital on the firm's agenda.

The second condition is that there is value to be derived from intellectual capital disclosure. Disclosure has to help improve –and not merely describe– relationships with customers, employees, partners, and, in general, the increased emphasis on knowledge-sharing activities across stakeholders and organizational boundaries. The disclosure of information on intangibles has an impact on the firm's image and that affects its factor markets. For instance, it can improve the firm's ability to attract human resources through the dissemination of information on its professional development plan or improve sourcing conditions by publishing information on its average time-to-payment.

5.2. Elements of the Intellectual Capital Report

The Intellectual Capital Report has three different parts which will be described next:

- The vision of the firm
- The summary of intangible resources and activities
- The system of indicators

5.2.1. Vision of the firm

The Vision of the firm identifies:

- The strategic objectives accomplished by the company and how its accomplishment add value for its customers and other stakeholders. It also includes the firm's strategic objectives for the future.

- The firm's critical intangibles that enable the accomplishment of the strategic objectives through knowledge production processes that create value. It also identifies the critical intangibles on which the company relies to attain the

strategic objectives established for the future and a description of those that need to be acquired or internally developed.

The Vision of the firm describes in a narrative form how the different stakeholders benefit from the firm's knowledge production activities. For example, it describes how users and customers can benefit from buying the firm's products or services, or how its suppliers have access to a larger market. Similarly, it describes to investors how interesting it is to invest in the firm, or how interesting it is to have a job in the firm. In other words, the Vision of the firm describes how the firm differs from its competitors and how it brings up organizational boundaries in an alternative boundary-less organization, functioning in a networked organizational landscape.

In addition, the Vision of the firm indicates the key ingredients for making the vision possible. Here, it identifies the key drivers or critical intangibles that allow the firm to continue in the market place, both at present and in the future. These critical intangibles are directly related to the core competencies of the firm and immediately affect the value-creation process of the company.

The Vision of the firm draws upon the efforts made in the Identification Phase of the above-described Intellectual Capital Management. The company may decide not to disclose information on the most sensible strategic issues, such as details on its competitive position and its future intended strategic actions. The Vision of the firm is not a strategy document, but a statement of the advantages obtained by and expected to be obtained by customers, shareholders and other stakeholders as a consequence of the company's Intellectual Capital.

In sum, a Vision of the firm has the following properties:

- It describes and illustrates the critical intangibles that enable the firm to attain its strategic objectives.
- It allows a reader to understand the functioning of the firm with respect to its value creation process and the contribution of its intangibles to this process.

5.2.2. The summary of intangible resources and activities

The summary identifies the following elements:

- The Intangible resources controlled by the firm, or needed in the future in order to reach its strategic objectives
- The Intangible activities to undertake in order to attain those objectives.
- The different processes that have been implemented to transform the measurement of intangibles into managerial action, together with those that will continue to be applied to ensure future actions.

The presentation of both Intangible resources and Intangible activities must refer to the three categories of Intellectual Capital defined above; that is, human, structural and relational capital, being their connectivity the key element that creates value.

The presentation of both Intangible resources and Intangible activities indicates, in a transparent and straightforward manner, the firm's portfolio of intangible resources and

intangible activities. Whenever possible, intangible activities are to be divided into improvement activities and monitoring activities, following the classification presented in section 3.3.

The relationship between the improvement and monitoring activities, and the Vision has to be transparent. In other words, the company must show that it requires a unique combination of actions to be performed in order to attain the strategic objectives, and that the company is actually carrying out these actions.

The summary of intangible resources and activities draws upon both the Identification and the Action phases. It is up to the discretion of the company to decide what information relative to these phases should be disclosed.

A periodic disclosure of its activities would be expected, similar to the periodic accounting disclosures and quarterly statements, while the Report should show a logical internal coherence that must maintained over time.

5.2.3. The system of indicators

The third part of the Intellectual Capital Report is the system of indicators.

The indicators are the visualization of what the company is doing with its intangibles, and are to allow the readers of the Intellectual Capital Report to assess how well the company is fulfilling its objectives.

There is presently no fixed and predetermined set of indicators required for an Intellectual Capital Report. As mentioned in the previous section, the indicators reflect what the company itself is considering important to manage and monitor.

The set of indicators must refer to the three categories of Intellectual capital (human, structural and relational capital), and, whenever possible, should distinguish between resources and activities, i.e., resources owned and actions. The indicators can be financial or non-financial but, whenever possible, the use of financial indicators is strongly suggested, particularly because it will be easier to relate financial indicators of Intellectual Capital to other financial indicators of performance.

For example, if a particular company considers it crucial to use information technologies for the supply of a high-quality service, the increase in the ratio of the number of PCs to the total number of employees could be an useful ratio. However, a financial indicator for the same purpose would be the total investment in the hardware and software upgrades of the current PCs.

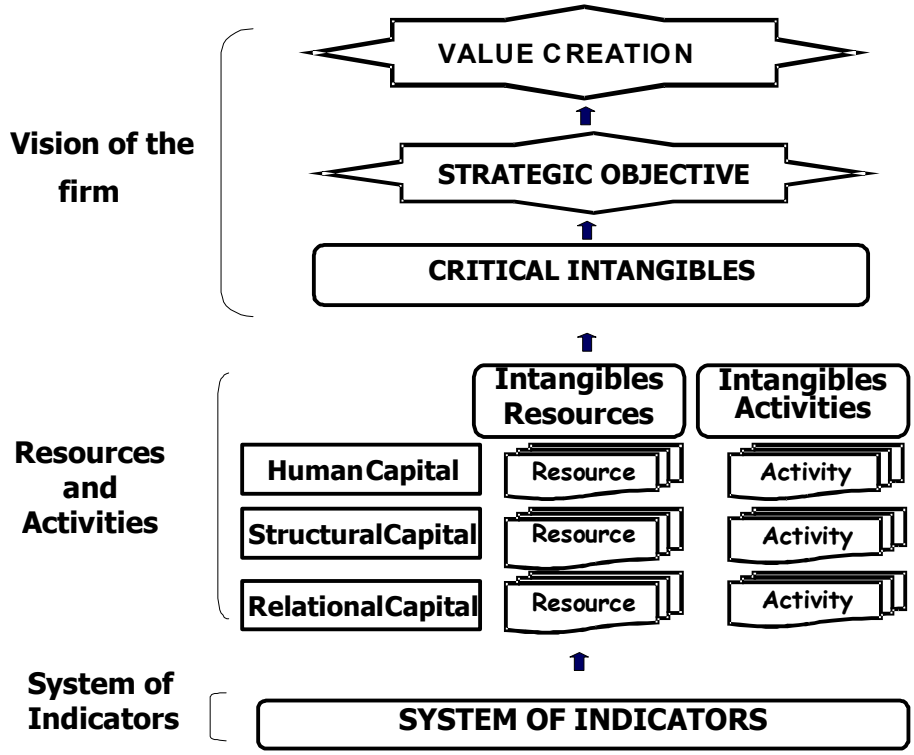
In sum, the presentation of a set of indicators has the following characteristics:

- It creates a visualization that allows actions to be translated into a system of indicators.
- It has an array of indicators that describe the company's value creation process.
- It typically has indicators from all three components of Intellectual Capital. If not, the specific reason for it should be mentioned.

- It may contain a mix of financial and non-financial indicators.
- All indicators must be verifiable even when not purposely audited. The criteria followed for producing, defining and presenting them should be provided in the report.

Although Intellectual Capital is highly specific to each company, we have tried to develop a schema of the whole process described above. Companies should disclose information on how the different steps are enhancing the firm's value as shown in Figure 7.

Figure 7: A Schema for the presentation of Intellectual Capital Statements



6. Some practical issues related to the preparation of Intellectual Capital Statements

6.1. How to collect the information

The information on intangibles should be collected in a systematic way. Once the measurement system is designed and implemented and the type of data to be collected is defined, information is gathered from:

- The company's databases.
- Internal documents and reviews.
- Questionnaires, such as employee or customer satisfaction surveys.
- Interviews.

- The accounting system and the document flow underlying the accounting system (invoices, job sheets, time sheets, bills-of-material, etc.)
- External sources.

6.2. Who should prepare the information inside the company

It is necessary to distinguish between the individuals in charge of the development and design of the measurement system as such, and those engaged in the actual development of the indicators.

Among the first group on design and development, we usually find:
- Top/senior management
- External/internal consultants
- Human resources managers
- Accounting and financial managers (CFOs)

With regard to data gathering, information must be obtained from the different departments of the company, since the data needed is of a diverse nature.

Once the necessary information has been obtained from different departments, the staff in charge of the preparation of the Annual Report appears to be the most suitable individuals as they have a sound expertise in the accumulation, integration and disclosure of information (on intangibles).

Regardless of who is responsible for the preparation of the Intellectual Capital Report, top management should be committed to and engaged in the preparation of the Intellectual Capital Report of the firm.

6.3. Frequency

The frequency in the preparation of indicators will depend both on the type of company and the dynamics of the industry in which it operates, as well as on the firm's strategy.

As a general rule, the fiscal year is the minimum period recommended to collect and disclose information about the firm's intangibles. However, at present, the tendency is to shorten the reporting period and increase the frequency as a result of the demands of interested third parties (investors and creditors). This is technically feasible given the existence of sophisticated IT-tools that enable the firm to collect information more timely and at a relatively low cost.

The measurement of intangibles is to refer to the same time periods considered in the firm's Financial Statements. The Intellectual Capital Statement may be published together with, or at the same time, as the Financial Report is disclosed.

Nonetheless, the specific needs of management will determine the appropriate reporting periods for each firm. In any case, the information needed for managerial purposes should be available almost immediately and, consequently, the reports could be generated as frequently as the circumstances command given each company's technical and economical restrictions. On the other hand, the disclosure of the information

considered useful for capital suppliers and other economic agents with an interest in the firm's performance will require a lower frequency.

Last, it is advisable to carry out a cost-benefit analysis to establish the frequency with which periodic information on intangibles should be prepared by the firm, both for internal and external use.

7. References

Bukh, Per Nikolaj; Heine T. Larsen; Jan Mouritsen. (1999) Developing intellectual capital statements: Lessons from 23 Danish firms. Paper presented at the OECD International Symposium on Measuring and reporting intellectual capital: Experience Issues and Prospects. June 1999.

Bukh, Per Nikolaj; Heine T. Larsen and Jan Mouritsen (2000). Constructing intellectual capital statements. Forthcoming in the Special issue of *Scandinavian Journal of Management* dedicated to the 15th Nordic Conference on Business Studies, Helsinki,

Bukh, Per Nikolaj Jan Mouritsen and Heine T. Larsen (2000). Towards a framework for intellectual capital statements. Contribution to the MERITUM report from activity 1, In: J.E. Gröjer and H. Stolowy (Eds) *Classification of Intangibles.* Cahiers de Recherche 712/2000. Groupe HEC, Jouy-en-Josas, France, pp. 263-278.

Caddy, I. (2000). Intellectual capital: Recognizing both, assets and liabilities. *Journal of Intellectual Capital,* 1,2: 129-146

Cañibano, L., García-Ayuso, M. and Sánchez, P. (1999) The Value Relevance and Managerial Implications of Intangibles: A Literature Review. OECD web page: www.oecd.org/dsti/sti/industry/indcomp/act/ams-conf/symposium.htm Contribution to the MERITUM report from activity 1, In: J.E. Gröjer and H. Stolowy (Eds) *Classification of Intangibles.* Cahiers de Recherche 712/2000. Groupe HEC, Jouy-en-Josas, France, pp. 78-126.

Cañibano, L., M. García-Ayuso and M.P. Sánchez (2000a) Accounting for Intangibles: A Literature Review. *Journal of Accounting Literature*, vol. 19, 2000, pp. 102-130.

Cañibano, L., M. García-Ayuso and M.P. Sánchez (2000b) Shortcomings in the measurement of Innovation: Implications for Accounting standard setting. *Journal of Management and Governance*, vol. 4, nº 4, pp 1-24

Cañibano, L., Sánchez, P. (1998) Measuring Intangibles to Understand and improve innovation management. A Research Proposal to the TSER Programme. Autonomous University of Madrid.

Carter, A. (1996). Measuring the performance of a Knowledge-based Economy. In: OECD. *Employment and Growth in the Knowledge-based Economy.* Paris, pp. 61-68.

European Commission (2000a) Innovation policy in a knowledge-based economy. Final Report of the expert group. A MERIT study Commissioned by the European Commission. Enterprise Directorate General.

European Commission (2000b) *Towards a European Research Area*, Communication from the Commission to the Council, the European Parliament, the Social Council, the Economic and Social Committee and the Committee of the Regions. Mimeo.

Goldfinger, C. (1997) Understanding and measuring the intangible economy: Current status and suggestions for future research. CIRET seminar. Helsinki.

Haanes, K. Lowendahl, B. (1997) The Unit of Activity: Towards an alternative to the theories of the firm. In: Thomas et al (Eds), *Strategy, Structure and Style*. John Wiley & Sons.

Hall, R. (1992) The strategic analysis of intangible resources. *Strategic Management Journal*, nº 13, pp. 135-144.

Harvey, M.G. and R.F. Lusch (1999) Balancing the intellectual capital books: intangible liabilities. *European Management Journal* 17, 1:85-92

Jeny-Cazavan, A.; Löning, H. (2000) How companies manage and measure intangibles – A survey of French practices. Paper presented at the 23rd Annual Congress of the European Accounting Association, Munich. March 2000.

Johanson, U., Eklöv, G., Holmgren, M., Mårtensson, M. (1999). *Human Resource Costing and Accounting Versus the BSC. A Literature Survey of Experience with the Concepts.* A report to the OECD. OECD web page: http://www.oecd.org/dsti/sti/industry/indcomp/act/ams-conf/symposium.htm.

Johanson, U., Mårtensson, M., Skoog, M. (2001a) Mobilising change by means of the management control of intangibles. *Accounting, Organisation and Society*, vol 26/7-8, pp. 715-733.

Johanson, U.; Mårtensson, M. and Skoog, M. (2001b) Measuring to understand intangible performance drivers. *European Accounting Review, 10:3, pp1-31.*

Larsen, Heine T., Jan Mouritsen, and Per Nikolaj Bukh. (1999). Intellectual capital statements and knowledge management: Measuring, reporting and acting. *Australian Accounting Review* 9(3):15-26.

Mouritsen, Jan, Heine T. Larsen, and Per Nikolaj Bukh. (2000). Reading an Intellectual Capital Statement: The case of Systematic Software Engineering. Working paper, Department of Operations Management, Copenhagen Business School.

Mouritsen, J. et al. (2000) Development of Guidelines for Intellectual Capital Statements. London Meritum meeting. May 2000

OECD (1999) International Symposium on Measuring and Reporting Intellectual Capital: Experience, Issues and Prospects, 9-11 June, 1999. Amsterdam, www.oecd.org/dsti/sti/industry/indcomp/act/Ams-conf/symposium.htm.

Roberts, H., (1998) Management Accounting and Control Systems in the Knowledge-intensive Firm. Paper presented at the 21st Annual Congress of the European Accounting Association, April 1998, Antwerp, Belgium.

Roberts, H. (1999) The Control of Intangibles in the Knowledge-intensive Firm. Paper presented at the 22nd Annual Congress of the European Accounting Association, Bordeaux, 1999.

Roberts, H. and P. Berthling-Hansen (2000) Ready for Intellectual Capital? A multiple case study of 25 firms in the Norwegian graphical, newspaper and magazine industries. Paper presented at the 23d Annual Congress of the European Accounting Association, March 2000, München, Germany.

Roberts, H., (2001) Intellektuell Kapital: bedriftens usynlige verdier [Intellectual Capital: the firm's invisible values], Confederation of Trade and Service Industry (HSH)/Confederation of Norwegian Business and Industry (NHO), November 2001.

Sánchez, M.P., Chaminade, C., Olea, M. (2000) Management of intangibles. An attempt to build a theory. *Journal of Intellectual Capital*. Vol.1, nº 4, pp. 312 – 328.

Sanchez, P., Escobar, C.G. (2000) The Delphi method as a validation tool for the Guidelines for the measurement and management of intangibles. Paper presented at the Meritum Sevilla Meeting. January 27-29, 2000.

Stolowy, H. And Jeny, A. (2001) International Accounting Disharmony: The case of intangibles, Forthcoming in the Special Issue on Measuring and Reporting Intellectual Capital for the New Millennium of the *Accounting, Auditing and Auditability Journal*, Vol. 14:4.

Vickery, G. (1999) *Intangibles and Competitiveness: An Empirical Approach*, Edward Elgar Publishing, 1999

Vickery, G. (2000) Accounting for Intangibles: Issues and Prospects. In: P. Buigues et al. (Ed.) *Competitiveness and the Value of Intangible Assets.* Edward Elgar Publishing. pp. 72-99