

The Danish Trade and Industry Development Council

Intellectual Capital Accounts ***Reporting and managing intellectual capital***

The Danish Trade and Industry Development Council

Memorandum

May 1997

Original title: "Videnregnskaber: Rapportering og styring af videnkapital" Erhvervs
Udviklings Rådet, May 1997

Translated with support from the Danish Ministry of Business and Industry (Danish Agency
for Trade and Industry), and the Danish Ministry of Education, January 1998.

Intellectual Capital Accounts
Reporting and managing intellectual capital

Contents

Preface	4
Summary	5
1. Intellectual capital accounts and intellectual capital	8
1.1 Accounts with knowledge	9
1.2 Problem	12
1.3 Study of ten intellectual capital accounts	12
2. Main characteristics of the ten intellectual capital accounts	14
2.1 The concept of intellectual capital accounts	14
2.2 The practice of the intellectual capital accounts: Five questions concerning its purpose, structure and effects	23
3. The ten intellectual capital accounts	30
3.1 PLS Consult	30
3.2 Rambøll	33
3.3 Skandia	35
3.4 Consultus	39
3.5 Telia	42
3.6 ABB	45
3.7 Sparekassen Nordjylland (SparNord)	49
3.8 The Swedish Civil Aviation Administration (SCAA)	51
3.9 Sparbanken Sverige	55
3.10 WM Data	59
4. Models and principles of intellectual capital accounts	62
4.1 The figures	62
4.2 The assets	66
4.3 The bridge to the future	68
5. Development of theory and practice	71
Literature	74
Appendix. Working with intellectual capital accounts	77

Preface

In future, knowledge will be the pivotal factor in corporate growth and development. Companies therefore depend on being able to measure, manage and develop their knowledge and expertise.

To be able to face conditions with ever-changing markets and technologies companies must develop the capabilities and competencies necessary for adaptation and realignment with their environment. In this connection, the human resources and the company's management, strategy and organization are essential elements. Knowledge becomes the main asset of the company.

In the knowledge-based society, management and control of a company will focus on the company's knowledge resources and the use of these. This calls for an ability to measure the knowledge and expertise of a company - its intellectual capital - and the development of this.

This memorandum focuses on intellectual capital accounts as a tool to measure, manage and report corporate intellectual capital.

The intellectual capital accounts illustrate the scope of the intellectual resources and competencies of a company and the consequences of the management activities to manage and develop these. In the memorandum, a template of the contents of intellectual capital accounts is introduced together with specific proposals for key figures for measurement of the various elements constituting the intellectual capital accounts. This is done on the basis of the experiments and experiences with external intellectual capital accounts of ten Danish and Swedish companies.

The memorandum is the result of the work carried out by a task force since January 1996. The memorandum has been prepared for the Danish Trade and Industry Development Council by Professor Jan Mouritsen, the Copenhagen Business School.

The task force was composed as follows:

Henrik Jensen, specialist consultant, the Danish Agency for Development of Trade and Industry (project manager)

Professor Jan Mouritsen, Copenhagen Business School

Jens Houe Thomsen, stock analyst, Den Danske Bank

Jens Sejer Pedersen, state-authorized public accountant, Deloitte & Touche

Lars Kirkegaard, consultant, Sant+Bendix

Anja Otterstrøm, head of section, the Danish Commerce and Companies Agency

Sten Kirkegaard Rasmussen, head of section, the Danish Commerce and Companies Agency

Steffen Rebien, head of section, the Danish Patent Office

Søren Engelsted Jonassen, section manager, VækstFonden (Business Development Finance)

Annette Birch, head of section, the Danish Agency for Development of Trade and Industry.

Editing was concluded on 22 April 1997.

Summary

Knowledge is increasingly regarded as an essential growth factor. Often, it is regarded as a more important asset for stimulation of growth and competitiveness than the mere, though necessary, investments in machinery, buildings and other types of tangible assets.

Intellectual capital accounts constitute a tool to represent the intellectual capital of a company. Through these accounts, a company both internally and externally communicates its value as being highly influenced by its intellectual capital, i.e. the assets related to the employee knowledge and expertise, the customer confidence in the company and its products, the company infrastructure, not least in the form of IT systems and administrative procedures, and the efficiency of the company's business processes. Intellectual capital, also termed 'knowledge capital', helps to explain the difference between the company's market value and book value because the intellectual capital is not included in financial accounts. This applies particularly to innovative companies where the difference is more distinct than in connection with other types of companies.

The ten companies forming the basis of this memorandum all work actively to develop their intellectual capital accounts. They state the following reasons for this:

- The intellectual capital accounts can be used to support the growth of the company.
- Both internal and external attention can be drawn to the company's way of functioning. This brings the company's management system and its development over time into focus.
- The ways in which investments in intangible capital are reflected in the results of the company can be illustrated.
- The intended implementation of the central strategies of the company can be demonstrated. Since developing a vision is often a lengthy process, the intellectual capital accounts can help to illustrate how and at what rate the company will move towards its strategy.
- By publishing intellectual capital accounts, a company can prove the existence of a long-term perspective to interested parties. The intellectual capital accounts can be used to demonstrate that the long-term aspect is present in every daily action.
- Towards the employees, the intellectual capital accounts can be used to stress the importance of devoting attention to the development of human and technological resources over a long period of time.
- Disclosure of costs and assets within the area of human resources becomes possible. This is of particular importance to knowledge-intensive companies where the competence of the staff is a critical asset.

The intellectual capital accounts thus help pave the way for the company to its future. The intellectual capital accounts, so to speak, form the bridge to the future. They show the development of some of the circumstances underlying the company's future growth. Consequently, the measurements of the intellectual capital accounts are closely related with the strategy of the company. These two cannot be separated. Most of the measurements of the intellectual capital accounts are not linked in a consistent model; they tend to be put together or next to each other. Therefore, communicating how they inform about corporate strategies and future visions are imperative to the companies.

The term 'intellectual capital accounts' is not an authorized accounting term. This can be seen from the ten companies forming the basis of this memorandum. They all experiment with new reporting

models; they all change and adapt the form; and none of them feel that they have reached the goal yet. The ten companies are:

- 1 PLS Consult
- 2 Rambøll
- 3 Skandia
- 4 Consultus
- 5 Telia
- 6 ABB
- 7 Sparekassen Nordjylland (SparNord)
- 8 The Swedish Civil Aviation Administration (SCAA)
- 9 Sparbanken Sverige
- 10 WM Data

The ten intellectual capital accounts share several common features, but are different in many other ways. The measurements of the intellectual capital accounts constitute a special combination of the following resource categories:

- **Human resources.** This category covers statements about the composition, management and satisfaction of the human resources.
- **Customers.** This category covers statements about the composition, management and satisfaction of the customers.
- **Technology.** This category typically covers statements about the scope, function and application of the IT system.
- **Processes.** This category typically covers statements about the scope, equipment and efficiency of the business activities.

These four categories make up the contents of the intellectual capital accounts. Measuring and reporting on these aspects of the company can reveal the sources which will create future financial results and thus growth. In other words, the intellectual capital accounts disclose growth-creating progress factors. Results within each of the four categories will, over time, be reflected in the financial accounts of the company. In this way, they identify the growth-driving areas of the company.

The primary purpose of the ten intellectual capital accounts is not to raise new capital to the companies. They rather tend to be used to support organizational development by functioning as a communication tool aimed at presenting and maintaining the corporate strategy and vision. On this basis, the corporate management makes an effort to present the special elements of the corporate strategy which will, in the long run, lead towards a knowledge-based company capable of surviving in a society marked by constant changes as regards products, services, competition and technology and where knowledge, in consequence, is a pivotal factor of production.

Though intellectual capital accounts are not used for capital raising purposes, they are interesting to many investors. Intellectual capital accounts often deal with the non-financial elements of the corporate strategy, customers, products and knowledge-base also interesting to the capital market.

Three of the companies - ABB, Skandia and WM Data - also say that their intellectual capital accounts have aroused the interest of the capital market.

The intellectual capital accounts and the intellectual capital are concerned with the value creation of companies. They are both a statement of a company's value at a given time and form part of a bigger picture where they are used to identify the sources of the company's growth.

Chapter 1 discusses why intellectual capital accounts and intellectual capital are important. The emphasis of OECD, EU and the Danish Ministry of Business and Industry on the need to expose the intellectual capital of the companies is described. On the basis of this exposure, the companies' development of their intellectual capital must be managed, for example, through employee training. Intellectual capital must be supported and developed to ensure both the development of the nations and the viability of the companies.

Chapter 2 contains a set of general features of ten intellectual capital accounts described in a two-dimensional model. One dimension is the nature of the intellectual capital accounts which can be described through measurements of human resources, customers, technologies and processes. Another dimension is the form of the measurement which can be described as statistical information ('what it is' as regards human resources and customers etc. at a given time), through an internal key figure ('what is done' through actions by the management) or through an effect goal ('what happens' when the management's actions have an impact on the customers etc.) Both internal key figures and effect goals are proportional. The internal key figures are related to activities possibly initiated by the management of the company itself. They thus describe whether the management complies with the corporate strategy. The effect goal links the management's actions with desired results. These results are outside the immediate reach of the management. The effect key figure highlights the way in which others (e.g. customers or employees) relate to the management's actions and act on the basis of these. This chapter concentrates on defining the common constituents of the ten intellectual capital accounts. Furthermore, these are generalized in a proposal for a 'complete' intellectual capital accounts model.

Chapter 3 includes a detailed review of the ten intellectual capital accounts. On the basis of five questions posed to the ten companies, the objective, contents, impacts, organization and definitions of included information are examined. This illustrates the differences between the ten intellectual capital accounts. Some intellectual capital accounts attach specific importance to the human resources, whereas others apply a somewhat broader picture. Some intellectual capital accounts attach great importance to descriptive statistics of the scope of human and customer resources, whereas others favour a description of results in the form of satisfaction and value added.

Chapter 4 describes three types of models of the contents of the intellectual capital accounts. One basic model focuses on 'measurements and key figures' describing how to compute the figures of the intellectual capital accounts. The second basic model focuses on an identification of 'assets' illustrating the differences between the financial accounts and the intellectual capital accounts. Finally, the third basic model focuses on the 'bridge to the future' and seeks to demonstrate how intangible intellectual capital is converted into financial capital as profit, growth and equity capital over time.

Chapter 5 accounts for three possible projects which could contribute to an improvement of intellectual capital accounts models. All three projects describe how to identify the intellectual capital measurements of particular importance. One project accomplishes this by statistically

examining the types of intellectual capital measurements with closest relations to future growth and profit goals. The other project is aimed at examining the investors' ideas of which intellectual capital information is necessary to credit rate a knowledge-intensive company. The third project, which appears to be the most productive of the three, involves the conduct of a number of experiments in Danish companies aimed at concretizing the measurements of the intellectual capital accounts and establishing a suitable implementation method for intellectual capital accounts development.

Finally, the appendix includes several measures to initiate the work with the intellectual capital accounts. Examples of key figures are provided together with a selection of success criteria of the work with intellectual capital accounts. It is underlined that presentation of a company's intellectual capital is not possible if a number of key figures are not developed and if these are not related to the corporate strategy. The intellectual capital accounts are not only figures; they are also an explanation of how these figures are related to the company's way of functioning - both as regards organization and management.

Members of the accounting profession, not otherwise known for their public displays of emotion, have fretted openly about how to inform potential investors of the true worth of enterprises whose value rests in the brains of employees. They have used the term "goodwill" to signify the ambiguous zone on the corporate balance sheets between the company's tangible assets and the value of its talented people. But as intellectual capital continues to overtake physical capital as the key asset of the corporation, shareholders find themselves on shakier and shakier ground.
Reich (1992)

1. Intellectual capital accounts and intellectual capital

This chapter introduces the basis and problem of the memorandum, and it presents the analysis of intellectual capital accounts contained in the memorandum. Intellectual capital accounts are important because corporate and societal growth will increasingly be based on knowledge and other intangible assets in addition to traditional physical assets. To manage the development and application of knowledge, companies may use intellectual capital accounts, which can inform about the composition and importance of the intellectual capital to the individual company. "Intellectual capital accounts" is presently not an authorized accounting expression. Therefore, this memorandum is aimed at establishing why and how companies which actually prepare intellectual capital accounts do it. The intellectual capital accounts of ten companies are analyzed in this memorandum. They are analyzed on the basis of five general questions: Why does the company want to measure intellectual capital? How is the intellectual capital measured? What are the current or potential effects of the intellectual capital reporting? What are the problems with developing a system for measurement of intellectual capital? How does the company establish what to report to the world?

1.1 Accounts with knowledge

At the transition from the industrial society to the information and knowledge society, the corporate and societal growth basis gradually changes from tangible assets to intangible assets. The growth basis is not as much influenced by investments in physical machinery, buildings etc. as by knowledge which is a pivotal factor for productive application and exploitation of physical capital. Focus thus shifts from individual assets to bundles of assets where different types of assets co-operate on the production of value. In an information and knowledge society the main part of these assets are intangible: It is the intellectual capital - synonym of knowledge capital - embodied in the skills, knowledge and experiences of people and in organizational procedures, systems and routines.

This point is gaining recognition in society and companies. An example is OECD's report from 1996 'Measuring what People Know.' This report suggests that learning is a significant source of social and economic development in societies of today. It suggests that the public and corporate investments in the development of human capital - here especially education and training - will become a crucial engine for growth, particularly in a world marked by knowledge-intensive activities. OECD finds that we need to reconsider the way in which choices are made as regards the application and procurement of human capital due to the fundamental changes occurring within technology, value creation and employment.

Knowledge as a factor of production and "change" as a code word for modern society and modern companies are inseparable. "Change" means that society and business life must always be prepared to adapt themselves to new markets and technological conditions and to develop new organizations in support of development and learning. Knowledge is a new factor of production. Knowledge will help prepare society and organizations to handle new challenges and ever-changing conditions as regards demand and technology.

In a similar way, EU's 'Teaching and Learning' from 1996 argues that the development towards a knowledge and information society requires the establishment of better conditions for learning. This means that greater importance should be attached to education and training capable of improving the employees' qualifications in preparation of readjustment, development and growth. To render this development visible, the investments of society and organizations in education must be described and reported. Companies may begin to settle their training expenses as investments appearing explicitly on the balance sheet as assets and in the income statement as depreciation on these assets. The employees and their qualifications should be regarded as being contributory to the achievement of present results. Part of their present work should be regarded as an investment to be depreciated because the employees, as part of their work process, both handle the current production and learn for the future.

This weighting of the significance of intellectual capital is also found in the Business and Industry Report 1996 of the Danish Ministry of Business and Industry. This report describes the company of today as a flexible company with an intense focus on competence, application of technology, significant research and development work and close relations with both customers and suppliers. Such a flexible company is knowledge-intensive as its main production qualifications are ideas, problem-solving competencies and employees capable of using new technology in connection with new problems. Here, products are often developed in direct co-operation with the customer and with sub-suppliers. The flexible company is thus a knowledge-intensive company, which through management, education and technology deals with the varied customer requirements in an adapted

way. It also features a higher productivity and innovation rate than other types of companies. Knowledge thus has a financial impact. However, in order to turn knowledge to a management factor in the company, it must be measurable in one way or another. The knowledge-intensive company possesses both equity capital and employee capital (individual capital or human capital), structural capital and other intangible assets. Except for equity capital, there are no systematic statements of the value of these capital types embodied in intellectual rather than tangible assets.

This is a special problem to small and medium-sized businesses, which often feature several types of intellectual capital, but hardly any possibility to render them visible.

The report "Capital and Growth" (1996) from the Danish Trade and Industry Development Council establishes that innovative small and medium-sized companies lack capital opportunities because financial agents and other interested parties have difficulties in seeing through the future-oriented prospects of a knowledge-intensive company. It is stated that innovation projects and intangible assets often receive only little attention from investors partly due to difficulties in understanding the significance of intangible assets and partly due to lacking possibilities of providing collateral.

Still, the capital market is aware of the fact that companies are more than their financial capital and tangibles. Both ordinary and institutional investors attach great importance to the non-financial information incorporated in the annual reports of companies. "Measures that Matter" (1997) from Ernst & Young shows that the financial market (in the USA and the UK) attaches great importance to non-financial information about a company's strategy implementation, the management's trustworthiness, the strategy quality, the innovation ability of the company, the quality of the human resources, etc.

The difficulties of financial agents to see through the strengths of knowledge-intensive companies are a special problem to unquoted companies. Here, a systematic value assessment is not carried out, as there is no financial market to see to this. This is important because, apparently, the intellectual capital exceeds the tangible capital. Many quoted knowledge-intensive companies also feature a market value which by far exceeds the company's equity capital. This suggests that they have large "hidden" values.

Naturally, such economic considerations affect companies as the national economy is to a large extent embodied in companies. However, the interest in intellectual capital accounts at company level is probably different from the interest at the societal level. The societal perspective focuses on value measurement and on the production of conditions to allow companies to ease their access to knowledge and capital. The business perspective focuses on the company's own value creation. To a company, intellectual capital is important because it links the present of the company with its future. The intellectual capital accounts balance the short-term and long-term motives of the company management. By describing human resources, customers, IT and business processes the intellectual capital accounts may support the management and control of the company's assets with a view to growth and profitability.

To the companies, intellectual capital accounts and intellectual capital are not just a stock of assets. They form part of a process combining various types of intellectual capital (e.g. the value of the employees, customers and organization) with each other and with tangible assets. Seeing assets as a process has two important consequences. Firstly, assets interact. Secondly, further individual capital (e.g. through education) may result in the employees concerned being able to use machinery and equipment in new and more expedient ways. Therefore, intangible capital leverages other types of

capital. It can make other types of capital more productive and efficient by supporting and implementing the corporate strategy. The financial capital represents the book value, whereas the intellectual capital refers to the future through a presentation of the company's growth basis.

Intellectual capital must be managed in a long-term perspective. It takes a long time to develop organizational competencies because they represent experiences in combining intangible and tangible assets gained over time. Intellectual capital is thus strategic. It is developed and embodied over time. This connection between intellectual capital and corporate strategy is pivotal as knowledge-intensive companies often make their intellectual capital work through organizational procedures rootable in various places, e.g. information systems, branded goods, patents, research, just-in-time production methods, extensive co-operative relations with customers and suppliers, internal training systems, quality management systems etc. The intangible capital is tied up in organizational processes where the various types of tangible and intangible capital have "gained experience" in co-operating. This also means that intellectual capital as opposed to tangible capital increases in value when used. It is not exhausted from being used - on the contrary. It becomes stronger by being used.

All things considered, the notion of intellectual capital accounts refers to assets pivotal to the growth and development of the company. However, these assets are not weighted heavily in the formal financial accounts of the company. This is one of the messages in the literature on corporate intellectual capital. Expressions like 'core competence', 'invisible assets', 'intellectual capital', 'the intelligent enterprise', 'the knowing enterprise', 'knowledge resources' and 'capabilities' show that the competitive power of up-to-date companies is embedded in their way of handling intangible capital, first of all including the employee capital of the company. This is the overall theme of this memorandum.

1.2 Problem

Intellectual capital is important to both society and companies. However, the idea of intellectual capital is much stronger than its concrete form in the companies' statements. Intellectual capital accounts are typically published by the companies on the basis of many different models. Titles, such as "The Holistic Accounts" (Rambøll), "The Quality Accounts/The Ethical Accounts" (Sparekassen Nordjylland), "The Complete Balance Sheet" (Consultus), Navigator (Skandia), "Human resource accounts" (SCAA, ABB and Telia), are examples of ways in which companies have experimented with intellectual capital accounts. The typical development of these intellectual capital accounts has taken place as ad hoc development. This may be satisfactory to the extent that they thus reflect the special needs of the particular company. However, it may be a problem if the wish is to influence the development of a reporting practice within the area. In this case, a set of guidelines for development of intellectual capital accounts would be desirable.

Before a discussion of guidelines for development of intellectual capital accounts is possible, the experiences with intellectual capital accounts currently available must be discussed. For this purpose, five questions are posed in this memorandum:

- Why does the company want to measure intellectual capital?
- How is the intellectual capital measured?
- What are the current or potential effects of the intellectual capital reporting?
- What are the problems with developing a system for measurement of intellectual capital?
- How does the company establish what to report to the world?

These five questions are used to describe the ten intellectual capital accounts. The questions focus on current experiences gained from the work with intellectual capital accounts and their application.

1.3 Study of ten intellectual capital accounts

The study has been carried out as an interview study among ten companies working with intellectual capital accounts. The ten companies come from different industries, but are most often knowledge-intensive.

1. PLS Consult. A Danish consulting firm which has experienced considerable growth during the past few years. The company's intellectual capital accounts have been given the credit of the systematic and future-oriented management of this growth.
2. Rambøll is a Danish firm of consulting engineers which has developed intellectual capital accounts to be able to underline the versatility of the company's objective.
3. Skandia is a Swedish insurance company. The company's work with intellectual capital accounts is given some of the credit of recent years' tremendous growth.
4. Consultus is a Swedish consulting firm which uses intellectual capital accounts itself and sells intellectual capital accounts to clients.
5. Telia is a Swedish telecommunication company which uses its intellectual capital accounts to increase the corporate focus on the connection between strategy and employee development.
6. ABB is a Swedish/Swiss industrial group, which uses the work with intellectual capital accounts to bring the upgrading of employee qualifications and responsibilities into focus and to improve the co-operation with suppliers and customers.

7. Sparekassen Nordjylland is a Danish financial institution, which uses its intellectual capital accounts to create loyalty among customers, employees and owners.
8. The Swedish Civil Aviation Administration is a Swedish service enterprise, which uses its intellectual capital accounts to bring human resource accounting aspects into focus.
9. Sparbanken Sverige is a Swedish financial institution, which uses its intellectual capital accounts to strengthen the development of closer customer relations.
10. WM Data is a Swedish consulting firm within the IT industry which uses its intellectual capital accounts as one element among others in the communication with capital market, potential customers and the business press.

These ten companies are of course not representative of all companies in Scandinavia. In this memorandum, they are used as cases to identify possible methods to develop intellectual capital accounts. They are not used to measure how far Scandinavian companies are in the development of intellectual capital accounts. The purpose of the ten intellectual capital accounts examples is to illustrate companies' motives for and ideas with the work with intellectual capital accounts and to provide concrete examples of ways to structure and apply intellectual capital accounts.

The study has been carried out as an interview study. Each company has through dialogue answered, commented and discussed the five questions mentioned above. This dialogue was carried out in such a way that it could stimulate two kinds of conclusion. Firstly, it should permit a description of the individual company's way to structure and use its intellectual capital accounts. In this connection, the intellectual capital accounts should be seen in a context with the company's special strategic considerations and thus in a context with the concrete problems to be solved by the intellectual capital accounts. Secondly, the dialogue should permit a comparison of the ten intellectual capital accounts. The five questions work as items through which the ten intellectual capital accounts can be compared as regards contents and structure as well as its organization in the company.

The survey is a continuation of a project initiated by the Danish Trade and Industry Development Council in 1995. Prior to this memorandum, a preliminary study of four companies and a literature study were carried out (Mouritsen, 1996.)

Intellectual capital, which in one way or the other is the difference between the stock value and the equity capital, increased from DKK 40-50 million to DKK 1.2 billion in four years.

This is the difference between the value of a traditional company and a knowledge-based company. Information technology, boldness, management, ability to involve employees as partners are all important elements. These are the sources of value.

Lars Kolind, CEO, Oticon

2. Main characteristics of the ten intellectual capital accounts

The intellectual capital accounts of the ten companies are different; however, they share a number of common features. This chapter provides an analysis of these common features. By using the ten intellectual capital accounts as pieces in a large jigsaw puzzle, this chapter presents a generalized model of the measurements of intellectual capital accounts. This model has two dimensions: One dimension deals with the category of the measured items and the other deals with the form of the measurement. The categories comprise human resources, customers, technology and business processes. The forms comprise statistical information, internal key figures or effect key figures.

Furthermore, the main characteristics of the ten intellectual capital accounts are analyzed by means of five key questions. In this connection, it is concluded that the intellectual capital accounts are typically used to link the company with a long-term strategy to ensure the survival of the company through motivated and qualified employees capable of facing the challenges of future society.

2.1 The concept of intellectual capital accounts

Intellectual capital accounts are not a perfected concept. The ten companies all show great creativity in their continuous efforts to establish what they can be and what they must be. Still, they are all based on one basic principle, which takes its starting point in the distinction between individual capital, structural capital and financial capital.

Individual capital is the value of the competence, skills and knowledge in relation to the company possessed by individuals. Individual capital is related to the value of personal knowledge and commitment essential to companies aiming at flexibility and decentralization. Individual capital is thus the part of the company's value, which goes home at closing time every day.

Structural capital is the value of the procedures, technologies, routines and systems left in the company when the employees have gone home. Structural capital is related to the value of the company's infrastructure and the kind of knowledge which is stored in manuals, method guides, product concepts, information systems, goodwill etc.

The interaction between individual capital and structural capital enables the company to produce financial capital, which will turn into equity capital in the ordinary accounts over time. Individual capital and structural capital may be described in several ways and the limits of the definitions of the various assets are floating. The ten intellectual capital accounts do not apply the same definition of the two concepts and in most cases they do not even appear explicitly.

The ten intellectual capital accounts differ both in their measurements and in their presentation. Figure 1 illustrates a model capturing the contents of the ten intellectual capital accounts even

though none of them does everything illustrated by the figure. It shows that the measurements of the ten intellectual capital accounts can relate to “what there is”, “what is done” and “what happens.”

“What there is” is a statement of the company’s resources and is often measured by means of a visualization of the company’s composition of human resources, customers and technology. It is descriptive statistics and a measurement providing an overview of the company’s stock of intellectual capital. These are often non-financial statements describing human resources, customers, technology, processes etc. in numbers.

“What is done” indicates how the management system of the company works in connection with the development of the company’s intellectual capital. The actions of the company are measured here - often by means of non-financial concepts - as regards development and mobilization of intellectual capital. This is done by means of key figures illustrating the composition of the company’s intellectual capital. Special attention is paid to what the company does with the intangible resources in the form of human resource development, customer care, availability of access to technology and support of business process productivity.

Finally, “what happens” reveals whether the intellectual capital of the companies leads to efficient products and services requested by customers and employees. Such a measurement - which often involves financial aspects - demonstrates whether the company is able to utilize the opportunities offered by intellectual capital development and management. These results are, for example, reported through employee and customer satisfaction, IT literacy of the employees and business process efficiency, e.g. in the form of errors, waiting time or value-added. “What happens” reports whether the company’s intellectual capital is valuable.

To summarize: Statistical information is statements of “stocks” of human resources, training, customers, IT etc. Internal key figures indicate whether the management does what it has planned to do with the intellectual capital. This is entirely up to the management. The internal key figures are based on the presumption that the company’s actions will lead to growth and profitability if the corporate strategy is complied with. The internal key figures are thus based on an idea of the existence of a connection between the company’ actions and its future success. The effect goals link the company’s actions with the market’s evaluation of these. The effects cannot be determined exclusively by the management. Effects deal with the reaction of others (e.g. customers or employees) to the efforts of the management. The effect goals thus aim at measuring whether the corporate strategy is in fact appropriate on the basis of its results towards relevant parties.

Figure 1. The concept of intellectual capital accounts

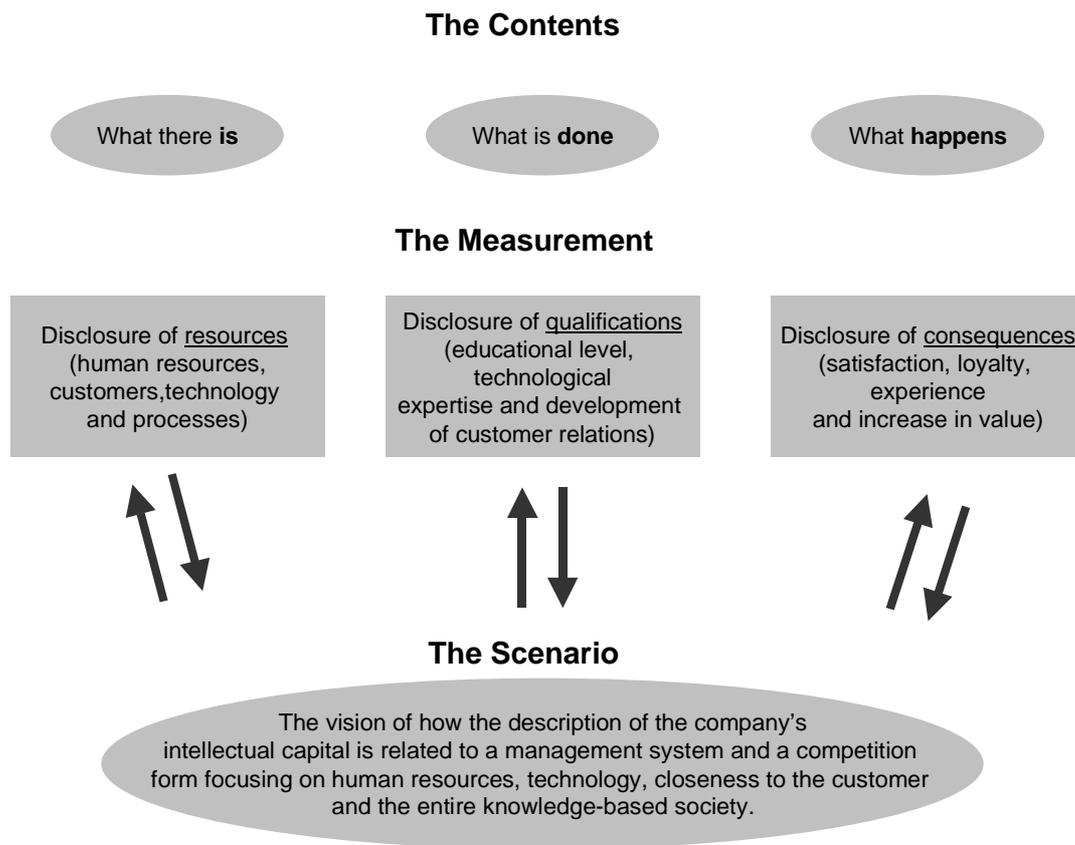


Figure 1 shows the structure of the intellectual capital accounts' measurements and it illustrates the necessity of making them meaningful through internal and external communication. The companies accomplish this by linking the intellectual capital accounts measurements with a scenario illustrating how the company must be managed and how the competition must be handled. Here, the intellectual capital accounts measurements are linked with a vision of the company competing by upgrading its human resources and developing further decentralization, by taking the new technological opportunities seriously, by getting closer to the customer and by showing how the knowledge and information society must be respected.

Intellectual capital accounts cannot stand alone. They only become important when seen in a context. This context is a vision of the management system and the competition form. In this way, the intellectual capital accounts put the "new reality" on the agenda. The "new reality" will operate through knowledge rather than through intangible assets. The inclusion of this scenario is important because the figures of the intellectual capital accounts cannot alone explain such a huge strategic perspective. This perspective is integrated with the figures in the intellectual capital accounts by means of pictures, comments and texts describing the intended interpretation of the figures in the intellectual capital accounts. The intellectual capital accounts are thus more than a statement of values. They are a tool for development of the company's competence-base. They are a management tool used to ensure strengthened self-management among the employees.

Each of the ten intellectual capital accounts incorporates some of the aspects of the following table illustrating the characteristics of intellectual capital accounts measurements. The table maintains the

division of Figure 1 of the measurement form into “what there is”, “what is done” and “what happens.” However, an overview of the categories found in the ten intellectual capital accounts is also included. A category relates to the domain or object of the measurement. The four general categories in the ten intellectual capital accounts are: Human resources, customers, technology and business processes.

**Table 1. A template of intellectual capital accounts measurements:
Examples of information from the ten intellectual capital accounts**

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	*Seniority * Education * Education costs	* Share of employees with development plan * Number of development days per employee * Education costs per employee	* Employee satisfaction * Human resource turnover * Increase in value per employee
Customers	* Distribution of turnover on markets and products * Marketing expenses	* Customers per employee * Marketing expenses per cost DKK * Administrative costs per marketing DKK	* Customer satisfaction * Repeat purchase * Customer with long-term relations
Technology	* Total IT investments * Number of internal/external IT customers	* PC’s per employee * IT expenses per employee	* IT literacy
Processes	* Costs per process * Human resource distribution by processes * Investments in R&D and infrastructure	* Lead time * Product development time * Running-in expenses for new organizational units	* Error rate * Waiting time * Quality * Reputation of the company

According to Table 1, description of intellectual capital by means of several categories and measurement forms is possible. The table only describes the intellectual capital of the ten intellectual capital accounts. Over time, the intellectual capital will be embedded in the financial capital because it will turn into profit when materialized. This profit will contribute to the growth of the company’s equity capital.

The table is used to identify the measurement areas exemplified by the ten intellectual capital accounts. It shows that the ten intellectual capital accounts deal with both category and form. As

mentioned, the category relates to the object of the measurement. Human resources, customers, technology and processes are different types of objects, which can each be measured by means of intellectual capital accounts. The category is thus important when determining what must be measured and included in the intellectual capital accounts. "Human resources" cover statements about the employees' qualifications, the management system's handling of the human resource development task and the employees' satisfaction. "Customers" cover statements about the composition of customers, the company's efforts to develop the customer relationship and customer satisfaction and loyalty (repeat business and long-term relations.) "Technology" basically covers the scope and availability of IT systems. "Processes" represent an activity-oriented expression of a number of business activities especially favoured by the company, e.g. investments in R&D, lead time, economy and productivity of administrative processes. "Processes" are also an expression of quality, error rate and waiting time towards the surroundings of the company.

The four categories are an expedient categorization of the contents of the ten intellectual capital accounts. However, they are not strictly defined and they overlap in certain areas. Processes are often involved in the other three categories. They are still expedient categories because they, to a wide extent, capture the discussions and slight differences found in the intellectual capital accounts and in the companies' discussion hereof.

The four categories signify what the intellectual capital accounts identify as essential expressions of the intellectual capital of the company. This model does not include a final evaluation of whether the four categories are relevant, consistent or expedient. At the moment, the ten companies have simply developed their intellectual capital accounts to such an extent that these four categories appear clearly. The companies are aware of the need for constant experiments within this area. They have not yet found the final representation of intellectual capital. All of these four categories should thus not be expected to survive. Some will be left out and others will be added. The ten companies have shown great creativity in the development of goals for and measurement of intellectual capital and they are thus very qualified in working with these measurements.

Unlike category, form focuses on the way in which the measurement is to be expressed. It may be statistical information ("what there is"), internal key figures ("what is done") and effect ("what happens.")

Statistical information is measurements reporting stocks of human resources, customers, technology etc. They illustrate how the company is equipped in terms of the category in question at a given moment. It is statistical information because it is not related to any other statistical information. It stands as and on its own.

Key figures are different. They represent a relation between two types of statistical information. The internal key figures indicate how the management handles the control and management of the categories of the company.

Also the effect goals are different. Even though many are key figures, they are not determined by the management alone, but always through an interaction between the management's decisions or actions and a reaction to these, e.g. in the form of market demand for the services of the company or in the form of employee satisfaction created by education programmes etc.

Table 1 illustrates several examples of measurements includable in intellectual capital accounts and in the company's development of knowledge. Knowledge management, knowledge dissemination,

knowledge development and knowledge processing are tasks which can be supported by the intellectual capital accounts. This makes the intellectual capital accounts a significant part of the organizational development of companies. None of the ten companies whose intellectual capital accounts are presented in Chapter 3 have designed their intellectual capital accounts with the specific aim of convincing potential investors of the need for contribution of funds and financing even though three of the companies - Skandia, WM Data and ABB - report positive effects in relation to the capital market. In all cases, the intellectual capital accounts constitute part of an organizational development project aimed at adjusting the employees and the organizational procedures and routines to a knowledge-intensive company. This requires an ability to make the company flexible and a will to adjust to constant changes within market, technology and knowledge.

This does not appear quite so clearly from the ten intellectual capital accounts. In general, they apply three entries for measurement of the company's intellectual capital. These entries can be combined arbitrarily in concrete intellectual capital accounts. They are:

- The human resource accounting result
- Non-financial descriptions of human resource and customer conditions
- Effects of the intellectual capital.

These three aspects do not stand out in any of the intellectual capital accounts. However, two of them occupy a very important position in several intellectual capital accounts and at least one is important in all of them.

What is a human resource accounting result? Here, focus is on the special economic dimensions of human resource management emphasizing expenses for and investments in human resources in connection with human resource development, reshuffling, readjustment and down-scaling.

Table 2. Human resource accounts

Human resource accounting result**Human resource accounting balance sheet**

Revenues		XXXX		Replacement cost of employees, beginning of period
Total staff costs		XXXX		+ Preventive activities
Absence due to sickness xxx				+ Treatment (illness etc.)
Other absence xxx				+ Education New employees during the year (employment costs)
Recruitment costs xxx				
Down-scaling costs xxx				- Depreciation
Staff education costs xxx				Replacement cost of employees, end of period
Staff social costs xxx				
Other staff costs xxx				
Holiday pay xxx				
Wages for operation xxx				
Other operating costs		XXXX		
Depreciation		XXXX		
Result after depreciation		XXXX		

The purpose of the above human resource accounts (illustrated by “The Swedish Civil Aviation Administration’s Human Resource Accounts”) is to state the financial aspects of human resource management. The human resource accounts are thus an attempt to bring the financial consequences of human resource development, readjustment, reshuffling, acquisition and turnover into focus. Such intellectual capital accounts provide answers to questions like: “Are we maintaining the educational level of the employees?” “what does recruitment of new employees cost?” “in what way does illness and absence affect the financial results of the company?” “are our investments in human assets sufficient?”

The human resource accounts deal with the way in which the costs of the company are related to human resource management. They focus on possible ways to describe the company’s knowledge on the basis of principles copied from traditional financial accounting methods. In this way, light is shed on questions concerning the direct and indirect costs of absence; recruiting costs are brought into focus; importance is attached to questions concerning the direct and indirect costs in connection with human resource down-scaling etc. The human resource area has financial consequences because of the pay received by each employee and because of the interaction between each employee and the others in the company. In case of absence, the infrastructure created around the individual becomes passive. This type of financial analysis is “passé” in the same way as traditional financial accounts: the starting point is the financial transactions of the accounts department.

What is the human resource situation and customer situation in the company? These situations are often described in non-financial terms. The terms of special interest in this connection are illustrated below.

Table 3. Examples of non-financial information about customers and employees

* Staff education	* Share of employees with appraisal interviews	* Employee satisfaction
* Seniority and age profile of staff	* Share of employees with career path	* Management evaluation
* Distribution by sex	* Average number of education days per employee	
* Customer distribution by size, industry and tasks	* Number of customers who have been offered advise	* Customer satisfaction
* Customer distribution by the duration of relations with the company	* Number of customers per employee	* Customer loyalty (repeat business)
		* Image

Table 3 illustrates various information supporting an evaluation of the expedience of the development within the customer base and the human resources. The information does not reveal whether the human resource and customer capital is good or bad. However, if analyzed over time, the information may be used to determine whether the capital is developing positively or negatively. This type of intellectual capital accounts permits questions like the following: “Are the education and experience of the employees sensible?” “is the age structure of the human resources expedient?” “are the employees and customers satisfied with the company”; “does the human resource administrative system work, e.g. as regards execution of appraisal interviews, preparation of career plans etc.?”; “is the diversification of the customer portfolio satisfactory?”

This statement of employees and customers describes the intellectual capital of the company by means of a number of non-financial measures. The formal qualifications of the employees, their seniority and experience as well as their satisfaction, commitment and motivation are in focus. The customers are depicted through their number, composition and loyalty as well as their satisfaction. Traditional financial concepts do not attach any value to such non-financial information. They refer to financial value by assuming that good qualifications and high satisfaction automatically prepare the company to handle the problems, requirements, opportunities and challenges occurring at any time. It is a preparation for the unexpected allowing the company to be strong enough to be geared for an uncertain future.

In a similar way, the customer capital is described through its composition and loyalty. The customer base is considered as an asset because it supplies the money necessary for the survival of the company. By knowing the customer base, the company furthermore demonstrates its appreciation of customer requirements and needs. Future growth thus becomes possible. Here, human capital and customer capital are not described directly in terms of financial key figures. The description of the work with employees and customers provides an insight into the company’s preparedness for the future. The translation of the non-financial statistical information and measures of satisfaction in relation to employees and customers on one hand and the company’s future financial results on the other is not described directly. It is an assumption that human capital and

customer capital described in this way provide an expedient basis of understanding the growth conditions of the company.

What are the effects of intellectual capital? This aspect deals with the efficiency of the company's administration of its intellectual capital. Here, the connection between the company's resources and its ability to create turnover, profit and profitability is described. Examples are value added (increase in value) per employee, turnover per employee or other measurements linking the individual and structural capital with the company's market development. Here, the conversion of the intellectual capital into financial capital is in focus, because embodiment of the intellectual capital in essential financial key figures must be possible over time. This type of measurements leads to questions such as the following: "Can we utilize the new skills and qualifications?" "does our competence development contribute to the establishment of competitive advantages?" etc.

The third aspect focuses on the impacts or effects of the intellectual capital. It must be possible to measure how the intellectual capital affects the general financial results of the company. In this way, importance is attached to the description of the connection between the intellectual capital on one hand and the financial capital on the other. These connections are thus more concrete than the connections seen as assessments or presumptions in the second aspect. They are concretized both as regards the applied indicators and as regards the time horizon inherent in these connections. The other aspect does not consider this. The third aspect thus describes elements of the financial value of the intellectual capital, e.g. how the company's intellectual capital contributes to corporate growth via the connection between turnover, profit and return on one hand and the development in the company's intellectual capital on the other.

These three aspects can be combined. In a specific company elements from at least two of these aspects will be present. The ways in which the three aspects can be combined are innumerable - as it appears from Chapter 3, which presents and characterizes each of the ten intellectual capital accounts. Still, there is a general structure in the way in which the three aspects can be combined. This structure - illustrated by Figure 1 and Table 1 - characterizes the management's presumptions and intentions in connection with the application of each aspect.

The ten companies in this way demonstrate that the intellectual capital accounts constitute a measure to keep the organizational development on the right track. None of them has used intellectual capital accounts for injection of new capital. Intellectual capital accounts are thus not just - or primarily - a means to gain access to new capital sources. However, the elements of a company described by its intellectual capital accounts are important to the capital market. Confirming previous studies, a recent study by Ernst & Young "Measures that Matter" (1997) reveals that the present-day capital market is indeed interested in the types of non-financial key figures reported by the intellectual capital accounts. The Ernst & Young study emphasizes the role of such non-financial key figures in improving the preciseness of the financial analysts' forecasts: Non-financial factors can be used as leading indicators of future financial performance. The Ernst & Young study mentions the following eight factors:

- The quality of the management
- The efficiency of the product development
- The strength of the market position
- The strength of the company culture
- Pay policy in connection with senior management
- The quality of communication with investors
- The quality of products and services
- Customer satisfaction.

These eight factors, which are based on American experiences, are headings of 39 more concrete goal figures. "Corporate culture" covers, for example, a number of employee-oriented indicators, e.g. "ability to attract talents", "skills of the staff", "quality of pay system", "training and education", "staff turnover." The first of these indicators is more important than the others. The eight factors also demonstrate the interest of investors in many other aspects than the purely financial aspects. This supports the concept of intellectual capital accounts as being relevant to the capital market, even though concrete intellectual capital accounts are currently not used for this purpose.

The intellectual capital accounts introduced in the following are used to support the organizational development and have - as mentioned - not been aimed at procuring capital. However, their clear support of the development of organizational procedures and routines in direct continuation of the eight factors mentioned is interesting. The idea of company development inherent in intellectual capital accounts is also inherent in non-financial key figures concerning intangible capital in demand on the capital market.

2.2 The practice of the intellectual capital accounts: Five questions concerning its purpose, structure and effects

Above, the general conclusions supported by the ten intellectual capital accounts are described. The basis of these conclusions is described in the following. The ten intellectual capital accounts will be analyzed on the basis of the five key questions of the study: Why does the company want to measure intellectual capital? How is the intellectual capital measured? What are the current or potential effects of the intellectual capital reporting? What are the problems with developing a system for measurement of intellectual capital? How does the company establish what to report to the world? Table 4 is an outline of the ten companies' answers to the five questions.

Why do the companies want intellectual capital accounts?

Table 4 illustrates the ten companies' arguments for developing and using intellectual capital accounts. The motives range from the wish to support the implementation of a specific strategy (ABB, Skandia, Sparbanken and, to a certain degree, Rambøll) via a general upgrading of the work with the companies' human resources (Telia and SCAA) to a broad idea of supporting or maintaining various parties' awareness of the company (Sparekassen Nordjylland, WM Data.)

They agree that intellectual capital accounts are not a short-term affair. Intellectual capital accounts can be used to promote and attract attention to the management basis of the company with external

and internal partners. The external part is perhaps self-explanatory. The intellectual capital accounts help create visibility in a society where thoughts of knowledge, innovation and change are key words to its financial survival compared with societies where the importance of cost advantages in the companies' production processes is more evident. The internal part is, however, more interesting because the publication of the intellectual capital accounts is also directed towards the employees signifying that the management takes certain things seriously and wants to make them part of corporate life - also in the long run.

The reason for the intellectual capital accounts not only measuring the company's intellectual capital is found here. The intellectual capital accounts develop the intellectual capital of the company because they show the path, which the company can follow to create competencies. The intellectual capital accounts bridge the present and the past. They are based on the idea of people and processes being the main source of progress. Intellectual capital accounts contribute to the compliance with the strategy of valuing the intellectual capital. In this way, a certain consistency is maintained in the organizational development of the company.

How does the company measure intellectual capital?

As already mentioned, it is difficult to measure the exact connections between present actions, e.g. in the form of human resource development and future growth in turnover and profitability. There is a theoretical black box of connections that merely have to be believed even though some companies (especially Sparbanken) can demonstrate a statistical connection where the most profitable affiliates have the largest human capital (employee satisfaction) and market capital (customer capital.) Other companies have similar explanations; they have, however, not made statistical estimations of the connections.

It may still be relevant to talk about a black box because most companies assume that education and training will lead to qualifications which will - via on-the-job training - make the company more profitable over time than it is at the moment. This assumption finds wide acceptance, but none of the companies has been able to establish a formal model depicting the long-term connection between education and growth.

The companies still believe in this connection. A large part of the intellectual capital accounts is dedicated to illustrating this by commenting on the numerical information provided on the basis of the corporate strategy. Here the figures are disclosed and a description of the strategy or scenario rendering the measures of the company relevant is made. This disclosure may be explicit, as is the case with Skandia, which uses a lot of text and pictures to illustrate that the company is on its way towards the information society. The Swedish Civil Aviation Administration (SCAA) suggests that competence is tomorrow's competitive factor. Sparbanken points out the importance of preparing the staff to work in a customer-controlled society. Telia clearly defines the development of the company's intellectual capital as a means to ensure that the employees make themselves so qualified that they can follow the company into a new type of society. Similarly, PLS Consult is aware of the composition of the human resources being the key to the future. The strategy involving a crucial part for the individual employee in the company's future also prevails here.

In this way, the figures do not stand alone. They are combined with a vision of both the company's future and its drive with the employees as a major factor of growth if they are prepared to accept the challenges. Understanding the figures outside their explicit connection with the strategy rendering

them relevance is not possible. They do not provide a direct measure of the strategy because they do not apply a consistent model to explain and document the embodiment of the strategy.

Table 4a. Summary of the ten intellectual capital accounts

	PLS Consult	Rambøll	Skandia	Consultus	Telia
Why?	Intellectual capital accounts must support the development and maintenance of the company's competence by focusing on the employees' profiles.	Intellectual capital accounts contribute to the realization of the company's human resource philosophy emphasizing the commitment and satisfaction of the employees.	Intellectual capital accounts must help the company's competences to focus so that the future conditions for increase in value are fulfilled through decentralized creativity.	Intellectual capital accounts are used to support the company's strategic process by developing the customer and product basis of the company's future.	Intellectual capital accounts must contribute to obtain motivated and competent employees in relation to a future with high demands for flexibility.
Goals?	Intellectual capital accounts upgrade goals concerning human resource profile as regards age and qualifications.	Intellectual capital accounts are a comprehensive reporting of measures related to employees, production and effects via a Total Quality Model.	The spectrum of intellectual capital accounts is very wide. However, the financial consequences of technological expertise are in focus.	Intellectual capital accounts put special focus on a description of employee and customer profiles.	Intellectual capital accounts contain a detailed report on the composition of employees and a statement of human resources.
Effects?	Attention must be paid to the company's long-term strategy as regards competence development.	The company culture is embedded with managers and employees.	Performance and attention to the company mission have boosted.	A systematic strategy as regards the customer portfolio is implemented.	The employees are conscious of making themselves "employable" in a company in constant change.
Organization?	Intellectual capital accounts are organized via senior management.	Intellectual capital accounts are organized via the HR department.	Intellectual capital accounts are organized via the financial department.	Intellectual capital accounts are organized via senior management.	Intellectual capital accounts are organized via the HR department.
What information will (not) be published?	Measurable and auditable elements must be measured. Elements without immediate relevance must be excluded.	Confidential information or information of strategic interest to competitors must not be published.	Information explaining the company's way of working must be published. Information with direct relevance to competitors must be omitted.	Information of direct strategic interest to competitors must not be published.	Potential partners and employees must be informed about the company, but information relevant to competitors must not be published.

Table 4b. Summary of the ten intellectual capital accounts

	ABB	Sparekassen Nordjylland	SCAA	Sparbanken	VM Data
Why?	Intellectual capital accounts are used to implement a strategy aimed at reducing the general time consumption in the company.	Intellectual capital accounts are used to create customer loyalty by ensuring the fulfilment of the needs of external and internal partners.	Intellectual capital accounts must help create motivated and competent employees.	Intellectual capital accounts must make the company more customer-oriented by making the employees more focused on customers and market.	Intellectual capital accounts must enable the communication of a company's value-creating resources.
Goals?	Intellectual capital accounts focus on employee satisfaction, HR management and time.	Intellectual capital accounts focus on the employees', customers' and shareholders' opinion of the company.	Intellectual capital accounts focus on the composition and economy of the human resources.	Intellectual capital accounts focus on employee and customer satisfaction as well as on education and ecology.	Intellectual capital accounts focus on a few statements of the employee profile and the turnover composition.
Effects?	Productivity and motivation have boosted.	Internal and external partners see the company in a long-term perspective.	An identity creating a strong link between the employees and the interests of the company is created.	Preparedness for change must be created with the employees recognizing the need for a higher degree of market-orientation.	The interest of the financial market, the business press and to a certain degree potential customers is aroused. Some key figures are used internally to highlight the HR age, seniority and education.
Organization?	Intellectual capital accounts are organized via senior management.	Intellectual capital accounts are organized via the innovation department.	Intellectual capital accounts are organized via the HR department.	Intellectual capital accounts are organized via a central department.	Intellectual capital accounts are organized via extracts from the pay system.
What information will (not) be published?	Information centering the employee must be stated.	The concrete strategy of the company must not be disclosed. The company's ambitions as regards its role in society must be stated.	Information referable to individuals must be omitted.	The concrete basis of the company's competitiveness must not be disclosed. The company's ambitions within certain areas must be disclosed.	The reporting must be interesting to the capital market and potential customers.

Increased human resource involvement, increased customer satisfaction, increased focus on competence development and increased insight into the company's processes must be believed to establish the conditions for the competitiveness of the company and for future society.

What are the current or potential effects of the intellectual capital accounts?

Most of the companies' experiences with intellectual capital accounts relate to the way in which they have been able to embed the corporate strategies and visions as regards management and competition with the employees, suppliers, customers and other partners. The companies' work with intellectual capital accounts has entailed that the intellectual capital is used and developed through embedding in the processes, employees, customers, innovation etc. of the company.

Moreover, some companies (e.g. Skandia and PLS Consult) mention several concrete effects in connection with the handling and support of growth. This is, for example, possible because the development of the company's intellectual capital has enabled it to develop procedures transferable to other units within the company. In this way, knowledge is distributed and transfer of good examples of routines and procedures to other places in the company becomes possible. Skandia has succeeded in reducing the administration time necessary to incorporate a newly acquired subsidiary into the entire group by 60%-70%.

Finally, other companies have in general been able to maintain the communication with a wide selection of partners. Through its ethical accounts and their continuation into the quality accounts, Sparekassen Nordjylland has improved its goodwill values and reputation in the local community. The intellectual capital accounts of Sparekassen Nordjylland contain satisfaction goals both for employees, customers, owners and non-customers.

None of the ten companies has aimed at procuring capital on the basis of the intellectual capital. They have all aimed at increasing the value of the company. The notion of knowledge within intellectual capital accounts is dynamic (see Figure 2.)

Figure 2. The intellectual capital accounts as value creator

Publication of intellectual capital accounts	Employees and other partners discover the seriousness of the corporate strategy	The company's value increases	Capital becomes interested
----------------------------------------------	---------------------------------------------------------------------------------	-------------------------------	----------------------------

This figure illustrates the long-term character of the value of intellectual capital accounts. It also reveals that the primary purpose is not to describe the intellectual capital, but to develop it. Therefore, intellectual capital accounts constitute part of a long-term process where the company's value is developed rather than described. None of the interviewed companies claims to be able to see the connection between the development of stock value and the publication of intellectual capital accounts in the short term. However, this does not reflect disinterest from the capital market. Currently, the capital market may not be able to fully understand how to use the information in the intellectual capital accounts to assess cash flow. Even so, stock analysts are often interested in learning more about the company through the intellectual capital accounts.

The suitability of intellectual capital accounts to report value is not questioned, even though it is a long-term form rather than a short-term form. In some cases, a close connection between the intellectual capital accounts and the financial result can be documented. As mentioned, this connection has been statistically documented in Sparbanken. Other companies find that improved employee, customer; technology and process relations will sooner or later lead to concrete financial

results. ABB has been able to increase the turnover per employee from approx. SEK 65000 to approx. SEK 150000. The growth in revenues of Skandia has also been significant. The company's employees are an important group of readers. The employees are extremely interested and discuss the intellectual capital accounts in details. Through the intellectual capital accounts, the companies publish their vision of the future, which then appears as very important objectives for the implementation of management. The publication signals seriousness in connection with "soft", but basic objectives for and visions of the organization of the company's entire management function. This is important because the employees have a central role to play here.

This may be the reason why the companies see a possibility of using the intellectual capital accounts to recruit employees and maintain customers. With "political" customers the company must define and live with strategies within "political" areas, such as environment (e.g. Sparbanken) and general goodwill values (e.g. Sparekassen Nordjylland.) Through the publication of intellectual capital accounts, the company increases its value because it will be in a position to develop its income basis and attract extraordinarily qualified employees - provided that the intellectual capital accounts work. It is thus a question of developing the company's knowledge and value rather than reporting the company's knowledge and value.

What are the problems with developing a system for measurement of intellectual capital?

Intellectual capital accounts must enjoy the attention of the senior management. As in connection with other major management tools, the success of intellectual capital accounts depends on the interest of the senior management. In some of the small companies the senior manager is in charge of the preparation of the intellectual capital accounts from a model generally based on information from the existing human resource management system (e.g. PLS Consult and to a certain extent Consultus and the far bigger WM Data.)

In other companies, the work with the intellectual capital accounts is organized through a staff function. In some companies, the human resource function is heading the work (e.g. Telia, SCAA and Rambøll.) In others, it is headed by the finance function (e.g. Skandia.) The organization of the work with intellectual capital accounts differs from company to company. The companies where the human resource function is the initiator may tend to base their intellectual capital accounts on a description of the scope and quality of the human resources and thus focus on "what there is." Companies where the finance function is involved may attach more importance to the effects of the intellectual capital and its efficiency and thus focus on "what happens."

There is also a difference in the energy vested in the work with the intellectual capital accounts. Some companies take their primary starting point in the information otherwise created during the company's day-to-day operations (e.g. PLS Consult, Consultus and Rambøll.) Here the intellectual capital accounts do not constitute a practical problem because they seek to avoid an increase in the administrative burden of collecting information. This may lead to difficulties with the collection of consistent information over time because they do not collect the same kind of information every year, e.g. information about customer satisfaction. However, this is not very important to these companies because the typical problems supported by the intellectual capital accounts are strategic and thus long-term.

In other companies, the intellectual capital accounts are linked with a significant development of the company's reporting capacity (e.g. Telia, SCAA and Sparbanken.) They develop entirely new

reporting forms either in the form of human resource accounting results or in the form of systematic and continuous measurements of human resource capital and customer capital. Here importance is attached to the establishment of new reporting methods to support decisions concerning the company's development of customer relations, e.g. by educating the employees.

In yet other companies, the intellectual capital accounts also constitute a special dramatic piece of communication used as entertainment technology to reach a wide audience with the company's message of the importance of its intellectual capital (Skandia and ABB.) They also focus on the innovative development of key figures and methods of description as regards the intellectual capital. They aim at communicating with the surroundings via CD ROM's, video, books, articles and articles in scientific magazines. The communication with the employees and other interested parties is very systematic in these companies.

The above categorization of the companies should not be taken too far. To all the companies, the generation of figures is important. Showing their connection with the corporate strategy and visions as regards management and competitiveness is also important. However, the communication generally differs from company to company.

The ten companies do not anticipate that they will soon be in a situation where they are forced to find permanent standards describing their development. According to all of the companies, experiments and continuous development are necessary, as the final form has not yet been reached. This may imply difficulties in finding time series consistently describing the intellectual capital over time. Obtaining data for comparison of various companies is thus not easy - not even within one industry.

How does the company establish what to report to the world?

The typical intellectual capital accounts are used to illustrate the importance of intangible assets to the company. In each their way, the companies describe their company in images, which are often difficult to express in the financial accounts. According to the main conclusion, everything establishing links with important interested parties, i.e. employees, potential employees, customers or the general public must be reported. The main conclusion in connection with elements not to be reported in intellectual capital accounts is to avoid reporting anything with direct relevance to competitors. However, intellectual capital accounts are probably indirectly relevant to the competitors of the company. They reveal details of the company's resources and the management policies ruling the present or future organization of the company.

Defining what to include in intellectual capital accounts is thus not difficult: Everything immediately useful to a competitor must be excluded. Intellectual capital accounts should be used to describe the company's general idea of management and general challenges in tomorrow's information and knowledge society. The intellectual capital accounts are thus directed towards the interest of the company in a specific management form attaching great importance to decentralization and employee involvement and motivation. The key to the future is believed to be the company's intangible capital often organized around the employees' application of different types of technology requiring thoughtfulness and adaptability. The point here is that everything reported must demonstrate the company's intention to be a state-of-the-art company in need of employees with personal, professional and social qualifications.

The important features of invisible assets - they are unattainable with money alone, are time-consuming to develop, are capable of multiple simultaneous use, and yield multiple, simultaneous benefits - make it crucial to develop strategies for accumulating them.
Itami & Roehl (1987)

3. The ten intellectual capital accounts

In this chapter, the ten intellectual capital accounts are reviewed separately. They are not presented in a particular order, as they are each considered unique with their own right. This chapter focuses on the special organizational conditions influencing the appearance and application possibilities of the intellectual capital accounts. This description of the ten intellectual capital accounts thus concentrates on differences and special properties. The chapter is structured around the ten companies each described through the five questions of the survey: Why does the company want to measure intellectual capital? How is the intellectual capital measured? What are the current or potential effects of the intellectual capital reporting? What are the problems with developing a system for measurement of intellectual capital? How does the company establish what to report to the world?

In this description, the ten intellectual capital accounts are presented on the basis of the special tasks they are going to solve. It is thus a description of ways to work with intellectual capital accounts under various organizational conditions.

PLS Consult has chosen Søren Kierkegaard in their logo because Kierkegaard represents the thinking man reflecting on things before acting.

3.1 PLS Consult

PLS Consult is a Danish consulting firm, which has worked with intellectual capital since the early 1980s. They are motivated by a strategy to supply customized solutions to their clients and a desire to avoid fossilized solutions of the clients' problems. This, of course, requires innovation and competence development.

Why does the company want to measure intellectual capital?

In PLS Consult, intellectual capital is measured to support and maintain a strategy concerning the composition of the staff as regards seniority, professional qualifications and age. Through the description of this staff profile, measuring, discussion and adjustment become possible.

This is especially important in PLS Consult which as a consulting firm lives by the employees' expertise. The management is, for example, not expected to be able to see through all the professional problems, which the employees can see through and solve. This makes the ability to decentralize competence and responsibility crucial, but also very difficult to carry out. When the

employees “know more” than the management, it may be difficult to concretize the competence and responsibility suitable for delegation. The intellectual capital accounts may contribute to the creation of objectives sufficiently concrete to establish a common understanding of the direction of the company. In this common understanding, directions for the company’s way of working are laid down. These directions may to a certain degree replace the detailed delegation of competence and responsibility because the employees intuitively see the direction in which the company is developing.

How is the intellectual capital measured?

In PLS Consult, the intellectual capital accounts concentrate on objective statistical information about the education, age and experience of the human resources. As illustrated by the below table of the contents of PLS Consult’s intellectual capital accounts, information about the company’s infrastructure and customers are also incorporated. However, the human resource-related information receives high priority in this company because it may be used as a direct element when discussing the corporate strategy.

Table 5. PLS’s intellectual capital key figures

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	* Number of consultants * Number of other employees * Education and seniority of consultants * Education costs	* Employee turnover ratio	* Increase in value per employee
Customers	* (Relative) turnover per customer category * Growth in turnover per customer category * Large accounts’ share of turnover		
Technology	* IT investments * IT operating costs	* IT costs in % of turnover	
Processes	* R&D costs		

The intellectual capital accounts of PLS Consult concentrate on a description of “what there is.” They focus on statistical information about customers, human resources and IT. The information is concise and provides an overview of the intellectual capital.

The intellectual capital accounts are important to PLS Consult because they enable the company to control adherence to adopted strategies. The intellectual capital accounts are one of the means used to remind one another of the prioritization of the corporate human resource strategy. In this way, the intellectual capital accounts constantly remind the company of their actual strategies. As mentioned, the concrete measurements focus on statistical information about customers and employees. The connection with strategy is not clearly defined because the company has not defined the human resource composition expedient at a given moment. However, the intellectual capital accounts help initiate and support a discussion of whether a unit is “getting too old” etc.

What are the current or potential effects of the intellectual capital reporting?

PLS Consult operates with two types of effects. One effect is external and demonstrates the successful attraction of attention to the company: The company has established contacts with new customers who might be interested in preparing some kind of intellectual capital accounts.

The other effect is internal. Here, the intellectual capital accounts are used to focus and maintain strategy discussions about the nature of the company's intellectual capital. The intellectual capital accounts are used to put pressure on the various levels of management by determining whether the objectives adopted within the human resource area as regards seniority, education profile etc. are fulfilled. This is related to the human resource structure.

Publication is very important because it sharpens the seriousness in the company's strategy work. The internal importance of the intellectual capital accounts is sharpened through the publication. The external effects for PLS Consult count the attention attracted to the company in general and the attraction of several new customers.

According to PLS Consult, it would have been difficult to guide the company safely through the past five or six years of intense growth with twofold turnover increase every second year without some kind of intellectual capital accounts. Without the intellectual capital accounts it would not have been possible to provide a precise explanation of the objectives - especially as regards human resource profiles on the basis of educational background, experience and seniority - to enable delegation of competence and responsibility for the development of the company relying on the local managers knowing enough about the company's situation and objectives to act on their own.

What are the problems with developing a system for measurement of intellectual capital?

Measuring information is not difficult. The information is found in ordinary administrative systems and is just retrieved from these systems. This is due to the focus on statistical information.

The main hurdle is the application, which does not develop automatically. New energy must be vested in the application of the intellectual capital accounts. The management illustrating -often with humour - the differences in employee profiles (education and experience) among the various fields of responsibility will accomplish this.

In PLS Consult, the intellectual capital accounts began as a "leisure time project" where the nature of running a knowledge-based company was discussed during a period of several years. The project enjoyed the participation of Karl Erik Sveiby, one of the key figures in the Swedish debate on intellectual capital accounts in service companies.

How does the company establish what to report to the world?

Information revealing the strategy of the company is not reported. Information about customers and market is omitted. Moreover, only measurable information that can be audited should be reported.

All employees must work as independently as possible, have development opportunities making the company buzz with ideas, and have all the competence they can possibly handle. At the same time, the employees must support each other - professionally and personally. Confidence and openness between individuals, departments, sectors, districts and subsidiaries should characterize the RAMBØLL family. Both internally and externally, the sounding of a unique humanistic and creative tone will be fortunate for the company.

3.2 Rambøll

Rambøll is a Danish firm of consulting engineers which has had written ethical rules for several years. In the early 1990s, Rambøll started working on intellectual capital accounts with “The Holistic Accounts.”

Why does the company want to measure intellectual capital?

Rambøll prepares intellectual capital accounts because they want to look at other aspects than the financial aspects, which tend to take up most of the time. For some time, the company has had a publication - the Rambøll Philosophy - representing some of the virtues, which the company wants to uphold. The general management trend to structure everything (e.g. Ethical Accounts) has spurred Rambøll to measure the fulfilment of the Rambøll Philosophy. It is also a method to convince internal managers of the existence of many other factors than the financial factor in the management of a company.

How is the intellectual capital measured?

Rambøll applies an adapted version of the TQM (Total Quality Management) model which provides a systematic description of the process from strategy, via employees and customers to effects. Rambøll’s Holistic Accounts concentrate on the following types of information:

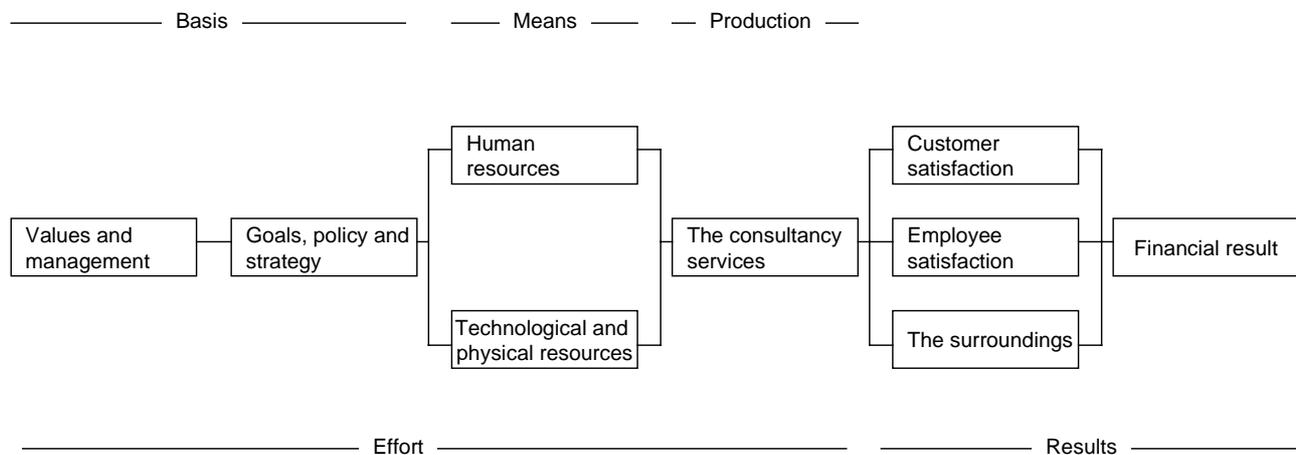
Table 6. Rambøll’s intellectual capital key figures: The Holistic Accounts

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	* Number of employees * Distribution by sex	* Management development * Supplementary training	* Management evaluation * Ability to co-operate * Employee satisfaction * Employee well-being * Management evaluation of social accounts
Customers	* Sector and market turnover		* Customer satisfaction
Technology	* IT investments	* Implementation ratio of quality management system	
Processes	* Expertise development costs		

The intellectual capital accounts of Rambøll focus on “what is done” and on “what happens.” Many of the measurements are questions concerning the satisfaction of the employees and - to a lesser extent - the customers. Rambøll’s accounts include many other measuring points because they have taken a systematic starting point in a version of the general TQM model. This model is a systematic

model explaining how financial results are a function of satisfaction, work situation, resources and the company's goals, values and management. Rambøll's version of this model is illustrated below.

Figure 3. Rambøll's Holistic Accounts



By using this model, Rambøll achieves a structured processing of measurements to be used in the intellectual capital accounts. Each box is used to formulate the measurements to be reported in the intellectual capital accounts. The model is a demonstration of the connections between the intellectual capital and the company's financial capital. The financial result is here an effect of satisfaction, which is a result of the way in which the Rambøll Philosophy is fulfilled. The model should be read from left to right. From the management basis, requirements regarding human resources and technological resources are formulated. These resources are converted to work and thus the product of the company which are consultancy services. This work produces contributions to customers, employees and the surroundings which are important results as such. They also help to keep customers and employees (if the results are positive) in order to create a profit for the company. It is a systematic model concretely expressing the connections between intellectual capital and financial capital.

What are the current or potential effects of the intellectual capital reporting?

First of all, the reporting enables the company to put staff political issues on the agenda. The intellectual capital accounts can demonstrate the company's seriousness in connection with the Rambøll Philosophy. To the employees, the external publication reveals the presence of this seriousness. Thanks to the intellectual capital accounts, middle managers begin to see the importance of the human resource strategy in relation to the total corporate strategy.

Furthermore, the intellectual capital accounts also improve the internal communication between senior management and middle management. To the employees, this communication helps to define the way in which the work with the Rambøll Philosophy is prioritized. In this way, the intellectual capital accounts help develop the identity of the organization.

Finally, they attract attention from customers, media etc. Their importance to PR should not be underestimated.

What are the problems with developing a system for measurement of intellectual capital?

Rambøll has learnt that the ambition with the very information basis should not be exaggerated. Already generated information should be used and the intellectual capital accounts should not be turned into a cost-consuming exercise. On the contrary, some of the resources should be spent on the development of the model of the intellectual capital accounts structure.

Measurements not used for anything else are thus not developed. Customer satisfaction is, for example, recorded during the company's other customer surveys arranged by analysis institutes. The measurements in Rambøll's intellectual capital accounts are thus connected in a structure, but they are not necessarily measured every time. A systematic continuity in the intellectual capital accounts should therefore not be expected. The system may have been large considering its basis (Figure 3.) However, it is not because Rambøll aims at reusing data already available and collected. In Rambøll, the intellectual capital accounts are prepared by a task force appointed and supported by the senior management.

How does the company establish what to report to the world?

Information which is confidential or of strategic interest to the company's competitors is not reported.

A company is like a tree. A part of it is visible - the fruit - and a part is hidden - the roots. If you only concentrate on the fruit and ignore the roots, the tree will die. A tree can only grow and continue to produce if the roots receive nourishment.

3.3 Skandia

Skandia is a Swedish insurance group which has become renowned internationally for its work with intellectual capital. Currently, Skandia is in wide circles considered the most advanced example of how to work successfully with intellectual capital accounts.

Why does the company want to measure intellectual capital?

Skandia believes that intellectual capital is important because balance, perspective and unity are necessary elements as regards the company's chances to support the value creation of tomorrow. The aim is to be able to manage the company's direction towards the future and make the relations and assets creating growth visible. This direction is typically embedded in intellectual capital through the composition of measurements describing the interaction between the company's financial capital, customers, processes and development. The interaction is mobilized by means of the employees.

Besides, the work with the intellectual capital accounts is important because it stimulates the decentralized development of an idea of the need for constant development and attention towards change.

How is the intellectual capital measured?

The key concepts of Skandia’s intellectual capital are: Product names/branded products, customers, distribution, competitors, management systems, IT systems, core competence, key persons, partners etc. In Skandia, these have been gathered in a general model of measurement called Navigator. It explains differences between “yesterday” (financial focus), “today” (customer focus, process focus, human resource focus) and “tomorrow” (innovation focus.)

The following table provides an outline of the main elements of Navigator’s measurements. It is a comprehensive reporting from 50 different subsidiaries. Therefore, all aspects of the reporting are not contained in Table 7 which thus illustrates rather than documents Skandia’s reporting practice.

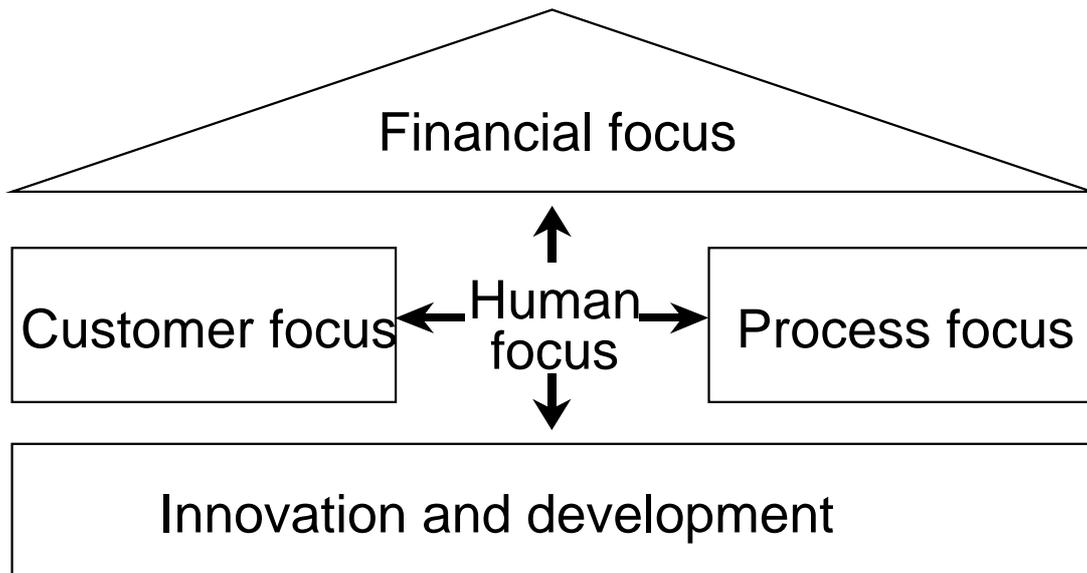
Table 7. Skandia’s intellectual capital key figures: Skandia Navigator

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources		* Management index * Motivation index * Empowerment index	* Employee satisfaction * Turnover per employee
Customers	* Number of customers * Number of contacts	* Agreements per employee * Marketing costs per customer * Marketing costs per turnover DKK	* Market share * Rate of lost customers * Rate of continues policies * Customer satisfaction * Telephone availability
Technology	* IT capacity * Number of internal IT customers * Number of external IT customers	* PC’s per employee * Portable PC’s per employee	* IT skills
Processes		* Administrative costs per asset DKK * Administrative costs per turnover DKK * Funds assets per employee * Bad costs per turnover DKK * Development costs per employee * R&D costs per administrative cost * IT costs per administrative cost	* Process time * Error rate

These key figures focus on several things. However, many of the measurements deal with “what is done” and “what happens”, i.e. they focus on the actions and effects created by Skandia’s work with intellectual capital. A large part of Skandia’s information is financial as the company has attached importance to the description of the way in which technology, education etc. affect turnover and resources. The measurements reflect the changes in the company’s finance structure caused by the development of knowledge.

Skandia’s Navigator is a large system combining non-financial factors with financial aspects accompanied by substantial analysis and interpretation. The structure of the system is illustrated in Figure 4.

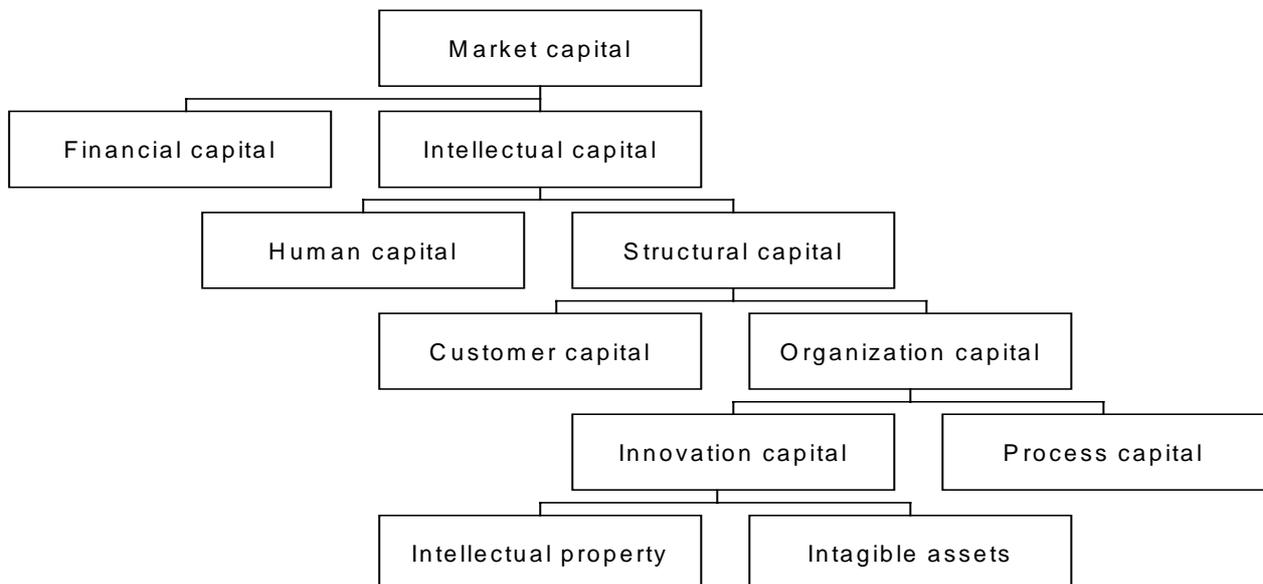
Figure 4. Skandia’s intellectual capital key figures: Skandia Navigator



The basis of Skandia’s reporting is the human focus as the motive power behind the development of customer, process and development capital. The financial results are generated through the influence of the human capital on customer, process and development capital. An outline of Skandia’s total model of capital forms is provided in Figure 5.

Figure 5 illustrates the possibility of distinguishing between several types of capital integrated in relation to the market value of the company. This model illustrates the problem with intellectual capital management. Skandia has not developed actual measurements of all these capital forms, but it is possible, in principle. It is somewhat more difficult to do consistently as the value of the different capital forms depend on each other. Therefore, specifying the contribution of the individual capital to the market value becomes more difficult the more detailed and specific it becomes.

Figure 5. Skandia’s capital



In this way, Skandia has developed a comprehensive template of the company's various types of capital. Furthermore, the company spends a lot of resources explaining - through writing and pictures - why these types of capital are important. Most of Skandia's reporting is a description of the philosophy in the work with intellectual capital. Basically, the point is to make the company capable of participating in the knowledge and information society. The development of the company's resources determines whether the company will be able to navigate successfully through future challenges. Developing the capacity to support change is emphasized. The need for this is expressed in the text accompanying the figures where the scenario of Skandia's strategy and visions are presented systematically and powerfully. The management is fully aware of the problem that Skandia's intellectual capital accounts do not actually measure the company's intellectual capital. They focus on the development of the company's value rather than on the mere statement of the amount of the intellectual capital. For example, Skandia's annual report on intellectual capital puts emphasis on examples of the company's improvement work through the implementation of new, more effective processes.

The figures are stated as relevant examples and as part of a development process. They do not represent a narrow statement of value. They signify a development process further described by means of examples illustrating the very improvement. The figures may thus be important, but it is crucial to recognize that separating the reporting of the figures from their relation to the corporate strategy and visions is not possible. The figures are used to describe a scenario of the direction of the company and the way in which each employee can develop in this context.

What are the current or potential effects of the intellectual capital reporting?

There are two main types of effects. One is the capital market's improved understanding of the company. Even though it is difficult to be specific about the significance of the intellectual capital accounts, they have made it easier to describe the future of the company. This has a positive effect on the market price.

The other is the possibility of reusing knowledge by developing the company's structural capital (e.g. by finding new types of business procedures.) Transfer of experiences, e.g. as regards administrative aspects of acquisitions, from one business unit to another thus becomes possible. The time necessary to update an acquired business with the administrative routines and reporting methods of the Skandia group has been reduced by 60-70%.

What are the problems with developing a system for measurement of intellectual capital?

According to Skandia, the main problem is to eliminate the recognition of intellectual capital accounts as being too "soft." The company needs one or more missionaries to convince the employees of the future market conditions. It is crucial to "make waves" that affect the management of the companies. It is crucial to convince the employees of their responsibility for being able to "do business."

A lot of the information - probably most of it - is not new, although within several fields, new goals must be established, e.g. as regards the application of IT. According to Skandia, NAVIGATOR can combine these and ensure unity, balance and perspective. Also, the language of finances is important as it contains a certain degree of consistency. The new notions of Total Quality Management, Business Process Reengineering etc. do not possess this kind of consistency.

How does the company establish what to report to the world?

Skandia reports as much information which is necessary to explain what the company is doing. They explain the logic in the company's way of working and illustrate it by means of figures, examples, pictures, charts and other Entertainment Technology stimulating people to sit down and try to understand the development forces of the company.

Intellectual capital accounts are still experimental and should therefore not be subjected to strict regulation. The market will no doubt punish anyone cheating on the weight.

Confidential information or information decisive to the competitiveness should not be published. This is reserved for internal discussions.

The future begins with what you did yesterday, what you do today and plan for tomorrow ... A company can only develop through the development of its human resources ... The key to the future is to develop new work methods, not to continue along the same track, and to support the human resources in their work to develop society.

3.4 Consultus

Consultus is a Swedish consulting firm which has been working with intellectual capital for several Swedish companies since the 1980s. Consultus aims at identifying the criteria of success creating larger growth in some companies with the same financial basis as others without the same growth. To Consultus, intellectual capital accounts thus not only represent part of the company's reporting. They are also an important product.

Why does the company want to measure intellectual capital?

According to Consultus, intellectual capital can be used to help predict the future situation of the company. It describes the basis of the company's future. The purpose of publishing intellectual capital accounts for Consultus is to describe their employees and their customers. In this way, Consultus' intellectual capital accounts work as a tool to make several competence elements visible to current and potential customers. This will in the end increase the value of the company.

How is the intellectual capital measured?

Intellectual capital accounts consist of various types of intangible capital. The published part of Consultus' intellectual capital accounts can be characterized in the following way:

Table 8. Consultus’ intellectual capital key figures: The Complete Balance Sheet

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	* Consultants’ age distribution * Consultants’ seniority		* Value-added per consultant
Customers	* Number of customers * Turnover distributed on types of tasks * Turnover from ten largest customers * Number of customers outside Sweden		* Number of customers with long-term relations
Technology			
Processes			

This set of key figures focuses on the description of “what there is” as regards the company’s human resources and customers. Consultus does not report “The Complete Balance Sheet” in its entirety to the world. They report a limited number of indicators concerning the consultants’ profile and the composition of the customers.

The principle behind “The Complete Balance Sheet” is illustrated below. It deals with the way in which the company’s structural, human, customer and social capital (the “soft” factors making the company more worth than its equity capital) can be incorporated into the balance sheet. It is a liability which signifies the way in which something is owed to the company and which together with customer/user capital, human capital and social capital must be equivalent to goodwill on the asset side of the accounts.

Figure 6. Consultus’ illustration of the structure of intellectual capital

Book-keeping assets	Debt capital
	Net capital = financial capital
Goodwill or badwill	Customer /user capital
	Human capital
	Structural capital
	Social capital

“The Complete Balance Sheet” restructures the balance sheet of the company by emphasizing the assets which are related to the intangible goodwill or ‘badwill’. Customer capital is typically related to the customers’ satisfaction; human capital is the qualitative part of the company’s internal efficiency (typically employee satisfaction); structural capital is the quantitative part of the internal efficiency (e.g. the internal production systems); social capital is the environmental aspect and the aspect of public utility. Consultus does not report all these types of capital. The capital types reported (i.e. human and customer capital) are described by means of summarized descriptive statistics on the employee and customer profiles.

What are the current or potential effects of the intellectual capital reporting?

The elements of “The Complete Balance Sheet” may support a prediction of a company’s earning capacity. This is important when assessing the potential of companies, and it is especially important to Consultus because “The Complete Balance Sheet” is one of the company’s products. The publication of Consultus’ own intellectual capital accounts increases the visibility of the company within this area.

The intellectual capital accounts are also a key element in Consultus’ own strategy and work with establishment of goals. Approx. 80-90% of the work with intellectual capital is directed towards the internal aspects. The main effect is the company’s enhanced capability to define and embody its strategy. Consultus’ own external intellectual capital accounts only constitute a subset of a far more elaborate internal process dealing with the formulation, concretization and measurement of a strategy. This makes it possible to commit the organization to its own objectives. The publication of the intellectual capital accounts helps define - internally as well as externally - the direction of the company as regards the strategy for the functioning of organization and management.

What are the problems with developing a system for measurement of intellectual capital?

Making the external reporting is not difficult. It takes two days. The big problem is the internal work with strategy and establishment of goals as regards customers, employees, infrastructure etc. The establishment of goals is more important than the very measurement because it enables the company to identify the areas of special importance to the future of the company. Through the establishment of goals, the company is able to identify the areas for which goals must be defined. According to Consultus, ensuring the initiation of innovation is only possible by identifying the areas for which goals must be defined.

How does the company establish what to report to the world?

Anything giving the competitors insight into the concrete strategy of the company must not be reported.

Consultus furthermore finds that any recommendations as regards the structure of the intellectual capital accounts should not be too rigid. They should just be a concept for the companies to work with.

The fast development within IT places heavy demands on the staff's flexibility, innovation and ability to adjust to changes. Telia fulfils these demands through continued development of employees and managers. Through new work methods, new competence development methods, new rewarding schemes and far-reaching skills, we motivate the employees to generate results in co-operation with our customers.

3.5 Telia

Telia is a telecommunications company increasingly facing liberalized markets. The double challenge both to be more successful on liberalized markets and to ensure a competence basis of the company's entry into the information society is one of the reasons for the weighting of a human resource development strategy described in the intellectual capital accounts of the company, "Human Resource Accounts." This strategy is based on the following ideas:

- Competence is a condition for future success.
- Together with the employees, Telia is responsible for the competence development.
- Competence is a condition for a learning organization.
- A learning organization is necessary to fulfil the requirements of the customers.
- The employees are the most important resource and their ability to grow is the main guarantee for the future profitability of the company.

This makes Telia's human resource work an important part of the company's entire strategy, and the human resource element and market element tend to appear together in the company's strategic planning.

Why does the company want to measure intellectual capital?

The employees must make themselves competent in relation to the requirements of the future company. Therefore, their capabilities and education must be in focus. All managers must thus ensure that their employees receive the right education and training. The intellectual capital accounts make this possible because they make the definition of controllable goals for all managers possible.

The intellectual capital accounts must be used to make the company's managers more aware of its resources. They will help appreciate employees motivated to participate in the development of the company. This is essential in order to identify and develop the human resources which are going to form the basis of the company's future.

In the information society, people must be satisfied in order to work productively and this satisfaction must be described and reported to get the attention of the management.

How is the intellectual capital measured?

The template of Telia's intellectual capital accounts consists of 11 items currently not defined in terms of goals and figures. However, measurements incorporated into the intellectual capital accounts and the entire management information system will (must) be developed on the basis of these 11 items:

- Our employees.
- Our managers.
- The internal communication.
- Human resource need.
- Recruitment and internal reshuffling.
- Development of competence
- Organization and work methods.
- Remuneration and working conditions.
- Working environment.
- Equal opportunities and cultural variation.
- Co-operation with staff organizations.

These 11 items are an immediate continuance of Telia’s principles of human resource management.

Currently, Telia’s intellectual capital accounts consist of the information outlined in Table 9.

Table 9. Telia’s intellectual capital key figures: Human Resource Accounts

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	<ul style="list-style-type: none"> * Staff turnover * Work-related injuries * Staff education * Sex/equality * Costs for recruitment and development 	<ul style="list-style-type: none"> * Costs for various types of staff turnover 	<ul style="list-style-type: none"> * Result per employee * HR balance * HR income statement
Customers			
Technology			
Processes	<ul style="list-style-type: none"> * Staff distribution by functions * Staff distribution by main tasks 		

These intellectual capital accounts concentrate on “what there is.” They focus on a description of the human resource composition and profile. Besides, the intellectual capital accounts consist of two parts. One part is the human resource income statement and the human resource balance sheet. This is illustrated in Table 10.

Table 10. Telia's Human Resource Accounts (1995)

HR income statement (kr in millions)		HR balance sheet (kr in millions)	
Revenues	41060	Assets	
Wages for operation	8740	Current assets	13165
Development/education	581	Recruitment capital	666
Staff turnover	1752	Education capital	653
Absence due to sickness	316	Fixed capital	44210
Social activities	328	Total assets	58693
Total staff costs	11717	Liabilities	
Other costs, incl. depreciation	24700	Short-term debt	16079
Result after depreciation	4643	Long-term debt	20113
Per employee	141	Untaxed reserves	13
		Tied-up net capital	17403
		Recruitment capital	666
		Education capital	653
		Distributable reserves from profit	3766
		Total liabilities	58693

These accounts are amplified by notes describing how the human resource-related items have been calculated. The structure of these accounts is thus completely parallel with that of financial accounts.

The other part consists of various information about the composition of the staff, job functions etc. This part describes the human resource structure, including education days etc.

As mentioned, all 11 items have not yet been incorporated into the intellectual capital accounts. They probably will in future. The financial part of the intellectual capital accounts is based on a book-keeping assessment and thus some kind of technical consistency in the model; however, the 11 items have been developed through a long discussion in the company. They are the company's strategic basis of the work with intellectual capital.

What are the current or potential effects of the intellectual capital reporting?

According to Telia, one major effect is the image gained by the company. It makes other companies and institutions interested in similar problems approach Telia to co-operate on the principles of human resource development.

Another essential effect is the internal effect which reveals the importance of the management working with the human resources. The intellectual capital accounts only publish a small part of the systematic personal information available in the company. By defining a standard reference, managers can measure themselves in relation to other units and a more qualified discussion of the way to handle the human resources becomes possible.

The intellectual capital accounts furthermore stimulate contacts with other companies wanting to develop their human resource strategy. This provides valuable input to the company's own work with this strategy.

What are the problems with developing a system for measurement of intellectual capital?

Basically, developing a system for measuring and reporting corporate intellectual capital is not easy. The effort to increase the intellectual capital of the company must be systematized in goals and measurements which can provide a consistent description of the efficiency of the effort within the individual fields of responsibility. The goal is to have one internal comprehensive reporting every three months. This will turn intellectual capital accounts into an active part of the management of the company, and the managers must be engaged in the development of their employees. Goals must be set for them within this field.

The information is procured through a systematic dialogue with the local managers. The information system consolidates the users' requirements. The most suitable model is reached through discussions. The 11 items thus represent a huge and ambitious goal, especially because they have not been defined after a model showing the connection between them.

How does the company establish what to report to the world?

Information which is confident and thus relevant to the competitors must not be reported. However, the company's ideas of human resource management must be presented. This may be important in connection with future recruitment opportunities.

Since the initiation of the development programme T50 in 1990, competence development, decentralization and shorter lead times have constituted the three fundamentals. Decentralization and shorter lead times required an increase in the competence of everybody. This increase has led to even more and decisive improvements of the work methods within ABB.

3.6 ABB

ABB Sverige is Sweden's largest industrial company. It has approx. 27,000 employees and a turnover of approx. 40 billion kroner. A major part of ABB's work with intellectual capital is a continuance of the T50 project initiated at the end of the 1980s. The purpose of this project is to reduce all times (especially various kinds of lead times) by 50%. This has required considerable commitment from the employees. Part of the project was thus to mobilize employees, suppliers and customers in order to be able to locate and gain the 50%.

Why does the company want to measure intellectual capital?

ABB must be transformed into a state-of-the-art, "flat" company where the employees have a say in corporate decisions. Intellectual capital is linked with an organization development project - T50 - aimed at reducing all times (typically lead times) by 50%. This requires the involvement of all employees at all levels of the decision-making process. To support this strategy, which cannot be implemented overnight, intellectual capital accounts symbolizing the companies' long-term commitment to a special competence developing strategy are necessary. This strategy is effected through communication since everybody's understanding of the company's direction and reasons

for this direction is particularly important to the company. The intellectual capital accounts must reflect the employees' results as regards T50 and thus motivate them to develop the work place as well as make them visible to the general public. Furthermore, towards suppliers and customers the intellectual capital accounts will demonstrate ABB's commitment to change strategy and the importance of this in connection with their role in the co-operation with the company.

How is the intellectual capital measured?

A large part of ABB's reporting of T50 is text rather than figures. In leaflets, books, magazines, ABB try to provide examples of the way in which the company has enabled restructuring, efficiency enhancements, investments in new IT technology in both production and administration through education and organization development.

At the same time, customers and suppliers are invited to see and learn about T50, so that they themselves can see the changes taking place. Much of the communication concerning this organization development process thus takes place through presentations, pictures and text and not just through figures. The communication includes a presentation which shows glimpses of T50's effects in local environments by means of small vignettes, stories and examples. It also includes a laboratory of books with academic structure and several hundred pages explaining and systematizing the ideas.

All this material focuses on competence development. The company's reporting also tends to focus on this - but not exclusively.

Table 11. ABB's intellectual capital key figures

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	<ul style="list-style-type: none"> * Staff turnover * Absence due to sickness * Share of female employees 	<ul style="list-style-type: none"> * Share of employees with appraisal interviews * Share of employees with career paths * Education time per employee * Share of companies with competence matrix * Annual evaluation of manager profile * Participation in the work with the development of the company * Education expenses per employee * Education expenses as a % of the turnover * Staff costs as a % of total costs * Staff costs per employee 	<ul style="list-style-type: none"> * Employee satisfaction * Statement of human resources * Value-added per HR cost dkr.
Customers			<ul style="list-style-type: none"> * Availability * Extent of services * Reliability of supply
Technology			
Processes	<ul style="list-style-type: none"> * Investments in offices and workshops * Total quality costs 	<ul style="list-style-type: none"> * Product development time * Lead time * Timeliness 	

ABB's intellectual capital accounts are broad. However, they focus on "what is done" and to a certain degree on "what happens." The table shows the definition of many measuring points in ABB. It should, however, be noted that all ABB subsidiaries do not use the same measurements. The table should thus be seen as examples of measurements in the intellectual capital accounts. Here, their level is measured and they are compared with a certain goal. ABB's measurements are often based in the satisfaction with the strategy and the education effort put on the agenda by the company.

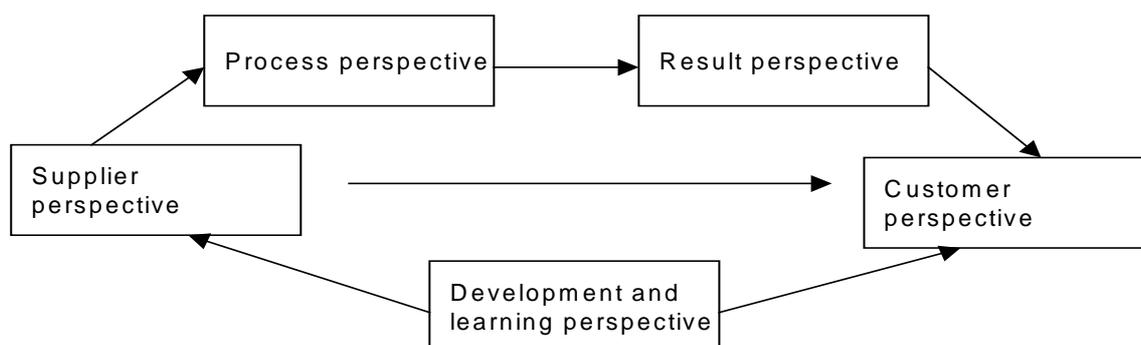
ABB's human resource accounting result looks as follows (Table 12.)

Table 12. ABB's Human Resource Accounting Result

		SEK in millions
Revenues		XXXX
- Supplier costs		XXXX
- Depreciation		XXXX
= Net increase in value		XXXX
- Staff costs		XXXX
*Staff turnover costs	XXX	
*Absence costs	XXX	
*Staff development costs	XXX	
*Competence development		XXX
*Wages for operation	XXX	
*Social costs	XXX	
*Pension schemes	XXX	
= Result		XXXX

ABB makes a clear distinction between the external part of the intellectual capital accounts typically related to the human resource element and the internal part related to the corporate strategy. For the internal part, a measuring and reporting system - EVITA - has been developed. EVITA systematically sets goals and measures several types of key figures (Figure 7.)

Figure 7. ABB's EVITA



In EVITA, these perspectives are concretized by the following information:

Customer perspective	Development and learning perspective	Supplier perspective	Process perspective	Result perspective
<ul style="list-style-type: none"> • Customer satisfaction • Reliability of supplies • Product quality • Quotation hit rate • Market share 	<ul style="list-style-type: none"> • Process innovations • Number of product launchings • Participation • Flexibility • Competence development 	<ul style="list-style-type: none"> • Improved lead time • Reliability of supplies • Product quality • Co-operation index 	<ul style="list-style-type: none"> • Improvement of lead time • Capital ties-up in materials in production • Share of faultless production • Productivity • Reliability of supplies 	<ul style="list-style-type: none"> • Volume • Gross margin • Net result • Operational result • Return on investment

What are the current or potential effects of the intellectual capital reporting?

ABB has become more productive with an increase in turnover per employee from approx. SEK 65,000 to approx. SEK 150,000. Add to this the important lead time reduction.

Besides, the intellectual capital accounts help implement new management methods. A fixed framework for the intellectual capital accounts were not provided from the beginning. ABB wanted each company to participate in the development. This has taken place “organically” in that the senior management commented on the intellectual capital accounts forwarded to them. By drawing attention to the good examples, a process to develop the best intellectual capital accounts is initiated among the subsidiaries. The intellectual capital accounts are a means to update the conception of management. The idea of how to develop the management methods in ABB is spread out.

Finally, the capital market is interested in the intellectual capital accounts, even though the market focuses on translating it into cash flow. This may be possible for ABB because the objective of 50% reduction in lead times might quickly affect the capital tied-up.

What are the problems with developing a system for measurement of intellectual capital?

According to ABB, systems to support the intellectual capital must be prepared in the subsidiaries, whereas the main function of the senior management is to spread the idea of human capital being important and needing attention from the managers of the company. Therefore, developing the systems is not particularly difficult from the senior management’s perspective. The individual divisions can learn from one another through the power of the good example. When the senior management praises good examples, the other divisions will be motivated to copy the example or make something of at least the same quality. This establishes a continuous benchmarking procedure.

The systems must come from the subsidiaries, and they must be developed concurrently with the need for them. An overall strategy for the structure of the information system does thus not exist from the beginning. It is developed through trial and error. If you think that you can link the elements of human capital in a finished, neat and logic model, ABB is of the opinion that you may

not have understood what it is all about: You need a vision and a strategy you believe in. You must believe that satisfied employees are productive employees.

The capital market has also shown interest in the intellectual capital accounts. The intellectual capital accounts are interesting to the capital market because they represent something new. However, this does not mean that the capital market has started to disregard the traditional financial analyses. They just like to watch how ABB is experimenting with the reporting.

How does the company establish what to report to the world?

There must be many sources and not just accounts linked with the annual accounts. The reporting must appear in newspapers, magazines and books.

Everything important to the company, the employees, the customers and the suppliers must be reported. The reporting must reflect ABB's requirements regarding themselves in the surroundings through a description of the suppliers' and customers' relations with the company.

It is not a weakness in "The Ethical Accounts" that the result offers interpretation and discussion possibilities. It is a strength. If only one correct interpretation existed, the dialogue would cease. "The Ethical Accounts" must open up to the discussion and uncover any conflicts. Conflicts are to be used constructively. Often, organizations move forward via discussion and conflict.

3.7 Sparekassen Nordjylland (SparNord)

Sparekassen Nordjylland (or SparNord as it would also like to be known as) is a Danish regional bank well-known for its Ethical Accounts focusing on a measurement of the values attracting the parties of the company. Sparekassen Nordjylland is now working with the Quality Accounts, a continuance of the Ethical Accounts explicating the management of the "soft" aspects of the company.

Why does the company want to measure intellectual capital?

Knowledge of employees and customers will stimulate the development of a set of policies to increase customer satisfaction and customer loyalty (i.e. the probability of repeat business.) The Quality Accounts of Sparekassen Nordjylland must make the Ethical Accounts more management-oriented. In particular, the company does not want only to focus on consensus on an issue; they also want to look at the importance of this issue to the interested parties. In this way, the Quality Accounts will help make the company more profitable by establishing when a customer stays loyal. Emphasis is put on the combination of a profitability, customer and employee strategy and the company will define and measure the places where the improvements must take place. In this connection, publication is necessary to support the dialogue with the interested parties.

How is the intellectual capital measured?

The intellectual capital accounts are composed of the answers to a number of questions already agreed upon with the main partners of the company (e.g. shareholders, local community, employees.) The reporting covers the following areas:

Table 13. SparNord’s intellectual capital key figures: The Quality Accounts

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources			<ul style="list-style-type: none"> * Welfare * Customer service * Independence * Appreciation * Personal development * Commitment * Community/unity * Security * Communication
Customers		* Competence of the employees	<ul style="list-style-type: none"> * Mutual trust * Communication * Commitment/unity in community * Human respect <p>Non-customers:</p> <ul style="list-style-type: none"> * Commitment/unity in community
Technology			
Processes			<ul style="list-style-type: none"> * Satisfaction with meetings between company and customer * Achievement of reputation values (ethics) <p>Shareholders’ opinion:</p> <ul style="list-style-type: none"> * Finances and results * Commitment/unity in community * Confidence * Openness/co-operation * Quality and competence

This reporting focuses on “what happens.” It focuses on the satisfaction of various interested parties. The company’s asking non-customers for their opinion of the company is interesting.

The Quality Accounts are based on the measuring of “meeting places” between company and customers. The company has defined the following meeting places: telephone, correspondence, IT, personal contact, consultancy services, products and concepts. In this way, the company underlines the improvement areas in question.

What are the current or potential effects of the intellectual capital reporting?

The key point is the linking of customer satisfaction with a strategy for profitability achieved when satisfaction turns into loyalty. The company tries to create this loyalty by discussing whether customers etc. are satisfied with the company's activities and by assessing whether the areas they are (dis)satisfied with are important or not. The company now tries to budget the work in relation to the aspects which the customers etc. are dissatisfied with and which are of significant importance. The intellectual capital accounts also create a kind of "corporate spirit" and they may limit the "frustration level" in the company. A perspective exceeding the short-term financial problems has been established. However, this connection is difficult to measure.

What are the problems with developing a system for measurement of intellectual capital?

The Quality Accounts are founded in an extensive process with external parties, especially shareholders and customers. Therefore, the organization of the data collection is a huge challenge. The process generates all the questions. The published information has been agreed upon with the various parties in advance.

The main problem concerns the handling of such a large number of respondents and answers. The intellectual capital accounts have their own "figure factory" generating information not found in other systems. This information will become more frequent in other management-oriented systems and procedures.

How does the company establish what to report to the world?

According to Sparekassen Nordjylland, information revealing the company's ambitions in connection with the co-operation with the various parties must be published. Publication of information of direct relevance to management should be avoided because this will be too relevant to the competitors.

If the Swedish Civil Aviation Administration is to become even more successful, we must establish learning structures where everybody feels committed and empowered to participate and take responsibility and make decisions.

3.8 The Swedish Civil Aviation Administration (SCAA)

The Swedish Civil Aviation Administration is a government agency experiencing increased competition within several business areas. SCAA is responsible for the development and operation of airports in Sweden. For the Swedish state, SCAA provides services in relation to aviation security and air transport. The company's business activities are related with operation of airports: Handling of take-off and landing, passenger services and air navigation tasks.

During the past few years, SCAA has undergone extensive decentralization which has resulted in a clearer organization structure based on a principle of divisions. Each of the 13 divisions is autonomous as regards organization and development of activities.

SCAA aims at turning the human resource area into a key resource for the development of the company. According to the intellectual capital accounts, the work with human resources is aimed at the following:

- To create a flexible organization to face changes in the surroundings and the competitive situation.
- To create a basis of adjustment and development work.
- To increase competence, productivity and efficiency.
- To establish learning structures where everybody feels committed and empowered to participate and take responsibility and make decisions.
- To create a corporate culture based on the self-confidence of the employees and based on co-operation.

The company must be updated and the creativity of the individual must receive higher prioritization as a goal for the management's actions.

Why does the company want to measure intellectual capital?

SCAA's intellectual capital accounts are a spin-off from the company's human resource management system. SCAA has had an elaborate and integrated human resource management system for some time. As the decision authority has been delegated during the past years, consolidating and reporting various human resource aspects have been necessary.

The primary objective of the intellectual capital accounts is to make the company appear to the employees as a name providing an identity for the employees and visualizing the company in the public. Currently, the intellectual capital accounts receive special attention from the human resource functions of other companies. In this way, they advertise the way in which human resources are managed in SCAA. The intellectual capital accounts thus work both as an external advertisement and as an internal recognition of the importance of staff conditions.

How is the intellectual capital measured?

The intellectual capital accounts are structured around a financial representation of the company's staff expenses per division and for the entire group. Besides, they include various statistical information about the composition of the staff, e.g. as regards age, sex, breakdown by managers and non-managers, absence and education.

Table 14. SCAA’s intellectual capital key figures

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	<ul style="list-style-type: none"> * Number of employees * Distribution by type of employment * Presence, education and illness in % of working days * Share of managers * Share of men and women * Staff turnover * Overtime * Average wages * Education costs 	* Staff costs’ share of total costs	<ul style="list-style-type: none"> * Human resource accounting result * Human resource accounting balance
Customers			
Technology			
Processes	* Number of employees by main processes		

These intellectual capital accounts focus on “what there is” as regards the non-financial information about the composition and education of the staff. Besides, the accounts include a financial description of the staff which specifies the staff categories of the ordinary financial accounts. The human resource accounting result is stated in the following way:

Table 15. Human resource accounting result (1995)

	SEK in millions
Revenues	3765
Total staff costs	1539
Absence due to sickness	56
Other absence	25
Recruitment costs	35
Job cutting costs	6
Staff education costs	49
Social costs	25
Other staff costs	129
Holiday pay	0.2
Wages for operation	1213
Other production costs	1005
Depreciation	516
Result after depreciation	704

The model of the human resource accounting balance not yet reported in figures will look like the following:

Table 16. Human resource accounting balance (1995)

	Depreciation period
Replacement cost of employees, beginning of period	12 yrs.
Preventive activities (e.g. annual health check)	1 year
Treatment	5 yrs.
Education	3 yrs.
New employees during the year	12 yrs.
Depreciation	
Replacement cost of employees, end of period.	

SCAA's intellectual capital accounts are an example of consolidated accounts within the staff area. They enable the management to consider questions about education, employment and reshuffling of staff from a strict financial criterion as the profitability of staff-related activities can be computed.

SCAA also has a number of descriptive statistics on the staff area. However, they have omitted evaluating statistics, such as satisfaction goals, even though these are prepared for internal use.

What are the current or potential effects of the intellectual capital reporting?

The intellectual capital accounts have both internal and external consequences. They attract external attention to SCAA as a business attentive to staff-related problems. This creates a good reputation among other companies also wanting to develop through the employees. It also creates a good reputation among potential applicants to jobs at SCAA. In this way, the intellectual capital accounts can contribute to enhanced competence with job applicants.

Internally, the intellectual capital accounts help emphasizing the need for the responsible management to work with human resource development and they attach importance to this by comparing the results of the divisions within this field. Non-conformance with standards, the average of all divisions, is the object of thorough discussions.

Furthermore, the intellectual capital accounts contributes to the establishment of a corporate identity. Through the publication, the employees can compare their own unit with other units and they can see themselves as part of something bigger. In this way, they help create identity.

What are the problems with developing a system for measurement of intellectual capital?

SCAA already had the system. The intellectual capital accounts constitute a subset of the available internal information. They are a subset because information which may identify individuals is not published.

The main problems relate to the conversion of intellectual capital accounts into a tool used by all managers. Making all information sufficiently available and understandable for all managers to be able to use it is an on-going project. This development activity is based on a trial and error method where the company tests its grounds to see how various decision-makers react.

The main part of the development problem consists in getting allies in the finance department which has a historic monopoly of reporting production. For the intellectual capital accounts, establishing a co-operation with the finance function is essential because this function deals with human resource management from a financial perspective.

How does the company establish what to report to the world?

There are not many problems with the reporting of the intellectual capital accounts. The information is not confidential. The only significant reservation is towards information which can identify individuals. Besides, the company does not want to publish anything which may reflect badly on managers or employees.

'The tool for the future' will reveal how managers and employees in .. widely decentralized organizations can - and must - assume the responsibility for the development of each unit (the human capital) in their relations with the customer (the market capital.) Real change is only achieved when the change is effected through new values, knowledge, experience, competence, tools and products.

3.9 Sparbanken Sverige

During the 1990s, Sparbanken has been going through an intense process of change involving adjustment of many organizational levels and introduction of new tools to support the continued work towards a more customer-oriented organization. One fundamental principle in this work is the dynamic learning. This defines the essential form of learning as the form existing between the customers and the local employees.

Sparbanken's tool for the future is their intellectual capital accounts which have, so far, primarily been used internally. However, they will be incorporated in an external reporting of the company's intellectual capital under preparation. The aim is to provide each local bank with ample products, competence and technology.

Why does the company want to measure intellectual capital?

Sparbanken has several objectives with the reporting of intellectual capital. The first objective is to make the company more customer-oriented. They want to focus on value being generated through customer relations or interactions. The customers no longer stand with their hat in their hand. This means that a discussion of the customers' perception of the company must be emphasized. To do this in a systematic way, these perceptions must be measured.

The second objective is to create a sales-oriented organization. This requires the initiation of a human resource development project focusing partly on raising the awareness of changes and partly on establishing the importance of technology.

The third objective is for the intellectual capital accounts to generate external attention from the 'political consumers' interested in the company's handling of the environment and other societal

questions and from future employees who will be interested in a broad picture of the company in which they want to work.

How is the intellectual capital measured?

Sparbanken’s entire external intellectual capital accounts have not been published yet; they have, however, been planned in great detail. They consist of four elements: (i) human capital; (ii) market capital; (iii) education; (iv) environment. The first two elements are incorporated into Sparbanken’s tool for the future which constitutes the internal part used for direct organization changes.

Figure 17. Sparbanken’s intellectual capital key figures

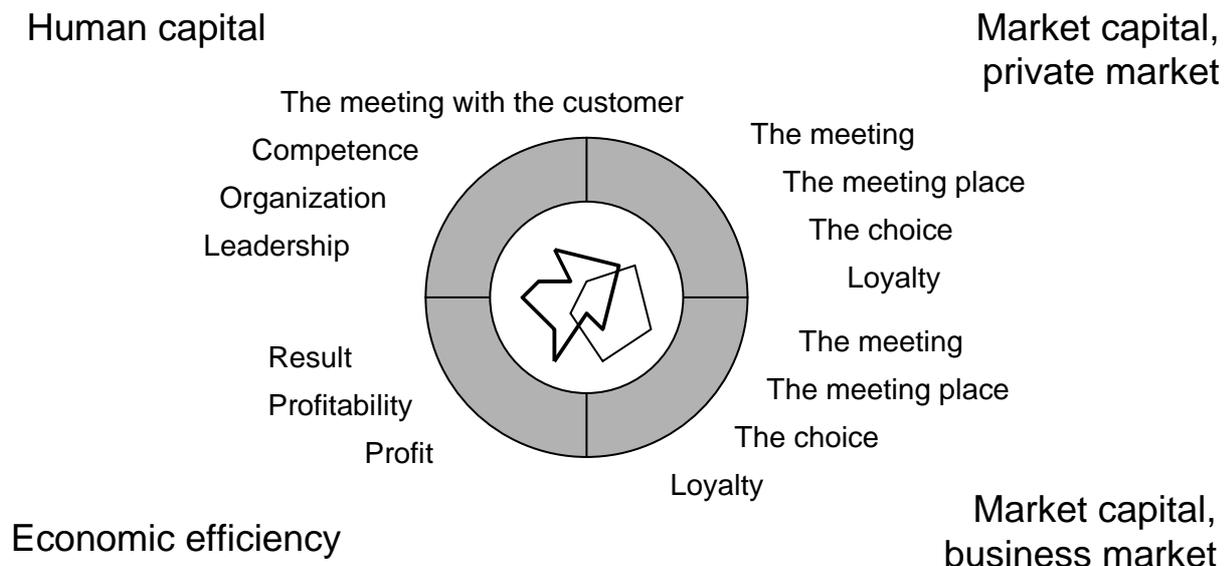
Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	* Investments in education		* Employee satisfaction - Competence - Leadership - Organization
Customers			* Customer satisfaction - The meeting - The meeting place - The choice * Customer loyalty
Technology	* IT investments		
Processes			

These intellectual capital accounts focus on “what happens.” However, this table is not quite fair to Sparbanken because both employee satisfaction and customer satisfaction are backed by a large set of key figures. Employee satisfaction, being the essential measuring method behind human capital, is backed by measurements of competence, managers’ leadership and organization.

Each of the above measurements is supported by questions going even deeper. For example, ‘the meeting place’ under customer satisfaction is elaborated with questions like ‘is the staff motivated?’, ‘can it provide clear messages and answers to questions?’, ‘is the work handled quickly and flexibly in the bank?’, ‘are self-service services reviewed?’, ‘are the products and services of the bank described’ and ‘are errors corrected quickly and flexibly?’

The system is thus a comprehensive system. In particular, it measures “what happens.” The reporting method is called “the wheel” and is illustrated in the following way:

Figure 8. The wheel of Sparbanken



The wheel constitutes a reporting form showing a graph of a local bank within the four areas, each with various subresults of importance to the company. The four areas are human capital, market capital for the private market, market capital for the business market and the economic efficiency. The distance from the centre of the wheel indicates how positive the statement is. In the wheel centre, the value is lowest, whereas it is largest by the rim. As regards local bank A, the graphs illustrated in Figure 8 reveal that the profit is good; the human capital is good as regards ‘the meeting with the customer’; the part of the market capital related to the private market is relatively good; the part of the market capital related to the business market is poor. As regards local bank B, it has relatively good results with the market capital related to the business market, whereas the other areas are problematic. The wheel gives a quick overview of the four areas constituting the results of Sparbanken.

For each local bank, a wheel may be prepared. The wheel thus represent the position of the unit as regards human capital, market capital and financial capital. As described above, this graph illustrates a unit with difficulties on the business market because this market capital is low. By means of such a graph, differences between the affiliates can be illustrated by incorporating a benchmark (the ‘best’) as a standard of reference. Sparbanken does this. The bank also shows the average of all local banks by means of an average graph.

What are the current or potential effects of the intellectual capital reporting?

Sparbanken has experienced various kinds of effects. Firstly, they have been able to maintain loyal customers during a period otherwise marked by great dynamism in the bank markets. Secondly, the staff is creating a new awareness of its position and role in relation to the corporate strategy. Thirdly, the ideas of customer-orientation and decentralized decision competence are under construction. Fourthly, the reporting of intellectual capital is used as a basis of systematic evaluations of how to move on along the corporate strategy. Every time a measurement and reporting is carried out, the managers must develop a new business plan aimed at directing the individual unit towards a higher degree of customer-orientation, e.g. through development of sales methods.

Part of this is Sparbanken's idea bank which is a method for development and implementation of new ideas and methods in the work of the bank. All local banks may be appointed as idea bank. An idea bank benefits from extra attention from the management, extra opportunities for investments in IT etc. In this way, the changes taking place within the company become clear to the rest of the organization. This underlines that the intellectual capital accounts constitute a means to both develop and measure intellectual capital.

Furthermore, the work with the intellectual capital accounts has enabled a new systematic planning process in the company. Every time a new measurement is carried out, finances, customers and staff are linked in a progress review leading to a business plan.

As the only one of the ten companies, Sparekassen Nordjylland has carried out a statistical analysis of the connections between human capital, customer capital and financial capital. This statistical analysis indicates a close correlation between the three types of capital - even in the short term, i.e. within a year. So the financial capital increases when the human capital and customer capital grow. The two types of intellectual capital also grow with each other. This means that the welfare of the staff is linked with the customers' satisfaction with the bank.

What are the problems with developing a system for measurement of intellectual capital?

Sparbanken's system is huge. Every year, approx. 60,000 measurements are carried out with customers and employees. The system is organized to enable the preparation of intellectual capital accounts for 10% of the company every month (except for the summer months.) This ensures continuous measurements even though the individual local bank is only measured once a year. The measuring part is thus very elaborate. The large amount of data also involves a considerable analysis work to establish the connections between all the results. A department to carry out this task has been established. The secret is to avoid making it so analytic that finding the right practical solutions to problems becomes difficult.

How does the company establish what to report to the world?

The purpose of preparing intellectual capital accounts for external use is to show how the company relates to essential societal problems, especially environmental problems. According to Sparbanken, future employees will require more information about the company in which they want to work due to the growth of society. Therefore, intellectual capital accounts are important in connection with recruitment.

Information describing the specific competitive situation of the company must not be reported.

Long-term customer relations are our key asset Stability among employees creates stability among customers.

3.10 WM Data

WM Data is a fast growing company within the IT industry aiming at being “the complete IT service company.” The company has experienced continuous growth in turnover and has maintained its profitability. The company’s share price on the Stockholm Bourse is increasing. The significance of intangible capital to the value of the company continues to grow.

WM Data is a knowledge-based company living by the employees’ knowledge and competence. To support this, WM Data has worked systematically with the development of the company’s public image. WM Data wants to have an image as a company representing expertise, closeness, trustworthiness, commitment and results. WM Data’s intellectual capital accounts are part of this image and are important in the communication with the financial market and to a certain degree in the communication with customers and potential employees.

Why does the company want to measure intellectual capital?

Intellectual capital must be measured and reported because it has a positive effect in relation to the capital market and in relation to potential customers. The capital market has shown great interest in learning about the basis of the company. This is not because the company has had a particular need for infusion of new capital which could easily have been justified by traditional financial key figures. The capital market is simply interested in learning more about companies and especially about companies different from others. As a service business WM Data is different from most other companies listed on the stock exchange.

Another purpose is to show the intellectual capital accounts to customers to give them a specific idea of the structural strengths of WM Data. Customers like to have some sort of guarantee for the company’s ability to provide services in future. The intellectual capital accounts constitute part of this guarantee.

Finally, the company uses the intellectual capital accounts as a decision template when acquiring new businesses. Together with market prospects (which may be market capital) and the company’s financial basis, the intangible assets are important elements.

The intellectual capital accounts are thus part of the company’s communication with external parties on the character and abilities of the company.

How is the intellectual capital measured?

WM Data’s intellectual capital is measured by means of two main categories: Structural capital and individual capital. The structural capital represents the knowledge attached to the organization, and the individual capital represents the knowledge attached to individuals.

Table 18. WM Data’s intellectual capital key figures

Category / Form	“What there is”: Statistical information	“What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	* Age distribution and seniority of staff * Staff turnover ratio * Number of men/women * Level of education		* Increase in value per income employee
Customers	* Turnover distributed by products, industry and geographical area		
Technology			
Processes			

WM Data’s intellectual capital accounts focus on “what there is” by describing staff and customers by means of statistical information. Furthermore, one company goal is to limit the size of the administrative staff to 10% of the entire staff.

A large part of the key figures have been developed through the company’s co-operation with Tjänesteforbundet, the trade association for service businesses in Sweden. Some of the trade association’s recommendations (see Chapter 4) form the basis of WM Data’s reporting.

What are the current or potential effects of the intellectual capital reporting?

The intellectual capital accounts are important in relation to the stock market and thus the external parties of the company. They draw attention to the company. Even though the capital market is interesting in seeing the intellectual capital accounts, they do not set off any notable share price fluctuations. Major share price fluctuations are often caused by other conditions, e.g. when big pension funds restructure their share portfolio.

The internal attention paid to the intellectual capital accounts is not significant and the intellectual capital accounts are not discussed among the employees. However, some of the information in the intellectual capital accounts is used to identify problems with the composition of the company’s staff. The staff’s age structure, seniority and educational background constitute part of the decision-making basis of the recruitment policy aiming at employing employees with considerable professional competence. The staff turnover ratio is used to assess whether knowledge crucial to the company can be maintained. In this way, the intellectual capital accounts help underline the discussion of the employees as important resources in the company’s strategic basis.

The information of the intellectual capital accounts is not easy to use because it does not state whether the conditions are good or bad. Therefore, caution should be exercised when interpreting the figures and a strict interpretation of age, seniority etc. is inexpedient. The figures must always be discussed.

To a limited extent, the intellectual capital accounts are also used to demonstrate to potential customers that the company’s basis of resources makes it a major co-operative partner with enough resources to survive and grow. Again, the intellectual capital accounts are not the decisive factor in the attraction of new customers, but an important element in this work.

Finally, the importance of it being “in” to discuss intellectual capital accounts should not be underestimated. Journalists see a company as a state-of-the-art company when it works with intellectual capital accounts. The phenomenon is more frequent in Scandinavia than in the USA and the UK where they tend to stick to the ‘old’ way of thinking, i.e. through financial key figures. WM Data is aware of this as they have attracted both American and British investors. In Scandinavia, providing information about the intellectual capital accounts of the company is by now almost obligatory.

What are the problems with developing a system for measurement of intellectual capital?

WM Data has not experienced substantial problems with the development of an intellectual capital management system. As illustrated in Table 18, WM Data’s reporting is not extensive. Furthermore, the company does not have any dedicated internal intellectual capital accounts elaborating on staff-related issues. The necessary information is simply recorded in the ordinary pay system.

How does the company establish what to report to the world?

Information making the company interesting to the financial market and potential customers must be reported. The intellectual capital accounts which make up 4 of 46 pages are only part of this. In WM Data, there is no particular discussion of the contents of the intellectual capital accounts. Even though they will develop over time, especially as regards form, but also as regards contents, the information to be reported externally is not really discussed. WM Data deals with key figures describing development trends in the same way as financial key figures. Management figures applied in the day-to-day decisions on the share of chargeable hours, average prices or product development are not reported.

The form of the intellectual capital accounts is therefore a minimum model of the recommendations prepared by Tjänesteforbundet (see Chapter 4.) The contents deal with the long-term effects which can be studied over time, just like financial accounts. Besides, the main purpose of intellectual capital accounts is to provide external parties on the financial markets, potential customers and the business press with knowledge of the company’s resources.

*(T)here are two distinct types of functions of measurement in organizations:
(1) process functions and (2) numerical or informational functions.
The former are functions performed by the act of measurement
itself; the latter are functions performed by using
the numbers or measurements derived from
the measurement process.
Sackman et al. (1989)*

4. Models and principles of intellectual capital accounts

As already mentioned, intellectual capital accounts are not an authorized accounting term. However, this does not mean that they do not have a history in books and magazines which have described and analyzed how to measure the company's intellectual capital in one way or another. Three main categories of models can be singled out in this connection. One focuses on the 'figures', the other on the 'assets' and the third on 'the bridge to the future.' The 'figures', which are described first, concern models of concrete measurements. They deal with human resource accounting and the key figures recommended by Tjänesteforbundet. Then follows a description of the 'assets' which are models of the types of assets which the intellectual capital accounts should deal with. One model of this is the invisible balance sheet and the other is the resource matrix. Both models illustrate how the financial balance does not account for the values inherent in the intellectual capital. Finally, 'the bridge to the future' is described. The bridge to the future covers models of the way in which the intellectual capital will be embedded in the financial capital over time. One model is the balanced scorecard which shows that balance between present and future can be obtained by describing both the company's financial capital and the company's customer, process and innovation capital. The other model is a business plan often used by venture capitalists to assess the potential of innovative companies. Here, the company's technological competence is systematically translated to market-oriented opportunities.

4.1 The figures

The ideas of how to compute the figures in the intellectual capital accounts fall into two categories. One is human resource accounting and the other is the key figures recommended by Tjänesteforbundet.

Human Resource Accounting

Human Resource Accounting is a set of accounting methods seeking to settle and describe the management of the company's staff (Flamholtz, 1985, 1987, Mouritsen, 1985, Sackman et al., 1989.) It focuses on the employees' education, competence and remuneration. It promotes the description of the investments in staff and enables the design of a human resource management system to follow and evaluate the consequences of various human resource management principles. There are four human resource accounting models:

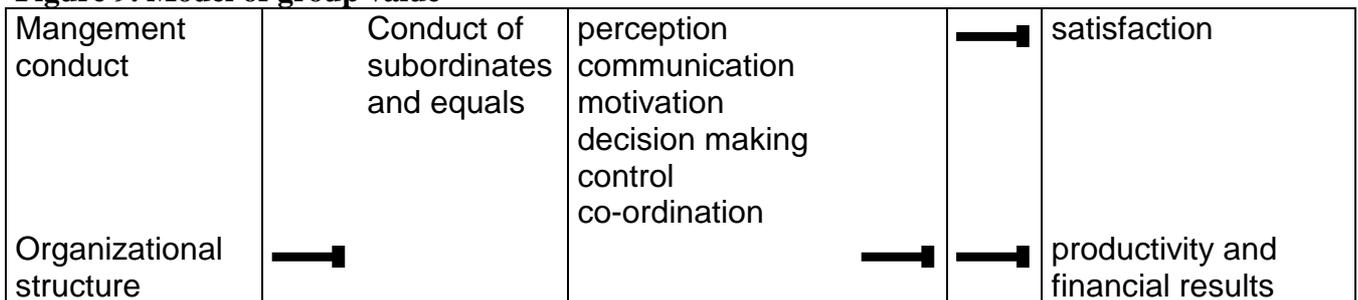
1. The individual's financial value describing the individual's anticipated value to the company.
2. The financial value of groups describing the connection between motivation and organization on one hand and financial results on the other.

3. Staff replacement costs describing the financial situation in connection with recruitment, re-education and redeployment of employees.
4. Human resource accounting and balancing as complete accounts of the human resource area.

The first model describes the financial value of the individual which consists of the relevant person's anticipated value to a company. This value depends on two factors. Firstly, it depends on the person's ability to carry out his job with a certain productivity and with the flexibility that makes the person able to co-operate with others. Secondly, it depends on the person's satisfaction with being in the company. This is relevant when assessing the probability of the person staying in the company. The realizable value is thus a function of the person's financial value and the person's satisfaction. This means that a person's significance to the company's economy over time is assessed by examining a person's typical career development on the basis of historic knowledge. This may be a development from junior consultant via consultant to senior consultant and partner in a consultancy firm which can be used to determine what the economic impact of various job types in a typical career means to the company's results. Here, it may be possible to compute 'the present value' of a person. This is not done by any of the companies in the survey.

The second model establishes the value of groups primarily as a function of working climate. This model does not measure values, but 'surrogate concepts' in the form of welfare and motivation. The model looks like the following (Figure 9):

Figure 9. Model of group value



This model illustrates that satisfaction is linked with financial results because they are both results of a specific management style promoting communication and motivation. As illustrated by the model, the basis of this is a management conduct which initiates organizational processes. If they work, they lead to both satisfied and productive employees. This point of view is to a large degree shared by the ten companies. Measurements of employee satisfaction are represented with great importance. Sparbanken can even demonstrate a positive connection between employee satisfaction and financial results.

The third model focuses on replacement costs related to the expenses connected with acquisition, training and separation. Acquisition covers expenses for recruitment, advertising etc. Training covers education, on-the-job training etc. Separation covers lost production etc. when a person leaves a job. Gröyer & Johanson (1991) have described these costs by underlining that both direct and indirect costs are related to all three elements. To understand and thus be able to calculate the three elements, it helps to model and describe the costs connected with an imaginary replacement process. Such a process can be described in the following way:

Recruitment costs

Direct costs	Advertising Other recruitment channels Selection Appointment Time consumption in connection with recruitment
Indirect costs	Administration of recruitment

Training costs

Direct costs	Introduction to work place Course costs On-the-job-training
Indirect costs	Administration time

Separation costs

Direct costs	Expenses in connection with dismissal
Indirect costs	Production lapse Decrease in efficiency

This model can be used to describe the development of costs in connection with replacements. In the intellectual capital accounts of the Swedish Civil Aviation Administration these replacement costs are included as an expression of the value of the staff to the company.

Finally, the fourth model concentrates on cost control, capitalization and depreciation of the historic expenses for the human resource area. Here, intellectual capital accounts similar to the following are constructed:

Revenues		XXX
- Supplier costs		XXX
= Gross increase in value		XXX
- Calculated depreciation		XXX
= Net increase in value		XXX
1* Direct pay	xxx	
1* Staff turnover costs	xxx	
1* Absence costs	xxx	
1* Social costs related to staff	xxx	
1* Education	xxx	
= Result before financial items		XXX

This is a complete human resource accounting result specifying the way in which the company handles its staff. One effect of this system is the visualization of the impacts of human resource management revealing the consequences of inexpedient human resource management routines. They will appear directly in the accounts. Among the companies participating in the survey, both the Swedish Civil Aviation Administration, ABB and Telia produce such a statement.

The key figures of Tjänesteforbundet

Tjänesteforbundet (1993) has developed a set of recommended measurements to be used in service businesses. Tjänesteforbundet is an association of service businesses with an objective to bring management of service into focus. The measurements recommended by the association aim at

supplementing the financial accounts which are considered to be suitable for measurement of the value of industrial companies. By applying the measurements, the value of service companies will be expressed more clearly. Since the mid-1980s, several books aimed at developing a taxonomy describing the knowledge-intensive company have been published through Tjänesteforbundet. Many of the companies today working with intellectual capital accounts have been inspired by Tjänesteforbundet's work. Some of the companies have even participated in the development of Tjänesteforbundet's view upon the reporting of service companies. This applies to PLS Consult, Consultus, Skandia and WM Data.

The key figures recommended by Tjänesteforbundet for knowledge-intensive companies are based on customer capital, individual capital and structural capital typically measured on non-financial indicators. These are compared with a number of efficiency-related financial measures which are traditional financial key figures. The measurements of knowledge thus complement the traditional financial key figures. This makes them different from the human resource accounting result which seeks to integrate considerations for knowledge and the financial reporting form.

Table 19. Tjänesteforbundet's recommended key figures for service companies

Factors	Position/present (History)	Development (Future)	Stability/risk	Efficiency
Market	Market share	Market share over three years New services/total sales Order book Price and volume development	Sale/business sector Sale/service Largest five customers' share of sale	
Customers	Frequency of repeat business	New customers/sale		
Individual/skills	Level of education Absence due to sickness in days/person Age structure	Investment in education/person	Staff turnover Seniority/person	
Structural value	Number of PCs/person IT/person	IT investments Research and development/sale	IT costs/staff costs	
Financial key figures			Cash flow/sale Staff or capital costs/sale Equity ratio Interest contribution ratio Debt-equity ratio	Sale/person Value-added/person Result after financial items/person Rate of return Rate of return, debtors Rate of return, store Cash flow/person

4.2 The assets

Another discussion about the value of intellectual resources concentrates on the way in which the contents of intellectual capital can be structured at a conceptual level. Two important bids, the invisible balance sheet and the resource matrix are described in the following.

The invisible balance sheet

The purpose of the invisible balance sheet is to establish a method to represent the assets of knowledge-based companies (Arbetsgruppen Konrad, 1989, Sveiby, 1996.) It is an extension of human resource accounting. The invisible balance sheet divides the company's intellectual capital into individual capital and structural capital. The first is tied up in individuals, whereas the other is tied up in the routines, procedures and systems of the company. They are included in the company's balance sheet because they are assets, i.e. resources contributing to the production of future results. They are 'invisible' because they are currently not included in the financial balance sheet of the accounts.

The product of individual capital and structural capital is the total intellectual capital. The individual capital is expressed through the professional competence and expertise of key employees describing

the corporate strategy. In certain companies, the strategy operates with “income persons” (e.g. consultancy firms, consultants or universities described through one type of professionals.) However, it may be broader in other companies more capable of converting knowledge into procedures, organization and technologies. This capital can be described in several ways, e.g. as regards education, experience, number of persons in the company with relevant background and the specific distribution of responsibilities in relation to customers and projects.

The structural capital concerns the competitive advantages of a company in addition to the abilities of the employees. In course of time, the company may have developed and accumulated experience within the administrative field and a reputation for a specific product, services or production method. Such experience in co-operating and supplying services to surrounding customers is an asset in the sense that it demonstrates how the company’s assets are linked together in a specific competence. The structural capital thus provides the individual capital with a special competitive advantage.

Arbetsgruppen Konrad recommends an invisible balance sheet with the following types of key figures to describe individual capital and structural capital:

Individual capital	Structural capital
<ol style="list-style-type: none"> 1. Number of persons involved in direct customer contact 2. Level of education 3. Average number of years in job 4. Investment in education 5. Division by customer relations: <ul style="list-style-type: none"> - employees only carrying out a part of a project - employees responsible for an entire project - employees with complete responsibility towards a customer 	<ol style="list-style-type: none"> 1. Attitudes and opinions of staff <ul style="list-style-type: none"> - attitude measurements - experience (number of years in trade) - recruitment possibilities - share of non-routine tasks - wage level - agreements with key persons 2. Problem solving potential <ul style="list-style-type: none"> - standardization of certain core services 3. Customer and market capital <ul style="list-style-type: none"> - management competence - network -durability of customer relation 4. R&D <ul style="list-style-type: none"> -investments in new competence, e.g. as a % of sale

This description of individual capital and structural capital can be varied as has been done by Arbetsgruppen Konrad and Sveiby. Such types of key figures are important to the assessment of the market opportunities of knowledge-intensive companies.

Several of the companies participating in the survey have taken a starting point in this idea: PLS Consult, Skandia, Consultus, WM Data.

Resource matrix

A parallel to the invisible balance sheet may be found in the resource matrix of Lush & Harvey (1994.)

Figure 10. The resource matrix

	Tangible assets	Intangible assets
Resources described in the accounts	<ol style="list-style-type: none"> 1. Plant 2. Equipment 3. Store 	<ol style="list-style-type: none"> 1. Goodwill
Resources not described in the accounts	<ol style="list-style-type: none"> 1. Staff 2. Technology 3. Distribution channels 4. Board 5. Information systems 	<ol style="list-style-type: none"> 1. Strategic plan 2. Trade marks 3. Image 4. Relations with owners 5. Relations with banks and investors 6. Corporate culture

As the invisible balance sheet, this matrix is based on criticism of the balance sheet of traditional accounts. The resources included in the traditional balance sheet are listed in the top left row and typically consist of buildings, equipment and stores as well as goodwill. Lush & Harvey want to draw attention to everything in the bottom row of the table. Through the listed examples they show that traditional accounts could very well provide more consistent reports on resources contributing to the increase in the company's value. They illustrate that intangible assets are not included in traditional balance sheets, and they show that important tangible assets are also omitted from the accounts. These are the structural capital - to follow the logic of the invisible balance sheet; however, they provide a broader definition. This is due to the fact that they are more interested in structural capital than individual capital; they deal with the knowledge-intensive company rather than the knowledge-based company. Lush & Harvey's statement includes both internal procedures and structural relations with the surroundings. In the same way, the intangible assets outside the accounts are primarily directed towards the impacts of management. They focus on, for example, the very existence of a good strategic plan, good relations with investors etc. as being valuable. Lush & Harvey seek to illustrate the importance of describing more resources and types of competence than those present in traditional accounts.

In certain senses, Sparekassen Nordjylland is inspired by thoughts resembling this approach.

4.3 The bridge to the future

The bridge to the future is the heading of two types of ideas of intellectual capital. One idea is the balanced scorecard and the other is the business plan.

The balanced scorecard

The balanced scorecard is a means to create consistency in the company's strategies both across functions and lengthwise into the future. Kaplan & Norton say that:

“(The balanced scorecard) enabled companies to track financial results while simultaneously monitoring progress in building the capabilities and acquiring the intangible assets they would need for future growth ... The scorecard addresses a serious deficiency in traditional management systems: their inability to link a company's long-term strategy with its short-term actions (1996).”

The balanced scorecard is thus aimed at linking the company's past and present with its future. The balanced scorecard establishes a goal and measuring system enabling a company management to

simultaneously define and control a variety of corporate strategies. By not only looking at past financial results, but also at how far the company is with the implementation of its strategy, the future can be an integral part of the company's measuring system. Visualizing the structure of the company's competence and the acquisition of key intangible assets is essential.

The balanced scorecard is thus a measuring system showing the extent to which the strategy of the company has been implemented. Kaplan & Norton (1993) provide the following example of such a scorecard mentioning Rockwater's (an electronics manufacturer) scorecard.

Figure 11. Rockwaters balance scorecard

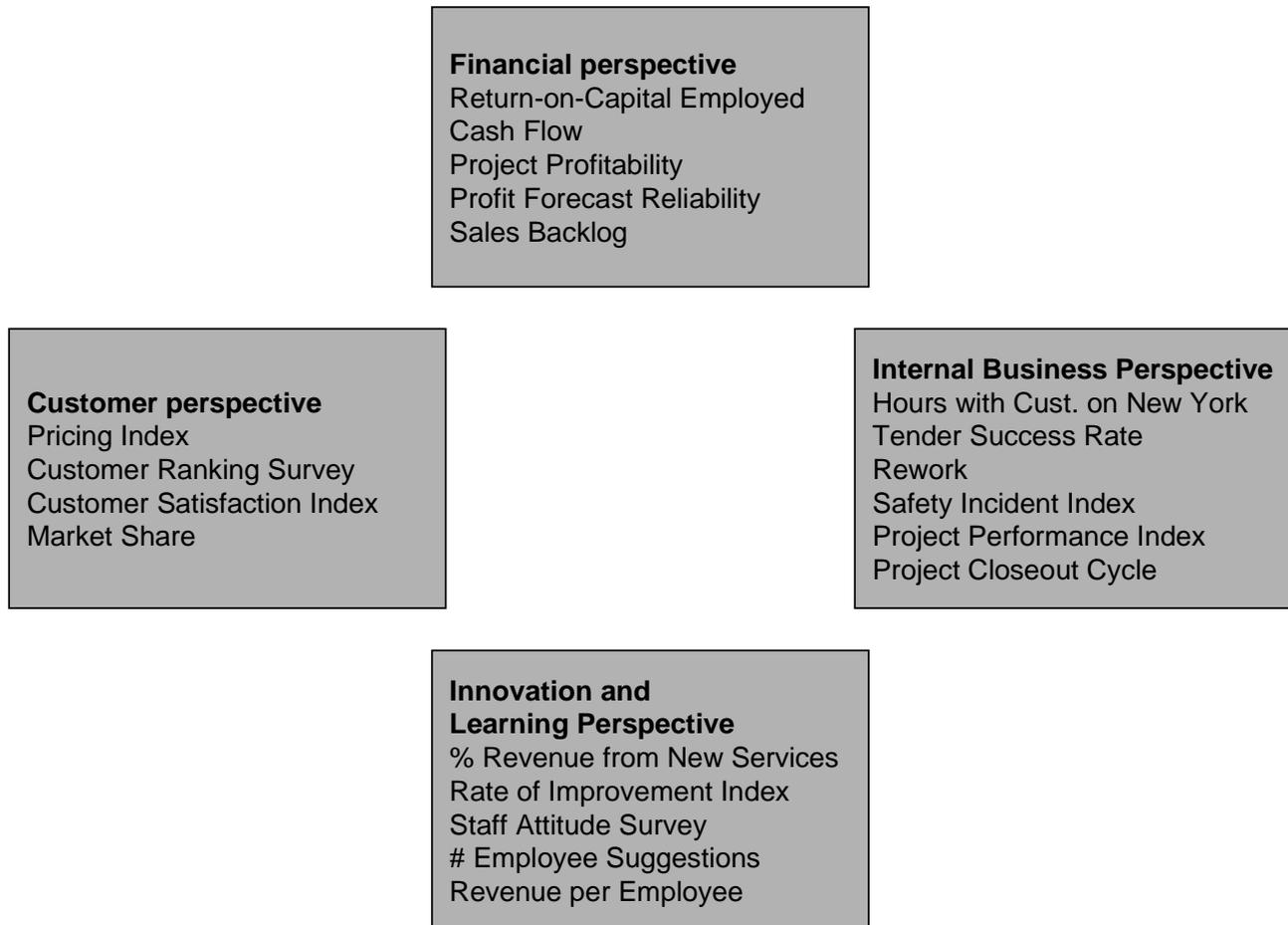


Figure 11 illustrates the balanced scorecard juxtaposing goals and measures within four fields: The financial perspective, the customer perspective, the internal business perspective and the innovation and learning perspective. The point is that satisfactory financial results are not enough. To ensure future financial results, continuous results as regards customers, processes and innovation and learning must be produced. The balance must ensure that the company does not become too long-term or too short-term. Present and past must be balanced by the activities 'currently' produced by the company. Rockwater uses this system to follow up on the following strategic point of view.

The vision. 'As our customer's preferred supplier, we must be the industry leader. This is our mission.'

The strategy:

- Services exceeding needs
- Customer satisfaction
- Continuous development
- Quality of employees
- Shareholders' expectations

Critical factors of success:

- Financial: Rate of return, cash flow, project profitability
- Customer: Value for money, price, unproblematic relations, professionalism, innovation
- Internal business processes: Quality, project management, efficient tender procedures
- Growth: Continuous improvements, innovation of products and services, decentralization

Vision, strategy and critical factors of success precede the measurement and the balanced scorecard which must be able to provide an answer to the following questions (Maisel, 1991):

- How do we appear towards our customers if we are successful?
(financial capital)
- How must we appear towards our customers to fulfil our strategies?
(market capital)
- What processes and activities must we be good at to satisfy our customers?
(organization capital)
- How must the organization work to fulfil our strategies?
(human and innovation capital)

The balanced scorecard thus provides a framework to bring the strategic goals of the company into focus to ensure the right development of the intellectual capital. A complete set of relevant measurements is not provided. The balanced scorecard only provides the general issues for which each company must find its own relevant concrete goals and measurements. The balanced scorecard is thus a template of the measurement of the company's various types of capital.

The balanced scorecard also comprises a dynamic perspective as it states that positive development as regards customer, process and innovation capital will be reflected in the financial capital sooner or later. This dynamic is a 'belief' or a 'theory' implying that financial results will develop automatically if productivity, quality and innovation are considered.

Among the employees participating in the survey, ABB and Skandia clearly state that the balanced scorecard is one of their fundamentals. Sparbanken's wheel is based on the same theory, but is not inspired by the balanced scorecard.

Business plans

The balanced scorecard and the invisible balance sheet take their starting point in the description of something which has taken place. Business plans are budgets imagining activities not yet implemented. They are often a key translating between the technological understanding of the company and the commercial (Rich & Gumpert, 1985.) A business plan must show two things.

First, it must show how the users benefit from the project. This enables the venture capitalists to identify the marketing opportunities in connection with a project. A specification of potential customers is necessary for this purpose. Second, it must embody an attitude towards the wishes of the investor as regards risk and rate of return in connection with the project.

This appears to be an obvious truth. However, knowledge is often wrapped in technical jargon. Venture capitalists do what they can to get beyond the product and its technology and into aspects relating to market, risk etc. To achieve this, they must focus on administrative conditions and thus connections in the management system.

Business plans work as translators between the technological world and the commercial world. However, the translation also presents the project in a new way adjusting the language to a form understood by investors and economists. Furthermore, the main description of the company/project must be based on administrative and market-related conditions rather than technological. The knowledge-based company does thus not live by its technological knowledge (alone), but also by its ability to translate this knowledge into market-related and organizational factors, including profitability and risk (Jacobsen, 1988.)

The companies in the survey do not attach particular importance to business plans. This may be because they are afraid to disclose too much of the company's strategy as regards competition and production methods.

*It is well-known that many organizational managers rule out investments in the future results for the sake of gaining short-term advantages. It happens that investment programmes are set aside to allow the business to be operated at maximum profitability right up to the point of bankruptcy. For bankruptcy is the logical outcome if all investments in future prospects are shelved.
Gröyer & Johanson (1996)*

5. Development of theory and practice

The intellectual capital accounts are not fully developed yet, neither in terms of concept nor in terms of practice. The ten examples discussed in this memorandum are examples of how intellectual capital accounts can be structured. However, they are also examples of the many possibilities of variation within the field. Therefore, it is necessary to establish the conditions determining when the various intellectual capital accounts are relevant. This is the theoretical problem. The practical problem is to establish how the ten examples can be integrated to a whole and form a 'basic idea', though not an actual standard, of how the contents of the intellectual capital accounts can and should be defined.

At least three project types supporting this development of theory and practice come into mind.

Table 20. Overview of possible projects on ‘measurement of intellectual capital’

Problem: What?	Method: How?	Goal: Results?
Project 1: Predictability of the intellectual capital. How must the individual capital and structural capital be described to explain the future profitability and growth of the company?	Statistical analysis comparing various expressions of customer, production and organization capital with their predictability as regards financial profitability.	Such an analysis can distinguish between the concrete key figures with the two types of capital providing the best description of the future development of the company’s financial result.
Project 2: Investors’ assessment of intellectual capital. How do the investors interpret the financing requirements, risk and potential rate of return of knowledge-intensive and knowledge-based companies?	Description of the investors’ ‘decision models’ as regards when loans are granted, subordinate loan capital is infused etc.	Such an analysis can identify the investors’ requirements for information. On the basis of this, their needs for reporting on the intellectual capital of companies can be deduced.
Project 3: Experiments in the concrete companies. What key figures and information are needed to describe knowledge-intensive and knowledge-based companies?	Experiments based on concrete companies. Various types of information considered important by the company are tested.	Such a project will make the creation of experience-based knowledge of measurement of intellectual capital possible. The knowledge will be embedded in concrete possibilities from an organizational point of view.

Project 1 (Predictability of the intellectual capital) applies statistic methods to establish how the company’s financial growth is linked with the development of the intellectual capital. The purpose of the project is to define the expressions of intellectual capital which are best at predicting the effects on the profitability of the company. It is a piece of statistical work using a survey method. This project can only be carried out if several companies have worked with intellectual capital accounts. Otherwise, it cannot be assessed whether the intellectual capital accounts contain information enabling prediction of the company’s financial results. Therefore it will probably not be possible to initiate this project right away. If initiated, it should probably be carried out with internal information about intellectual capital collected via questionnaires. Such a survey should disclose the definitions of individual capital and structural capital that are related with the long-term financial results.

Project 2 (Investors' assessment of intellectual capital) is based on the investors. This project concentrates on the investment brokers’ reasons for accepting or rejecting the capital requirements of companies. This analysis can identify the investors’ needs for information and help to establish in which way they are interested in the information found in the intellectual capital accounts. The project is aimed at procuring knowledge of the methods of the capital market to assess the intellectual capital of companies and at defining in which way intellectual capital is important to investors.

Project 3 (Experiments in concrete companies) focuses on experiments with the taxonomy developed above at Danish companies. By experimenting with the implementation of the project described in Table 3, which illustrates the connection between category and form, a way to implement this idea can be pictured. This project is based on the willingness of companies to participate in the experiment on the development of intellectual capital accounts with themselves as guinea-pigs. The project can be characterized as a method development where the development of intellectual capital accounts for concrete companies can provide experiences with contents and approach useful to other companies, consultants, accountants and other advisers who are planning to

use intellectual capital accounts. The key question is whether to introduce intellectual capital accounts little by little or whether to apply a “Big Bang” model changing everything at once.

Currently, project 2 and 3 are probably more interesting than project 1. Project 2 considers the investors’ requirements as regards knowledge of the companies’ intellectual capital accounts. Project 3 considers the possibilities to adjust the ideas of this memorandum to concrete situations through experiments in Danish companies. Project 2 must be based on an analysis of the way in which the capital market currently acts as regards intangible capital. It is a descriptive project introducing the investors in the discussion about the significance of intellectual capital accounts to the capital market of innovative companies. Project 3 may be based on Appendix 1 describing how to initiate the work with intellectual capital accounts in the companies.

Even though both project 2 and project 3 are interesting at the moment, it would be sensible to prioritize project 3 higher than project 2. By developing intellectual capital accounts models (project 3), the companies can establish a basis which the investors can use to define what the intellectual capital accounts must look like before they can be used to make decisions on loans, subordinate loan capital etc. to knowledge-intensive companies.

Literature

- American Institute of Certified Public Accountants. The Special Committee on Financial Reporting Improving Business Reporting – A Customer Focus New York: AICPA, 1994
- Albert,S. & Bradley,K., The Management of Intellectual Capital (Manus, 1995, February)
- Arbetsgruppen Konrad Den Ösynliga Balansräkningen Stockholm, 1989
- Boman,H. Förändringen. En berättelse om svenska ABB och T50 (Stockholm, Affärsvärdens Förlag AB, 1992)
- Deal,T.E. & Kennedy,A.A. Corporate Cultures. The Rites and Rituals of Corporate Life (Reading., Mass., 1982)
- Ennerfelt,S., Paltschik,M. & Tillberg,E. Verktyg för framtiden (Stockholm, Ekerlids Förlag, 1996)
- Erhvervsministeriet Erhvervsredegørelsen 1996 (1996)
- Erhvervsudviklingsrådet Kapital og vækst (1996)
- Ernst & Young Measures That Matter (Ernst & Young, 1997)
- European Union Teaching and Learning (1996)
- Flamholz,E. Human Resource Accounting (San Fransisco, 1985)
- Flamholz,E., Valuation of Human Assets in a Securities Brokerage Firm: An Empirical Study, Accounting, Organizations and Society (1987, s.309-318)
- Grant,R.M., The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation, California Management Review (1991, vol.33, no.3)
- Gröyer,J.E. & Johanson,U. Personalekonomisk Redovisning och Kalkylering (Stockholm, Arbetarskyddsnämnden, 1991)
- Haglund,T. & Ögård,L. Livslångt Lärande. En arbetsmodell för kompetensutveckling och för att skapa en lärande organisation (Uppsala, Konsultförlaget AB, 1995)
- Hamel,G. & Prahalad,C.K., The Core Competence of the Corporation, Harvard Business Review (1990, May-June)
- Hamel,G. & Prahalad,C.K. Competing for the Future (Boston, Harvard Business School Press, 1994)
- Itami,H. & Roehl,T. Mobilizing Invisible Assets (Harvard University Press, 1987)
- Johanson,U., Johrén,A. & Jakhellen,J.F. Personaløkonomi (Oslo, Universitetsforlaget, 1992)

- Jönsson,S., Det är vanskeligt att äga kundskap, Balans (1989, vol 12)
- Kaplan,R.S. & Norton,D.P., The Balanced Scorecard – Measures that Drive Performance, Harvard Business Review (1992, January-February)
- Kaplan,R.S. & Norton,D.P., Putting the Balanced Scorecard to Work, Harvard Business Review (1993, September-October)
- Kaplan,R.S. & Norton,D.P., Using the Balanced Scorecard as a Strategic management System, Harvard Business Review (1996, January-February)
- Kreiner,K. & Mouritsen.J. (red.) Virksomhedsstrategi og teknologiledelse (Samfundslitteratur, 1992)
- Lusch,R.F. & Harvey,M.G., The Case for an Off-balance-Sheet Controller, Sloan Management Review (1994, Winter)
- Lynch,R.L. & Cross,K.F. Measure Up! Yardsticks for Continuous Improvement (Basil Blackwell, 1991)
- Maisel,L.S., Performance Measurement: The Balanced Scorecard Approach, Journal of Cost Management (1992, s.47-52)
- Mouritsen,J., Budgettering og regnskab med de personelle ressourcer, Økonomistyring & Informatik (1986)
- Mouritsen,J., Den balancerede rapportering, Økonomistyring & Informatik (1993/4, s.145-164)
- Mouritsen,J., Måling af videnkapital (1996, arbejdspapir, Erhvervsfremmestyrelsen)
- Nelson,R. & Winter,S. An Evolutionary Theory of Economic Change (Cambridge, Harvard, 1982)
- OECD Measuring what People Know (Paris, 1996)
- Parr,R.L. Investing in Intangible Assets. Finding and Profiting From Hidden Corporate Value (John Wiley & Sons, N.Y., 1991)
- Pascale,R.T. & Athos,A.G. The Art of Japanese Management (Penguin, 1981)
- Peters,J.P. & Watermann,R.H. In Search of Excellence. Lessons from America's Best-Run Companies (New York, 1982)
- Reich,R.B. The Work of Nations (New York, 1992)
- Rich,S.R & Gumpert,D.E., How to Write a Winning Business Plan, Harvard Business Review (1985, May-June)

Sackman,S.A., Flamholtz,E.G. & Bullen,M.L., Human resource Accounting: A State-of-the-Art Review, Journal of Accounting Literature (vol. 8, 1989, s.235-264)

Schiller,S., The Intelligent Enterprise – From a Competence Management Perspective (Göteborg University, 1996)

Stewart,T.A., Your Company's Most Valuable Asset: Intellectual capital, Fortune (1994, October)

Stewart,T.A., Trying to Grasp the Intangible, Fortune (1995, October)

Tjänsteförbundet Tjänsteforetagens värden, rekommendationer om styrtal i tjänsteföretag Stockholm, Tjänsteförbundet, 1993)

Appendix. Working with intellectual capital accounts

This Appendix is targeted at companies, consultants and advisers wanting to work with intellectual capital accounts. It contains several examples of ways to define the measurements of intellectual capital accounts. It also contains five useful questions with focus on the company's reasons for initiating the work and the criteria of success.

Table 21. A template of intellectual capital accounts measurements

Category / Form	What there is”: Statistical information	What is done”: Internal key figures	“What happens”: Effect goals
Human Resources	Description of the size and composition of the staff (seniority, education etc.) or economy (e.g. costs for education)	Description of the form of the HR administration (e.g. number of employees with development plan)	Description of the attitudes of the employees (e.g. satisfaction) and conduct (e.g. circulation) or financial effects (e.g. human ressource accounts) and financial productivity (e.g. value-added per employee)
Customers	Description of the number and composition of customers (e.g. turnover by industries and markets) or economy (e.g. total marketing expenses)	Description of the handling of customers (e.g. customers per employee) or financial productivity (e.g. marketing expenses per turnover DKK)	Description of the customers attitudes (e.g. satisfaction) and conduct (e.g. loyalty)
Technology	Description of the IT capacity (e.g. extent and type of IT equipment)	Description of the availability of IT (e.g. PCs per person in a category of employees)	Description of the application of IT (e.g. IT literacy)
Processes	Description of resources invested in processes (e.g. as regards staff and investments) or in financial figures on internal processes or activities (e.g. total IT expenses per person in a staff group) or investments (e.g. in IT)	Description of the productivity of processes (e.g. lead time) or productivity (e.g. costs per process)	Description of the suitability of processes (e.g. errors, quality or waiting time)

This template of development of a company's intellectual capital accounts illustrates the principles and is thus abstract. The following are examples of ways to compute such key figures.

Staff

Measurement	Definition	Purpose
Seniority	Average number of years of employment in the company and/or position	The seniority of the staff may contribute to an assessment of the company's experience in supplying its services or products.
Education	Number of employees with education from basic school, intermediate school or university	Education is a major factor when determining the educational level of the company
Education	Number of employees with education from basic school, intermediate school or university	Education is a major factor when determining the educational level of the company
Education costs	Annual costs for internal and external courses. To this costs for on-the-job-training should be added (however, this is not common)	Investments in education reflect the company's will to increase its basis of knowledge
Number of employees with development plan	Number of development plans/number of employees	The personal development plan shows whether the company considers individual education needs
Number of education days per employee	Total number of education days/number of employees	The number of education days per employee reflects the intensity of the company's educational activities
Education costs per employee	Total education costs/number of employees	The education costs per employee reflect the level of the company's educational activities
Employee satisfaction	<p>Is measured and collectively considered on the basis of several questions, e.g.</p> <ul style="list-style-type: none"> • I feel committed in my daily in my daily work with colleagues in the company • The daily work takes place in a trusting atmosphere across all levels • Maximum independency and competence are granted to each employee • Openness and respect for each other's viewpoints characterize all work in the company • I am confident with the development in my work and qualifications • I am confident with the careful risk policy of the company • I am confident with the company's holding on to the staff whenever possible • I feel confident with the attitude expressed through the written philosophy 	The employee satisfaction indicates whether the employees are committed and thus open towards development
Competence matrix	Statement of the tasks within each function and a statement of the types of knowledge and competence needed to support these tasks	The competence matrix is used to identify areas in need of further investments in education, training and recruitment of new employees
Human resource accounts	Statement of costs and investments in connection with staff education development, deployment and readjustment	These focus on the direct and indirect financial consequences of human resource management measures
Value-added per employee	Profit plus pay/number of employees	Shows the value added to the income from suppliers and investors

Customers

Measurement	Definition	Purpose
Distribution of turnover by markets, customers and products	The percentage distribution by products, customers or markets	This reflects the risk of the turnover
Marketing expenses	Total expenses for marketing of the company's products, including PR expenses etc.	This reflects the company's investments in the development of its market position and is thus a risk indicator
Customers per employee	Number of customers/number of employees	This is an expression productivity
Marketing expenses per turnover DKK	Total expenses for marketing/total turnover	This is an expression of intensity in the development of the market position
Customer satisfaction	Is measured and collectively considered on the basis of several questions, e.g. <ul style="list-style-type: none"> • Is staff motivated? • Do they give clear answers to questions? • Are the procedures fast and flexible? • Can you get in contact with the right person? • Are errors corrected quickly and flexibly? 	Customer satisfaction is a significant element in the chance to obtain repeat business
Repeat business	Share of turnover related to the existing customers	Reflects the customers' satisfaction with the products of the company
Customers with long term relations	Share of customers with more than 5 (or X) years' interaction with the company	Reflect the stability of the company's customer basis

Technology

Measurement	Definition	Purpose
Total IT investments	Internal and external expenses for purchase and servicing of hardware and software	Reflect the support of the companies' structural capital or infrastructure
Number of internal IT work stations	Number of supported work stations	Reflect the company's IT literacy
PCs per employees	Number of PC work stations/number of employees	Reflect the support of individual capital exercised by structural capital
IT expenses per employee	Total internal and external expenses for purchase of hardware and software/number of employees	Reflect the intensity of the company's application of IT
IT knowledge/it literacy	Number of employees with IT-related education and literacy	Reflects the possibility to utilize the investments in hardware and software

Processes

Measurement	Definition	Purpose
Costs per process	Distribution of total cost per process, e.g. in relation to a value chain	Reflect the company's application of resources in connection with key growth factors
Staff distribution by processes	Distribution of employees by processes	As above
Investments in offices and workshops	Total internal and external expenses for upgrading of equipment	Reflect the company's wish to create a comfortable place of work where the individual feels welcome
Lead time	Calendar time from the time when a product enters production till it is finished	Reflects the company's ability to comply with market needs as regards new products
Product development time	Calendar time from product idea till finished development	Reflects the company's ability to comply with market needs as regards new products
Induction period for new organizational units	Calendar time from the design (or acquisition) of a new organizational unit till it works administratively as a part of the unity	Reflects the company's ability to incorporate the organizational development into its management system
Error rate	Number of production errors/total production	Reflects the reliability of the production process
Waiting time	Calendar time from uttered request to receiving a product or service till execution	Reflects the company's ability to supply and competitive power
Quality	The customer's experience with quality often measured through questionnaires: <ul style="list-style-type: none"> • Does the product fulfil reasonable expectations to quality? • Are the properties of the product in agreement with the expectations aroused by the company's marketing effort? 	Quality is a special dimension of the product showing the customers' feeling of connection between price and product
Reputation of the company	Various parties' assessment of the company's production methods, employee relations, contribution to society etc. Is measured by means of questionnaires	Reflects the company's general 'political' position in society and thus indicates 'the political risk'

These examples of how important measurements within the ten intellectual capital accounts can be put into operation are only illustrations. These expressions do not represent an authorized definition.

The work with the development of information to be used in the intellectual capital accounts and the subsequent application of the intellectual capital accounts within and outside the company can be organized in several ways. The ten companies have, for example, not used the same method. This is due to the fact that companies do not attach equal importance to the various fields in this Appendix (also found in another form in Table 1.) The companies focusing on statistical information about staff and to a certain degree customer aspects often base their work on already existing information

systems (e.g. PLS Consult and WM Data.) Companies developing key figures and effect goals are not satisfied by such information. They establish an organization for development of new systems and make sure that they are used especially to support the company's development of its intellectual capital (e.g. Skandia.)

The work with development and application of intellectual capital accounts can be organized around the following activities or special criteria of success:

- Identify the special purposes of the intellectual capital accounts.
- Define the company's level of ambitions as regards the contents of the intellectual capital accounts.
- Establish who will be the users of the intellectual capital accounts.
- Formulate relevant key figures, e.g. within the framework illustrated by Appendix 1/Table 1.
- Disclose the strategy to be supported by the intellectual capital accounts.

These five activities concentrate on identifying the special needs of the individual company. They do not make up a model of an implementation process. They provide information about the "sensible questions" which must be covered at one stage or another of the company's work with the intellectual capital accounts development. This is important because intellectual capital accounts represent more than their information. They also form an integral part of the strategy they are meant to support.

The ultimate ambition of intellectual capital accounts is for them to establish an understanding and disclosure of the central growth factors of the company in order to achieve a more effective management of these factors and thus an increase in the company's value.

A more realistic criterion of success is for the intellectual capital accounts to demonstrate the resource amount, composition of qualifications and consequences of various applications of the intellectual capital.

To be termed 'intellectual capital accounts' the reporting must at least include reports of more than one of the categories (human resources, customers, technology and processes) mentioned in Table 1 of this Appendix. This will only be extensive if key figures on the two of the measurement method types shown in the table ('what there is', 'what is done' and 'what happens') are included. The chosen key figures should embody a certain long-term validity so that publication is relevant for several years.

In connection with the measured areas, the key figures brought into focus by the company should - together with a description of the corporate strategy - provide a sensible presentation of the resources and competence of the company and the way in which it intends to develop these.

The Trade and Industry Development Council
The Danish Agency for Development of Trade and Industry
Tagensvej 137
DK-2200 Copenhagen K

September 1997

Tel. + 45 35 86 86 86
Fax + 45 35 86 86 87