Foreword

We would like to thank our tutor, Leif Edvinsson for all discussions and arguments we have had during this thesis. If Leif Edvinsson's purpose has been to enable a maximisation of the development of *our* human capital, the only thing we can say is Thank you, you succeed. During our years at Lund University we have never in only ten weeks have learned this much. Without Leif Edvinsson's knowledge of this field we would not have had the possibility to learn this much.

We also would like to thank our companies researched and interviewees for devoting their time to the realisation of our thesis. Clas Arén, Anna Karin Bryder and Ann Gyllenberg at Heart and Lund Centre at Lund University Hospital in Sweden. Torben Steen Nielsen at Coloplast in Denmark. Christofer Hultén, Eric Salander, Liam Ulvhage at Öhrlings PricewaterhouseCoopers Sweden. Alison Thomas PricewaterhouseCoopers in United Kingdom, Margareta Barchan at Celemi Sweden. Jan Mouritsen at Copenhagen Business School in Denmark and Karl-Erik Sveiby in Australia.

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Thank You!

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1. INTRODUCTION

In the present thesis we have the intention of describe and explain visualisation and intellectual capital development. This chapter is an introduction to the chosen field of research. Discussions and explanations regarding issues and problems as well as incentives to visualize and develop intellectual capital are made in order to give the reader an understanding of this new field.

> *How could a company's value sometimes up to 90 % consist of something, which just partly can be owned and more often is invisible?*[1]

Today's society has undergone a rapid change! This development is something that you can hear and read about in the media almost every day. But what kind of change is it that almost everyone is arguing about? For the last hundred years or according to some, all the time through out history, the most important asset to human beings has been money or gold. The reason for that has been that gold or money always has been the key, or at least an important factor to success. The ones that were rich could always invest and buy what they needed to become richer. Is not that true today as well? Here opinions are divided, some people would argue against and some would agree. What most people would agree on is that today there is something that is more important for success than just gold or money and that is knowledge. The critics against this type of arguments would probably say that knowledge always has been important and this would certainly be true. However, knowledge has never been as important as it is today.

If you follow the worldwide debate on globalisation and internationalisation you will find the expression "the knowledge economy" almost everywhere. What is this knowledge economy and what impact does it have on the world? If you look into, at least the western part of the business world of today you will see that the traditional production industry constitute a minority. Today most people in some way or another are working with information or communication instead of production. This is what the American author Thomas A Stewart calls the knowledge revolution. He argues that the knowledge revolution is not about downsizing or shrinking, even if these are important elements in the process. He argues that the ongoing knowledge revolution that is totally transforming the working life, the national economy and the social society.[2]

But what exactly does a knowledge revolution mean? A revolution is a sudden, sweeping or complete change, a fundamental reorganization[3]. This is well known

[1] Eccles et al, *The ValueReporting Revolution* (2001)
[2] Stewart, Thomas A, *Intellectual capital* (1997)
[3] Stewart, Thomas A, *Intellectual capital* (1997)

to people in the working life. The globalization has opened new markets, new ways of looking at competitors and a continuing development of the information technology. Around all these forces a new society economy is growing, the knowledge society economy. The most important sources to prosperity in the new society are knowledge and communication rather than physical work and nature assets. Also the Pope Johannes Paulus II realized the importance of knowledge when he in his Pope letter 1991 wrote:

> *While the most conclusive production factor once were land and then capital...today the most conclusive factor is to an ascending extent the human being itself, so to say her knowledge*[4].

A good example is Netscape a company that creates software. Navigator is the company's best-known product that comes into your computer through a modem directly from Netscape's servers and very seldom even takes a physical form. The owners of this kind of companies do not own any factories but still receive just as much revenues or even more than the traditional factory owners did. Thomas A Stewart argues that the changing into the knowledge economy could be compared with the changes of the industrial revolution during the 19th century.[5]

There have been several changes in the society, which has made it important, and interesting to study and understand what knowledge really is. But to be what more explicit what is the importance of knowledge? Knowledge has always been important, however, in the competitive environment nowadays most people and authors in the business world would argue that knowledge is more than important and probably a firms most valuable asset. Knowledge is to the greatest part owned by individuals and not by the organization in which the individuals work. How could a firm's most important and valuable asset be owned by the people that work for the organization and not by the organization itself?

The discussion about the great impact of knowledge for organizations can continue but what are, the most important practical consequences in this matter? This question could be answered in just as many ways as the number of people you would ask. If you look into this out of a competitive perspective and agree that knowledge is an important asset together with the fact that the world around you is changing faster today than some years ago, you probably share the concerns that many managers have today in how their organizations could further develop their most important assets.

The importance of knowledge can also be viewed from another perspective. There are several ways of deciding a price when one company acquires another. Traditionally, this has not been as difficult as it is today, some would argue and say that historically it was easier when the acquisition price to a greater extent were based on the material assets that were bought. Today the most common way of deciding the price is by the discounted cash flow model[6]. In short, this model is based on the calculation of the company's future profits and the expected

[4] Stewart, Thomas A, *Intellectual capital* (1997)
[5] Stewart, Thomas A, *Intellectual capital* (1997)
[6] Copeland, Tom et al, *Valuation measuring and managing the value of companies* (2000)

profits are valued in today's money value. It is, however, still important to understand the value of the company's tangible assets but a further investigation of this method will show that very often the tangible assets only are a small part of a company's future profits.[7]

Another important question that needs an answer is, when some people state that up to 90 % of the value of a company is invisible, how could anyone be sure that the price is correctly decided? What happens when a company acquire another company for more than the value of that companies book value? The premium that is paid normally consists of intellectual capital, expected revenues from patents, customer relations, brand name etc.[8] According to the accounting rules in Sweden and elsewhere you are not allowed to pay for nothing, and for that reason the accounts named this post goodwill. This post is special and if you look into many of the acquisitions that has been made lately in Sweden more than half of the acquisition price consists of goodwill.[9] Goodwill is a phenomenon that has been criticized for a long time and there have been thousands of reports and articles written about it. If you look into Swedish account literature you will find many definitions of goodwill but the most extreme is probably Dicksee´s from 1897 where he defines goodwill:[10].

> *... as the difference between the value of a now living horse and the same horse cut up in dog and cat food.*

The term goodwill is interesting and it gets even more interesting if you look deeper into what it really is. This thesis will not further explain goodwill other than that goodwill is a trash post for something that up to some decades ago was not further explained. If you look into the problem from another viewpoint you will understand what we mean. If you accept the fact that if you acquire a company for more than the booked value you will call that premium goodwill, which means that before that company is acquired goodwill will not exist. The value is simply something invisible.

This invisible "thing" during the last decade received the name intellectual capital. The first time "Intellectual capital" as a conception was used in 1969 is ascribed to John Kenneth Galbraith whom in a letter to Michael Kalecki wrote:

> *I wonder if you realize how much those of us in the world around have owed to the intellectual capital you have provided over these past decades* [11]

This was the first time the conception was used but it took almost twenty years into the eighties when Karl Erik Sveiby one of the world leading authors in the field knowledge management wrote the book, the knowledge company, before the discussion around the subject really started. The conception intellectual capital

[7] Copeland, Tom et al, *Valuation measuring and managing the value of companies* (2000)
[8] Engström, Stefan, "Värdering av kunskapsföretag" (1999)
[9] http://www.sveiby.com.au/IntellectualCapital.html (020503)
[10] Engström, Stefan, "Värdering av kunskapsföretag" (1999)
[11] http://www.sveiby.com.au/IntellectualCapital.html (020503)

was more widely used after Leif Edvinsson, former Vice President and Corporate Director of Skandia, developed the Navigator a management and measurement instrument of intellectual capital.

Could one say that goodwill is the same thing as intellectual capital depending on if a company has grown by acquisitions or in an organic way? Some would argue yes, however, but most researchers and people that work with intellectual capital would state that there is more to intellectual capital than that. According to Leif Edvinsson, intellectual capital consists of two parts: human and structural capital. Human capital shortly could be described as all the knowledge, skilfulness and innovative ability that consist within all the employees of the organization. The second part of intellectual capital is structural capital, which shortly could be described as everything that stays behind at the workplace when the employees walk out the door every evening.[12] In many companies and especially the knowledge intense ones, the management is facing the fact that most knowledge is disappearing when the employees are leaving the office in the evening. The statement below made by Jonas Birgersson, founder and former President of Framtidsfabriken, later Framfab, illustrates this with the following statement:[13]

> *Friday evening eight o'clock when half of the workforce left the office and half is already drunk... then our value is about one thousand used computers. That is no fun.*

What is the value of the intellectual assets? Charles Handy at London Business School estimate that the value of a company's intellectual assets normally is three to four times bigger than the booked value of the tangible assets.[14] According to Leif Edvinsson these differences are far bigger than that and he believes that the relation is between five to one and sixteen to one. One could compare this phenomenon with an iceberg, above the surface is the economical, tangible assets and below is that invisible "thing" that is difficult to explain and understand even if most people now is starting to realise its importance.

Is it correct to classify intellectual capital as an asset? If you view it from an accounting perspective there are some criterions that have to be fulfilled. According to FASB there are three criterions that an asset has to fulfil[15]. The asset should involve future benefits, it should be under control by the company and it should be a result of an event that already has taken place. If you come to the conclusion that intellectual capital is fulfilling these criterions then intellectual capital should be included in the balance sheet. If intellectual capital comes into the balance sheet, which means that the value of the company will increase. However is that what most companies want? According to an investigation made by the accounting and consulting company, PricewaterhouseCoopers, more than 70% of all asked business managers believe that their company's stocks are traded at a price, that is far less than what the company really is worth.[16]

[12] Edvinsson, Leif & Malone, Michael S, Det intellektuella kapitalet, (1997)
[13] Anställda = "Anställda den viktigaste tillgången" (2000) Dagens Industri
[14] Edvinsson, Leif & Malone, Michael S, Det intellektuella kapitalet, (1997)
[15] Interview, Hultén, Christofer. (020506)
[16] Interview, Thomas, Alison. (020516)

Another question that arises from this kind of argument is if intellectual capital should be included in the balance sheet and in that case how should you find a satisfactory solution to measure it? Most business people and especially accountants would argue that it is impossible or it will take years before intellectual capital will be included in the balance sheet. Nevertheless of those critics would at the same time argue that most companies have a lot to win if they find a reliable way of visualizing their intellectual capital. This discussion ends up in the following question:

How can organizations visualize and develop its intellectual capital to gain future success?

1.1 Purpose

The purpose with this thesis is to illustrate how intellectual capital can be visualized and give a comprehensive view of elements that influence the development of intellectual capital.

1.2 Outline

In chapter 1, the field of research, discussions and explanations of issues and problems involved as well as incentives for visualizing and developing intellectual capital are presented. The introduction ends up in the purpose followed by the outline.

In chapter 2, Methodology, a description of the theoretical and empirical approaches that has been used in this thesis is made. The purpose with this chapter is to provide the reader an insight into the applied procedure and a possibility to judge the reliability of this work.

In chapter 3, Theoretical framework, important and relevant theories is presented in order to give the reader an understanding of the used framework for the conception intellectual capital. The conception is presented from out of several different theory angles, which are relevant and useful.

In chapter 4, Reference empirical, the result of reference empiric is described. This chapter gives a solid presentation of our chosen reference company as well as a better understanding of the field of research. This gives the reader a foundation for the continuing discussion of the thesis.

In chapter 5, Practice, the three chosen organizations are described. It contains a neutral objective presentation of these organizations and their concerns.

In chapter 6, Analysis, a comparison between the theory from chapter 3 and the empirical research in chapter 4 and 5 is made. The applied empirical work, collected from the research companies, together with the theoretical framework in

chapter 3 is presented to give the reader a further understanding of the phenomenon of visualizing and developing intellectual capital.

In chapter 7, Conclusion, the author's own reflections and conclusions are presented as well as a retrospect of the purpose. The chapter finishes with a suggestion of further research that has been found interesting during the process of the thesis.

In chapter 8, Table of Sources, the sources used to complete this thesis is presented to give the reader an opportunity to further reading on interesting subjects concerning this field of research.

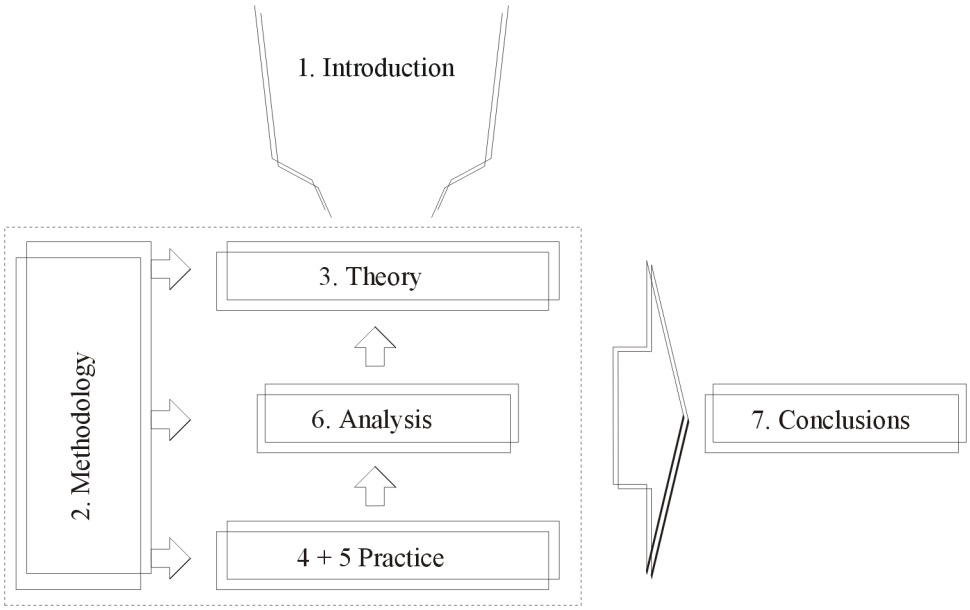


Figure 1.2.1 Outline

2. METHODOLOGY

In this chapter the utilized approach and choice of examination methodology are described, which are chosen to realize the study. The purpose of this chapter is to give the reader knowledge of the applied procedure and a possibility to judge the credibility of the.

2.1 Selection of subject field

We believe that society at the moment is undergoing deep changes. This refers to "the new economy", "the knowledge economy" or "the knowledge society", which are characterized of digitalisation, globalisation and application of knowledge. In the last few years an increasing number of companies have come to realize that the conditions for running a competitive business are undergoing rapid changes. Being able to take optimal advantage of the knowledge of the people will be a decisive competitive parameter for the present and the future, when knowledge according to some, is and will be the only sustainable competitive advantage[17]. One important challenge facing the business world of today is the gap between many organisations balance sheet and its market valuation. This gap representing the bulk of a company's true value consist of indirect assets that never appear in its financial reports. Only in the last few years have companies and academics around the world tackled the challenge of measuring this intellectual capital.[18]

The background to the authors' choice of subject field is based upon the shared interest for the increasing focus on the development of the information society and the importance for companies to create sustainable competitive advantages. To further examine intellectual capital was a matter of course after attending a lecture with Leif Edvinsson, the world's first holder of professorship of intellectual capital. The fact that companies still persists in measuring tangible resources rather than pay attention and visualize intellectual capital and the fact that an intellectual capital statement will in the year 2005 be an internationally demanded regulation make the subject interesting and of news value.

2.1.1 Development and clarification the objective of the thesis

The purpose of this thesis, described in the first chapter: illustrate how intellectual capital can be visualized and give a comprehensive view of elements that influence the development of intellectual capital.

[17] Nonaka, Ikujiro, *The knowledge creating company* (1996)
[18] Edvinsson, Leif & Malone, Michael S, *Intellectual Capital* (1997)

The conception illustrate has its roots in the Latin word illustratio which according to our reference book also could be described as make clear or elucidate[19]. This interpretation in a clear way describes our intention with the conception.

However, there is an important connection between visualizing and measuring intellectual capital that needs a further explanation. When an organization is about to visualize its intellectual capital it could do it in a qualitative or a quantitative way or combining both. Using a quantitative or a qualitative method or a combining method is according to us the only different ways there is of measuring intellectual capital. We do not believe that measuring itself creates any value but as the meaning of the word measure separated in me and asure the value arise with the visualisation. We believe that the only way to assure that something is sustainable is to visualize it and then receive feedback. Our purpose with this thesis is not to find new ways of how to put exact numbers on intellectual capital but to illustrate how it could be visualized. Out of this argument we decided not to make a clear distinction between measuring and visualizing but to see these two conceptions in the case of intellectual capital as connected and almost similar.

Another aspect of the purpose that shouldn't be misunderstood is the development of intellectual capital. Intellectual capital is a broad definition and therefore we decided to mediate the explanation of some authors and complete with our own distinction, which in greater detail is described in the third chapter. We have chosen to use a distinction instead of a definition because we believe that an definition is fixed or looked in while a distinction is more of an invitation or an opener to further discussions. This could look trivial but we believe it is important to gain a higher understanding in this field. This is done to further clarify our rendering of that conception and to reduce the risk of any misunderstandings. The conception of development is according to our reference book a process where something changes and often become more complicated, the reference book also compare the conception with growth in an economic sense[20].

The conception capital can be defined as assets. Intellectual capital thereby can be viewed as intellectual assets, which in order to create value should be systematically organised. Human capital contributes to the innovation and renewal of the company in order to match changes of the environment, while structural capital guarantees the sharing of the knowledge created. In our opinion knowledge intensive firms most important competitive power is knowledge, which is linked to the individuals of organizations. However, we believe that it is not certain that the individuals alone make the company unique. We believe that it is rather the combination between the individuals and the organizations surroundings, which we define as culture, structure, motivation and human resource principles that have a vital importance to knowledge intense companies' capacity to create value. Our efforts to determine how organizations should develop their intellectual capital then are strongly connected to how an organization develops, share and tie knowledge to their organization. Our intention with the research of development of intellectual capital thereby focuses only on the knowledge intensive part of

[19] Reference book, Bra Böckers lexicon (2000)
[20] Reference book, Bra Böckers lexicon (2000)

structural capital. The structural knowledge should be viewed in circumstances to human and social conditions of knowledge that arises from separate individuals and how these interact. We however are aware of the fact that human capital ca not be excluded in the development of structural capital. This field of research however lies outside the frame of this thesis and is not included in the purpose of this study.

This thesis is presented from out an overall perspective. We have chosen to present different kinds of visualization principles in order to present an understanding of how companies could visualize its intellectual capital. We have further made a description of how companies can develop principles for intellectual capital visualization. The visualization of intellectual capital however is only one part, where the other part is development of intellectual capital. The development of intellectual capital is further demarcated to only present the structural capital development.

In this thesis, elements important for structural capital development are presented. However, we are aware of that if we only had chosen one of the presented elements the insight of that specific element and its effect on structural capital had been deeper. However, the presented elements affect each other and as leverage further affect the structural capital development. The perquisite for structural capital development is presented as human resource principles and knowledge management strategy. Further is the supporting elements, that enables structural capital development, organization culture, management as well as motivation and reward system.

2.2 Choice of Theoretical framework

It is from a theoretical point of view important to emphasize on how to collect, organise, interpret and communicate data. It is also of importance to know about of what and how our present knowledge, experience and interest areas can cause some ambiguousness. The design of the research approach combined with our personal viewpoints has also played a crucial part in forming the outcome.

Information has been gathered from primary material as well as secondary material. The primary material consists of expert interviews, individual depth-interviews, observations and internal material, which is the base of the empirical study.[21] The examination process was initiated with collection of information on the subject intellectual capital. Books and articles were collected and studied to get a basic understanding and greater knowledge about the important concepts. Important terms and the used language in this field were generated and made it possible for further investigation. By collecting relevant literature has a broad understanding on the subject been generated and contributed to the ability to draw parallels between the theoretical models and the empirical study. This data constitute a base for the analysis and our own conclusions.

[21] Alvesson, Mats & Sköldberg, Kaj, *Tolkning och reflektion* (2000)

The collection of literature was made through the different search functions and databases at the Lund University library, the city libraries of Lund and Malmö and the bookstores Akademibokhandeln and Amazon. The purpose was principally to find literature, articles and magazines, which touches on the subject of intellectual capital and different factors that was generated from the discussions and interviews with our reference company Celemi. Furthermore has literature regarding human resource management, knowledge management and knowledge intensive firms been inquired to cover the materials that in different ways affect how intellectual capital could be visualized and developed. Relevant key conceptions that were used in the search and collection of literature were for example intellectual capital, knowledge management, knowledge, structural capital and human capital. Internet based secondary data and intern documents of the research companies have been used in order to generate background information. This information, together with the empirical research constituted a foundation for the analysis.

2.2.1 Selection of authors and theories

Below the authors behind the major theories used in our thesis are presented. We don't believe that authors or their theories about a subject are more reliable only because he or she is well known. But if the author is well known as a consequence of often being published or judged in reliable magazines and literature like most of the authors we used, we believe that using that kind of authors will increase the credibility of our thesis. The presentation shown below is not an attempt to way convince the reader that the authors are well-known but also to give the reader a better understanding of who the authors are and why these authors and theories has been chosen to be included in our work.

The reason why we chose to include and look deeper into Thomas A Stewarts theories about intellectual capital is because he was the first one to write an article about intellectual capital. He is part of the editorial staff at the magazine Fortune and he has a reputation for being an expert in the area of intellectual capital. The Business intelligence group, which is a British research group, also rewarded Stewart together with Leif Edvinsson for his contribution to the subject intellectual capital.

Leif Edvinssons theories about intellectual capital are included since he is the man behind Skandia's, report of intellectual capital. Skandia was in 1995 the first company in the world to present their annual report including a presentation of intellectual capital. Skandia was also the first company in the world to make intellectual capital to a function and their way of managing intellectual capital is now used as an example all over the world. Another reason for using Leif Edvinsson and his theories is that we are having the great benefit of having Leif Edvinsson as our tutor during this thesis and hence the possibility to further debate and discuss his opinions.

We have chosen to include "the guideline for intellectual capital statement" a report made after the initiative of the Danish Agency for Trade and Industry in our theory chapter since Denmark is the first country in the world to develop a

guideline for intellectual capital statements. The guideline is based on collaboration between researchers, companies, industrial organizations, consultants and government officials. By using this guideline some are arguing that Danish companies are better prepared for measuring their intellectual capital than companies in other countries. During our first empirical interviews we sure enough, realised that if there is going to be an accepted way of measuring and visualizing intellectual capital the initiative should come from a government. Another benefit by using this report is that we had the opportunity to meet and interview Jan Mouritsen, Professor at Copenhagen Business School, who was in charge of this report and also is an eminent author in questions concerning intellectual capital. This interview gave us the possibility to further question and argue about the report and Jan Mouritsen's opinions in this field which in turn increased our understanding of how the guideline were created.

For many years, Karl-Erik Sveiby has conducted research in the subject of knowledge management, which he defines as being the same as intellectual capital. He is often-referred to in literature and articles about intellectual capital[22]. Sveiby has written several books and articles about knowledge management and is by many regarded as a veteran in the field. Karl-Erik Sveiby is an honorary Professor at the Macquarie Graduate School of management in Sydney and a Professor of Knowledge Management at the Swedish School of Economics and Business Administrations in Helsinki, Finland. We have chosen to use his theories because he is a well-known author and we had the opportunity to make an interview with, which facilitated our understanding of his opinions. It was also an advantage to use his theories since we decided to use Celemi as our reference company, where Karl-Erik Sveiby has been quite involved in Celemi's development of its tools regarding intellectual capital.

The discussion of De Long and Fahey is of interest while it clearly illustrates how different aspects of knowledge effect companies and particular knowledge intensive firms. Moreover the discussion displays an approach on how different parts of knowledge affect companies' dynamic development. Their theory is further used when their definition of structural knowledge as knowledge that exists in the organizations system, processes and routines suits the angle of approaching this thesis. David W. De Long is a researcher and consultant based in Concord, MA. His work focuses on helping companies create organizational capabilities needed to succeed in electronic business environments. He received his doctorate in organizational behaviour from Boston University. Liam Fahey is an adjunct professor of strategic management at Babson Collage and a visiting professor of strategic management at Cranfield University, UK.

Ikujiro Nonaka is a professor of management at the Institute of Business Research, Hitotsubashi University, Japan. Ikujiro Nonaka has written several articles and books about knowledge and the knowledge creating process. Many consider him as the foremost author in the field of knowledge. His theory about the spiral of knowledge provides a conceptual framework for research on the differences and similarities of learning by individuals, groups and organizations.

[22] E-Mail Interview. Karl-Erik Sveiby. (020418)

Morten T. Hansen is an assistant professor and Nitin Nohria is a professor of organizational behaviour at Harvard Business School in Boston, Massachusetts. Thomas Tierny is the worldwide managing director of Bain & Company in Boston. Their theory of how companies should manage knowledge provides an important view of how information in different companies can be stored and tied to the company.

Robert S. Kaplan and David P. Norton are the creators of the Balanced Scorecard which they in their book published in 1992. Robert S. Kaplan is the Marvin Bower Professor of Leadership Development at Arthur Lowes Dickinson Professor of Accounting at the Harvard Business School in Boston, Massachusetts. David P. Norton is the founder and president of Renaissance Solutions, a consulting firm in Lincoln, Massachusetts. They have together as well as separate written a number of articles and books within the field of Balanced Scorecard.

2.2.2 Choice of requirements and supporting elements

A presentation of the work model, figure 2.2.2.1, used in this research illustrates the important perspectives that influence the development of structural capital.

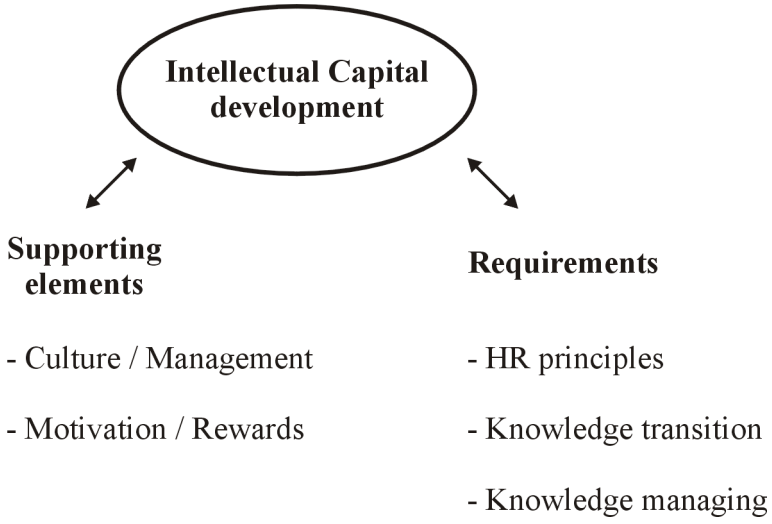


Figure 2.2.2.1, Influencing perspectives of intellectual capital development

We have divided the perspectives into two parts, requirements and supporting elements. In Requirements, elements that are vital to knowledge creation and knowledge sharing are presented. The elements are Human Resource principals, Knowledge transition and knowledge management. The Human Resource principles handle the factors that discuss how organizations can expand its knowledge base by hiring and educating employees as well as the importance of network. Knowledge transition identifies the process of how knowledge is transferred between individuals. Furthermore the knowledge management handles different strategies for storing knowledge.

The Supporting elements handle organization culture and management as well as motivation and rewards since they support the knowledge creation and sharing, which enables development of intellectual capital to occur. In the element organisation culture and management discusses important aspects of how it supports the creation and sharing of knowledge. Moreover are motivation and rewards discussed since they affect the employees' way of acting within the organization.

2.3 Work steps in short

Step I: The examination process was initiated with collection of information on the subject intellectual capital with the intention to build a base around the subject.

Step II: The reference company, Celemi, was selected and examined in order to generate greater understanding about the subject.

Step III: A selection and examination of companies researched were made in order to generate information of how organization visualize and develop its intellectual capital.

Step IV: An analysis of the companies' researched condition and the connection between empirical and theoretical information was made.

Step V: Finally the theoretical and empirical observations were summarised and conclusions and recommendations were made that could lead to further improvements in this field.

2.4 Collection of empirical data

Initially we met Margareta Barchan, the former CEO and President of Celemi, to generate some information from one of the most experienced companies within the field of visualizing and handling intellectual capital. We also interviewed one of the most eminent authors in the field of knowledge management, Karl-Erik Sveiby, who also was involved in the development of the tools that still is used at Celemi in managing intellectual capital. Further we met with Jan Mouritsen, who were in charge of the project with developing the guidelines of measuring intellectual capital in Denmark. These distinguished sources gave trustworthy and relevant background information, which simplifies our continued research. The gathered information formed the basis of the design and the depth interviews, which carried through at the research companies.

After the gathering of background information and the studying of the written materials about the research organizations, we continued to establish contacts with the three research companies. We met with the most competent persons in the area of intellectual capital at each company, but also with people that had a lot of responsibility, to get a broader and more correct picture of the companies'

mission, culture and organization structure. Thereafter we accomplished discussions that in most cases lasted for about two hours, on the respondents' place of work. This method made it possible to observe the respondents environment, which led to an increased understanding of the interviewee. In a secure and well-known environment the respondent felt relaxed and non-threatened. The discussions or open interviews began with a brief presentation of the subject to communicate and increase their understanding for the purpose of our research. We also had the opportunity in all three cases to be guided around at the companies' factories, divisions or offices.

In this research we used semi-structured interview techniques, which consisted of similar thematic question forms with a change in the order of questions. The questions were of open character, which gave us an opportunity to discover unexpected information.[23] To get a deeper understanding we also used laddering technique where the semi structured question form were complemented by follow up questions[24]. These interview techniques result in very comprehensive and more profound answers, which creates conditions for a qualitative analysis. A couple of days before the interviews were conducted a brief presentation of our work were sent to each respondent. The interviewee then had the time to get prepared and necessary information could be collected, which reinforces the accuracy of the thesis.

The respondents were picked through a non-probability sample, which is a satisfactory method when aspects and attitude are illuminated[25]. In some cases the respondents worked on different levels in the hierarchy of the company, which helps to generate different opinions of the same issues. We were both present during all the interviews. The questions were presented by one of us and the other was taking notes and observed the situation. A tape recorder was used to further document the interview.

2.4.1 Selection of reference company

The reason why we chose to make a distinction between our researched companies and reference company is that using a company as an reference or expert company gives us the opportunity of starting to ask questions and doing interviews before we had completed our theory section. The reference or expert company, Celemi, were selected from out of the perspective that Celemi have worked with our subject for quite some time and can be considered to be a long way ahead in visualizing and developing intellectual capital. Further we have chosen Celemi because we have good access to information about this company's development and we had the opportunity to interview the former CEO of Celemi, Margareta Barchan. The investigation of this company was made in order to generate greater understanding about how the theories work in practice. This procedure was done to generate new ideas that could lead to new insights. The information gathered from Celemi gave us the possibility to further develop what

[23] Lundahl, Ulf et al. *Utredningsmetodik för samhällsvetare och ekonomer* (1999)
[24] Kumar, V. et al. *Essentials of marketing research* (1999)
[25] Andersson, Jan-Olof et al. *M2000* (1997)

hidden factors were important in questions concerning our interest in intellectual capital. The fact that Celemi in 1997 was named to Europe's 500 list of fastest growing companies and that Celemi is an often used company when examples are given in how a company could visualize their intellectual capital also effected our decision to use Celemi as an expert company in our thesis.

We are aware of that it exist other companies that would have been interesting to study if more time was given to this project. WM data or Dow Chemicals are examples of companies that would have been interesting to further investigate when they are companies that as well as Celemi has worked with visualisation of intellectual capital for many years and that the literature in this subject currently is referring to them. Celemi is however interesting in the way that it exemplifies a knowledge company, and by that we mean that knowledge are used a competitive tool and can be viewed a company's most valuable asset. This company in a very legible way fit in what we earlier described as the knowledge society.

2.4.2 Selection of researched companies

We chose to include empirical material in our thesis because we considered that part important to gain a better understanding of problems and questions mentioned in the literature. We both are practical persons in the way that we consider theory and literature more important if it is applied and compared to reality, which in this case is what we call the empirical part.

The first aspect to consider deciding what kind of organization we wanted to use was questions concerning visualizing of intellectual capital. Since our purpose was to illustrate how intellectual capital can be visualized we considered that part essential to our choice of organizations. Both Coloplast, Heart and Lung Centre at Lund University Hospital and Öhrlings PricewaterhouseCoopers visualizes intellectual capital. In this first dimension Öhrlings PricewaterhouseCoopers is interesting because they do not implement their visualizing technique on the company but uses it in their work tasks as a model to help clients visualizing and presenting their intellectual capital.

The second aspect to consider when choosing companies for researching were the purpose to get companies from different industries and if possible with different ownership structures. Initially the reason for this was that when the first information in this field was generated we understood that at least in questions concerning visualisation of intellectual capital there was not any standardised ways and that the probability that we could learn more would increase if we investigated on a broader base.

Of course we are aware of the fact that it could be more difficult to make conclusions when the basic conditions are different but we still believe that we made a correct decision. Öhrlings PricewaterhouseCoopers is an accounting and consulting company that is owned by the senior partners that still are working within the firm. The Heart and Lung Centre at the Lund University hospital is an organization owned by the government but function under Region Skåne. The organization could be defined as active within the health care business and

focusing on patients with cardiac and pulmonary diseases. Finally Coloplast, which is a company that could be defined as a more traditional production company where half of the company's workforce is working in the production. Coloplast is a production company focusing on products for the health business and the company is traded on the Danish stock market but the biggest owner is still the family that started the company in 1957.

The last aspect to consider our choice was that the companies should be in knowledge intense businesses, which we are aware of could be argued that most businesses are these days. Our intentions concerning this dimension were however to find companies that more explicitly had knowledge, as an important parameter in developing long time success.

An overall picture to further simplify our choices concerning the empirical part is shown in the model below.

	Coloplast	**Heart and Lung Centre**	**Öhrlings Pricewaterhouse Coopers**
Visualization of intellectual capital	Yes	Yes	Yes
Knowledge intensive organizations	Yes	Yes	Yes
Owner structure	Shareholder ownership	Government-owned	Partner-owned
Industry	Production company	Health care	Accounting and consulting

Figure 2.4.2.1 Choice of practice

All of the three companies researched were positive to a research and the managers were interested in sharing time as well as information.

In the model above the three companies are illustrated with possible descriptions that are connected to the purpose of this thesis. By choosing three research companies and compare them a possibility of generating new and valuable information is created as well as an increased interest in our work. The strength with the case study methodology is that a research of several variables could be made and simultaneously illustrate the interplay of the factors that was important for the specific phenomenon.

The factors, which are identified at the three chosen companies, are intended to constitute a generally applicable truth of the attempt of question. The purpose is however not to present a plan of action of how the researched companies should work with the development of intellectual capital. The research should rather be viewed as a source of information on how intellectual capital influences the

organization. In this case lies the interest in examining the visualisation principles and the development of intellectual capital. Intellectual capital, knowledge management, balanced scorecard are examples of the conceptions that we have studied in the examination.

The possible adjusted theories and issues were tested empirically on the selected companies. After the field research all the collected information was analyzed versus the theories, the expert interviews and the depth interviews from the researched companies. The expectation was to put together a report that consisted of theoretical as well as empirical information and present our view of the subject.

2.5 The credibility

The material in this thesis is presented in a realistic style, which is the customary scientific form, where the author retells the occurrence without involving his or her person. The authors' subjective opinions are filtrated and neutral descriptions present the empirical material.[26]

It is the readers duty question the credibility of a thesis. When the research does not contain of any quantitative method it is important to put validity as well as reliability questions in relation to the instrument, interviews, that is interesting. How information has been collected, analyzed and interpreted is important for the credibility and accuracy of the study. It is of great importance that the interviews are edified and formulated reliably. It is further crucial that the generated information has been analyzed correctly and that the conclusions are grounded empirically. It puts the interviewer in a forced position while he or she is the main tool. The validity is further connected to interpretation of collected data and the pattern that has been identified.

2.5.1 Presentation of interviewees

A presentation of the respondents are briefly made below to give the reader a better understanding of how we received some of our information but also to give the reader a better insight when judging the credibility of the thesis.

Coloplast
Torben Steen Nielsen is project Co-ordinator and responsible for the Annual reporting of intellectual capital visualisation within Coloplast. He is also Group manager for corporate communication and he used to be in charge of the environmental accounting for Coloplast. He has been working at Coloplast for several years both in Denmark and in the U.S.A and Japan.

Heart and Lung Centre, Lund University hospital
Claes Arén is a senior lecture and division director of the Heart and Lung division at Lund University Hospital. Claes was recruited to Lund from the University hospital in Linköping in January 2000 when the division were created. He is

[26] Lundahl, Ulf et al. *Utredningsmetodik för samhällsvetare och ekonomer* (1999)

involved in a couple of projects concerning intellectual capital and is regularly visiting seminars and meetings concerning this subject. Claes Arén has also a background as a physician but currently he works with administrative questions.

Anna-Karin Bryder is development secretary at the Heart and Lung Centre at Lund University hospital. Anna- Karin Bryder has a nurse education and has worked as a nurse for twenty years but the last ten years her main tasks has been in the administrative part. Anna- Karin started at the Heart and lung centre in her present position in January 2000 and together with Ann Gyllenberg they function as an overall support to the hole division in questions concerning intellectual capital and the Heart and lung centre scorecards. The management of the division together with Anna- Karin Bryder and Ann Gyllenberg developed the scorecards.

Ann Gyllenberg is also a development secretary at the Heart and Lung clinic at Lund University hospital. Ann Gyllenberg has two major alignments in her nurse education but now only function in the administrative part. Ann Gyllenberg works together with Anna- Karin Bryder and they support the division in all kind of questions concerning intellectual capital and the Heart and lung centre scorecards.

Öhrlings PricewaterhouseCoopers
Christofer Hultén is an authorized accountant who has been working at Öhrlings PricewaterhouseCoopers for 13 years. Christofer Hultén has been group manager and thereby responsible for 10-15 accountants for several years and is now market manager in the owner led and middle-sized companies.

Eric Salander is an authorized accountant who has been working at Öhrlings PricewaterhouseCoopers for 8 years. Eric Salander has been working with ValueReporting for more than a year. Eric Salander does most of his time work with big, international companies and he has also been group manager for accountants.

Alison Thomas is a director of research PwCs` ValueReporting team and a research fellow in Finance at St. Catherine's College, Oxford. Alison Thomas has also worked several years as an investor on the capital market.

Liam Ulvhage is a senior manager at Öhrlings PricewaterhouseCoopers and work among other things with valuation accounting and valuation of human capital.

Celemi
Margareta Barchan is the former President and CEO of Celemi. Now she has left these positions but still works actively with Celemi as part of the company's board of directors. Margareta Barchan has been in what she defines as the business of intellectual capital for about two decades and she is an often interviewed and well-known person within this field. In 1997 she was named the Business Women of the Year for Sweden and she was the initiator behind Celemi's start with measuring and visualizing their intellectual capital.

2.6 Criticism of methodology

Every research consists of some form of bias, which in different ways can be reduced with qualitative research methods. To avoid this kind of twisted information it is of great importance to be conscious of the mistakes that can arise.[27] Field research methods can be criticised regarding to its lack of credibility and validity. The descriptions tend to be too detailed and hard to interpret or, if it is simplified, could result in wrong conclusions by readers. The method generates further a comprehensive impression while it only describes a small part of the researched issue. This thesis describes different perspective of a specific issue where the interpretation of the presented material is permeated of the authors' own interpretations and opinions.

Evidently the unconscious actions of human nature are hard to identify and concretise in the thesis. It means that in this thesis only aspects that the interviewees consciously pointed out are presented. Primary data consists of internal documents, realized observations as well as expert- and depth interviews. The objective has been that the interviews, which have been realized with carefulness, should reflect the reality. The selection of interviewees were partly controlled by the companies, which entail a risk that the managers of the researched companies referred to individuals with only positive experience regarding the investigation of intellectual capital. Factors like location and time has further controlled the selection. The empirical research has also been dependent on the contacts that have been procured through the expert and research companies. It is important for the reader to understand that the selection might not be optimal.

The interview questions were openly formulated in order to have a discussion rather than a questioning session. The questions were further formulated in a way that it to some extent should reflect the answers of the respondents. It was important that the questions were not guiding or ambiguous, which could lead to incorrect apprehensions and results. The numbers of questions were fairly few, which gave the interviewees opportunity to answer every question thoroughly, appendix 1 and 2. Through the used laddering technique were follow-up questions present to gain deeper insights.

A copy of the thesis are going to be handed out to the researched companies, which could have the result in that the respondents influence the interviews to give a more positive picture of reality. Control of the respondents character and answers are difficult to carry through, all interviewees however seemed to be honest and sincere. To do the interviews anonymously, without the respondents' awareness about the purpose of the research, could be ways of evade this type of bias. We however considered this method as a bad option in this project.

The interviewer was the main tool in the research process and high demands were put on his shoulders. A consciousness of the possible influence of the interviews existed since it to a large extent can reflect the result. The researchers subjective

[27] Kumar, V. et al. *Essentials of marketing research* (1999)

opinions can reflect the result, which can lead to a biased report. The collection of primary data can be criticised for the subjectivity that reflects the respondents' different answers. Their values and opinions to a large extent reflect the answers that were received.

It is furthermore important to notice our backgrounds and how it can influence the result. Both of us has a history of working in different companies before we decided to go back and become students again. These aspects together with the fact that we are graduating soon, of course have influenced our way of working and our way of choosing how to solve problems. We are also affected by the fact that we have studied together the last years and almost taken the same courses which unfortunately could give this work a more narrow perspective than if we had studied totally different subjects. We got our first interest in this subject area when we met Leif Edvinsson at a seminar regarding intellectual capital at Lund University. If we would have another background and a different education it would be likely that we had chosen another way of attacking and focusing this subject.

2.7 The Journey of the thesis

A retelling from our most notable features during this ten weeks is presented below to further describe our journey in the field of intellectual capital. We believe that it is further important as well as interesting to present the ways of how this thesis has progressed. This presentation is an attempt of giving the reader a better understanding of why some elements are included and some excluded. Further it gives the reader a more realistic picture of what challenges we have been facing.

Our first idea with this thesis was to research measurements of the intellectual capital in order to understand and explain the difference between the market value of an organization. When we started to build a foundation of the subject of intellectual capital we soon noticed that no clear picture of how intellectual capital is defined exist. We however found out that intellectual capital broadly was defined as two separate parts. When our interest lies in how knowledge effect companies our choice of focus came naturally. Now the mission became to measure the intellectual capital with a focus on the human knowledge in order to receive an understanding of the company's value.

Our first idea of how to collect practical information was to do the research in a knowledge intensive company, where we believed a valuation of intellectual capital were of biggest interest. After a while we however became interested to further see if and how other and more traditional companies are interested of the subject and if they can gain the same advantages as a knowledge intense consulting firm. We therefore chose to conduct research in a production company and a state-owned hospital. The attention was to broaden the horizon and to add a further dimension to the thesis.

During our first practical research at the reference company we found out that the mission with measuring intellectual not only were made in order to find a fair

value of a company. It was rather used as a tool for communication and management. We clearly noticed that it was not the measurement itself that were interesting but it was rather how organizations visualize their intellectual capital and what they gained that became of interest. The discussion of differences between measurement and visualisation emerged. This discussion ended up in a distinction of the word measure. The meaning of the word measure was divided into two words, Me and asure. The new meaning of the conception measure and the implications that it is about assurance rather then quantitative numbers further led to the interest of visualisation. Now the focus of the measurement principles changed to the interest of visualisation of intellectual capital.

Shortly after this new insight we started our researched at the chosen companies. About the same time we further noticed a number of difficulties. One of the insights was that it is not the human knowledge itself that is of most interest. We found out that it is rather the human knowledge in combination with the organization's surroundings that give rise to competitive advantages. When we further studied this feature we found several not separable elements that influences the development. We have consciously chosen to present the important elements rather than focus on one feature when only one element do not alone explain the development. The focus now had changed once again and the new direction became the visualisation as well as development of intellectual capital. The context to be studied in the development of intellectual was the relation between human knowledge and organization surroundings.

We now felt that we were on track but shortly after another not completely separate part emerged. We noticed that all of the researched companies communicated their vision through the visualisation and that the reason for visualizing was deeply connected to the overall strategy. We however chose not to include strategic features when it was a secondary element. We have however chosen to communicate the importance of combining strategy with visualisation and development of intellectual capital in order to emphasise this importance in order to be successful.

What we have found special when working with this subject is that everyone we contacted has all been exceptional positive and helpful. Everyone that works with the subject of intellectual capital seems to have a missionary attitude to the subject. It has clearly emerged an insight of that intellectual capital is about networking. Some way or another all the contacts we made already new about each other and in some cases had already established contact. The insights and information we received during this journey has generated new ideas and insights to the conception of intellectual capital. The purpose of this thesis ended up in presenting how intellectual capital could be visualized and further present which elements that are important for intellectual capital development. If we have had further time to work with this thesis it is likely that the design as well as the information and purpose would have been different. This has been an incredible learning journey and to them who have an interest in the field of intellectual capital our only advice is to continue where we ended.

3. THEORETICAL FRAMEWORK

In the following chapter the theoretical framework and the theoretical foundation the thesis repose on is presented. Initially the visualizing and measurement principles are discussed followed by development principles of intellectual capital development, with focus on the structural capital. The models and theories discussed in this chapter have been relevant and important to the research of visualization methods as well as intellectual capital development principles.

3.1 Definitions of intellectual capital

Below four definitions by eminent authors are presented in order to give the reader a comprehensive view of the subject intellectual capital. To make the work distinction of this thesis clear, the authors' own distinction of the field of research is presented.

3.1.1 Leif Edvinsson

Leif Edvinsson´s definition of intellectual capital is that intellectual capital is the sum of human capital and structural capital. He further defines human capital as the combination of knowledge, skillfulness, innovation ability and the ability to perform. He means that the company cannot own human capital. He defines structural capital as the hardware, software, database, organizational structure, patent, brand name and all other organizational capacity's that support the employees in their productivity. Structural capital could further be explained as everything that stays behind when the employees leave the office in the evening. As a contrast to human capital companies can own the structural capital and it is tradable. Leif Edvinsson´s definition could be further understood by looking at figure 3.3.2.1.[28]

3.1.2 Thomas A Stewart

Thomas A Stewart separates what he calls description from definition. His description of intellectual capital is the sum of an organization's patent, production methods, the employees' competence, technology, customer and supplier information and traditional experience. His definition of intellectual capital is the half permanent knowledge mass in an organization together with the instruments that is used to maneuver it.[29]

[28] Edvinsson, Leif & Malone, Michael S. *Det intellektuella kapitalet*, (1997)
[29] Stewart, Thomas A, *Intellectual capital*, (1997)

3.1.3 Karl-Erik Sveiby

Karl-Erik Sveiby looks at intellectual capital as a term and argues that a term is best defined by its use and therefore he believes that it is probably still correct to regard intellectual capital and knowledge management as twins. Karl-Erik Sveiby believes that intellectual capital and knowledge management is two branches of the same tree. He defines knowledge management as the art of creating value from intangible assets. He further clarifies that value could be both financial and non-financial.[30]

3.1.4 Work distinction

Our distinction of intellectual capital covers a scale of three. We argue for a wide distinction, a narrow distinction, which also is our work distinction, and finally a monetary distinction. Our wide distinction of intellectual capital is all the knowledge that exists within an organization together with all the supporting elements that facilitate future success by effective utilization of the existing knowledge.

Our narrow distinction, or work distinction, of intellectual capital is human capital together with structural capital where human capital in an organization is all the knowledge possessed by its members. The structural capital is considered as an infrastructure to develop, share and tie the individual's knowledge to the organization.

Our monetary distinction of intellectual capital is the difference between the market value of an organization and the value according to its balance sheet.

3.2 Benefits of visualizing intellectual capital

Karl-Erik Sveiby argues that why intellectual capital should be measured could be answered depending on for whom the measurement should be done. Moreover, he argues that there are two major purposes and two major interest groups[31].

- *External purposes:* To be able to show investors, credit institutions and customers that the company is a good investment, that it is safe to give credit or that the company is a secure supplier.
- *Internal purposes:* To measure for intern purposes to be able to control the company's activities and make it easier for the management to make corrections.

3.3 Intellectual capital visualization

One problem with visulizing intellectual capital is that it today does not exists any accepted measurement or visualization principles. A presentation of some of the

[30] E-Mail Interview. Karl-Erik Sveiby. (020418)
[31] Sveiby, Karl-Erik, *Kunskapsledning* (1996)

few existing methods is made in order to give the reader an overview and understanding of the today existing principles.

3.3.1 The Thomas Stewart approach

Thomas A. Stewart has separated the measuring of intellectual capital into four different levels or areas. When measuring the whole intellectual capital there is according to him some different ways of doing it. The first and the easiest way of measuring intellectual capital is the market to book ratio where the intellectual capital simply is the difference between the market value and its book equity. There are some factors that could affect this kind of valuation and therefore this kind of measuring will be more reliable if the ratio between the market value and the book value is used.[32]

Thomas A. Stewart's further presents the measuring principle of intellectual capital by the Tobin's Q. James Tobin, in 1981 received the Nobel prize of economics, developed a way to predict corporate investment decisions independent of macroeconomic factors such as interest rates. The model he developed compared the market value of an asset with that assets replacement cost. Originally the model developed by James Tobin was not developed to measure intellectual capital but Thomas A. Stewart has used it for that purpose and even the US Federal Reserve chairman Alan Greenspan has argued that the *q* reflects the value of investments in human capital and intellectual capital. Tobin's *q* model state that if *q* is less than one, that is if an asset is worth less than the cost of replacing it – then it is unlikely that the company will invest further in that assets. On the other hand if the *q* is more than one, which means that the asset is worth, more than the replacement cost companies will probably make further investments in that asset. Consequently when *q* is worth two or close to two the asset is worth almost twice the replacement cost.[33]

Measuring human capital
When measuring human capital it is important to focus on certain areas:

- *Innovation* is the most important output by the human capital and the way of tracking innovations within an organization therefore is important. Innovation can be measured by counting the percentage of sales attributed to new products or services. Another way is to measure the change in the gross margin according to new products.
- *Employee attitude* is important to measure to understand the employees' attitudes.
- *Tenure, turnover, experience, learning* is measurement of important individuals who are difficult to replace.
- *Qualitative aspects* present the measurement in qualitative nature.

[32] Stewart, Thomas A, *Intellectual capital*, (1997)
[33] Stewart, Thomas A, *Intellectual capital*, (1997)

Measuring structural capital
To measure structural capital two kinds of data are needed, measures of the value of accumulated stocks of corporate knowledge and measures of organizational efficiency.

- *Valuing stocks of knowledge,* to manage this it is best to further divide this into another three: a technical bundle, a marketing bundle and a skills and knowledge bundle.
- *Working capital turns* is calculated after the number of times the working capital each year cycles through a company. This part gives the organization an indication of its operating efficiency.
- *Measuring bureaucratic drag* is done by counting suggestions made versus suggestions implemented, time to market, the too many chief test and set up times and minimum profitable lot sizes.

Measuring customer capital
When measuring customer capital further elements should be considered:

- *Customer capital* should be measured in a way that, the relation between increased customer satisfaction and financial results is clear.
- *Measuring alliances* is essential since the organization and its customers jointly own the customer capital.
- *What is a loyal customer worth,* describes the differences between a loyal and a not loyal customer.

Finally, there are three principles that should be concerned when organizations chose what to measure and how that should be measured:

- *Keep it simple,* do not measure more than three measurements of each aspect: structural, human and customer capital plus one that gives a picture of the whole.
- *Measure what is strategically important,* measure only these aspects and nothing else.
- *Measure activities that produce intellectual wealth,* what should be measured should be related to intellectual capital either it is financial or non financial.

3.3.2 The Leif Edvinsson and Michael S Malone approach

Today many companies that acquire other companies will call the difference between the booked value and the acquisition price intellectual capital, which later on in the balance sheet will be named goodwill. In these days when the difference between the booked value and the acquisition price is becoming bigger and bigger the interest of finding a way to bridge this gap is growing in most companies' management. This growing gap was one of the main reasons why Leif Edvinsson during his time at Skandia started to make a map of the company's intellectual capital. His work resulted in the Skandia value scheme, which is shown below in figure 3.3.2.1.

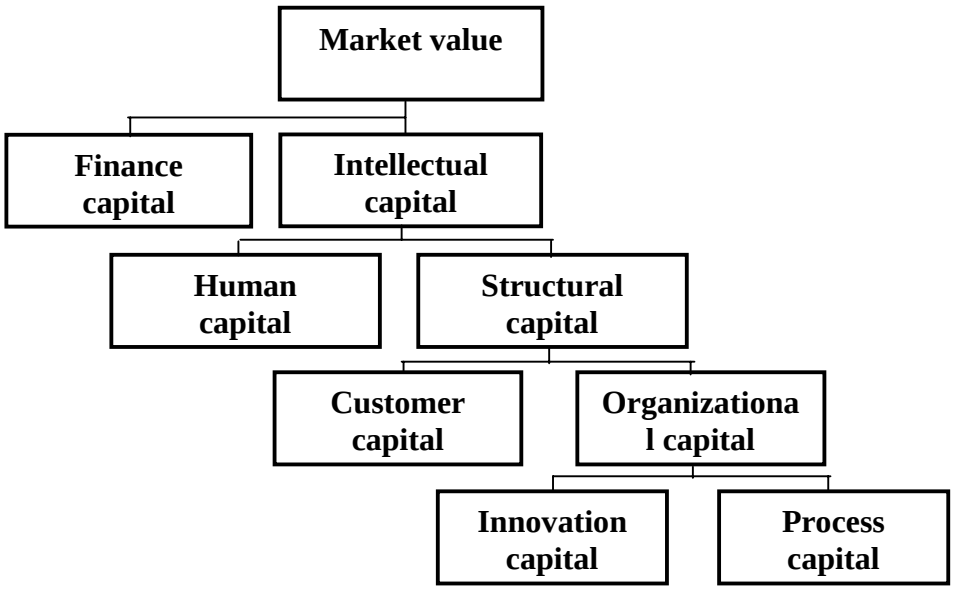


Figure 3.3.2.1 Skandia´s Intellectual value schedule[34]

The model shows that the market value of a company can be divided into two parts, the financial capital which is what can be read about in the traditional balance sheet, and the intellectual capital which here is further separated into human and structural capital. The human capital is all the knowledge, skillfulness and innovation capacity that consists within a company's workforce. The structural capital, which is further divided into two parts, can be described as everything that stays at the office when the employees leave in the afternoon. The customer capital is the value of the company's relations to its customers and the organizational capital is the system, tools and the business philosophy that increase the knowledge flow within the company and its surroundings. The organizational capital is also separated into two parts, namely the innovation capital, which refers to the organizations ability to innovate and renewal itself, and to connect this ability to its products or services. The other part of organizational capital is process capital, which is the working processes and the technology that increase the efficiency and the value creation in the organization.[35]

According to Leif Edvinsson the more complex a company's surroundings are the more sophisticated instrument one need to be able to maneuver in it. At the same time as an instrument has to be universal it also has to be easy to use. Out of these conditions Leif Edvinsson and Skandia created the Skandia navigator. This navigator consists of five focus areas. These focus areas are designed to highlight the value creating parts within the company. Each focus area has business ratios,

[34] Edvinsson, Leif & Malone, Michael S, *Det intellektuella kapitalet*, (1997)
[35] Edvinsson, Leif & Malone, Michael S, *Det intellektuella kapitalet*, (1997)

which are especially developed to that area. These five areas, which were developed for Skandia, get connected in the Skandia navigator, figure 3.3.2.2.

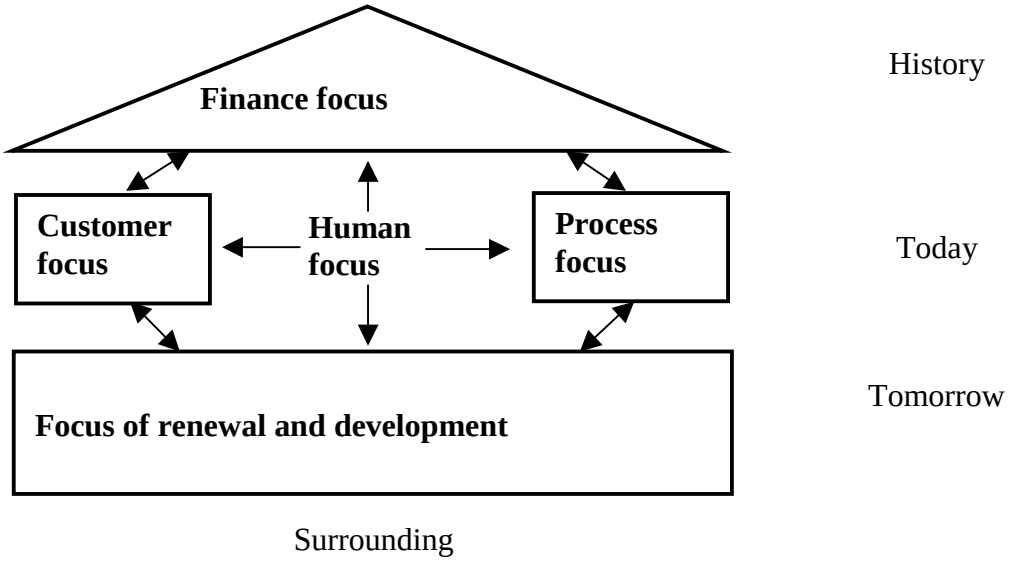


Figure3.3.2.2 Skandia Navigator[36]

Finance focus
The roof of the Skandia Navigator consists of finance focus the most traditional way of measuring and documenting in companies. In the navigator the financial accounting is in a subordinate position to the intellectual capital report, which gives a much wider presentation of a companies value. The financial side could be described as storage but it should not be forgotten that intellectual capital sometimes has to be transferred into money or financial measures in order to have any economic value.

Customer focus
The main task for the navigator when focusing on the customer aspect is finding effective intelligent relations between the company and the customer. According to Leif Edvinsson it is important to find indicators that could describe the companies relations with both its current customers and its potential customers. Skandia's customer indicator is divided in type, lasting, part, support and success.

Process focus
This focus is handling the role of technology as an instrument to support the overall creation of value in the company. What Skandia want to achieve here is to be able to measure the value of the chosen technology. By looking at both the user cost and the value of the technology you can argue if that was well invested resources. This is important because if the technology is part of the intellectual capital and a company is investing resources in technology and that does not create value, then the value of the company's intellectual capital should not increase as a consequence of these investments. According to Skandia's

[36] Edvinsson, Leif & Malone, Michael S, *Det intellektuella kapitalet*, (1997)

experience there is four major mistakes that could be done when you are trying to value the technology, namely choosing the wrong technology, the wrong seller, the wrong application or choosing the wrong philosophy. Leif Edvinsson further argues that the measures have to be created in a way so that it takes the above mentioned mistakes under consideration.

Renewal and development focus
With this focus Leif Edvinsson intend to capture the possibilities that will define the future of the company. According to Leif Edvinssons experience says that there is six different areas or angles that has to be taken into consideration. And these are: Customer relations, market attraction, products and services, strategic partners, the infrastructure and the employees.

Human focus
The human focus is the most dynamic and essential part of the navigator. It is described as the navigator's heart and intelligence. To measure the human capital in an organization is probably the most difficult task, a company could face. Within knowledge intense companies one of the management's most essential tasks should be to take care of the personnel's human capital and try to transform it into structural capital. According to Leif Edvinsson without a successful human dimension a company's value creating activities will not work regardless how sophisticated the technology is. When Skandia created its measurement about personnel in the navigator they followed three criteria and this mean that, a measurement in this area should be well grounded and well designed. Leif Edvinsson further try to locate where the human capital is to be found and he divides the employees into different groups according to where they actually perform their work assignments. The groups are; employees that actually go to the office, the distance workers, the road warriors and the knowledge nomads.

According to Leif Edvinsson an effective navigator must in an appropriate way fulfill three tasks:[37]

- It must be able to look inwards and review the measurement. The best instrument must function as a guide and not as an archive. The instrument should show the organizations position, direction and speed.
- It must be able to look upwards against meta measures. Moreover the navigation instrument should even function as a translator and collector of all the categories' data and bundle them together to a meta index. This index could then be used to get a quick look at the strength of the company and to compare the intellectual capital of your company with other organizations.
- Finally it must be able to look outwards against the user. It is important that the user will understand how the instrument works. This might go without saying but it is always difficult in practice. It could be compared to the account system of today, which most people in the business world find very difficult.

[37] Edvinsson, Leif & Malone, Michael S, *Det intellektuella kapitalet* (1997)

3.3.3 The Dave Ulrich approach

Dave Ulrich views intellectual capital as the multiplication between competence and commitment. He means that by this equation the employees overall competence within a company's unit should rice but that competence alone does not secure intellectual capital. He also believes that firms with high competence but low commitment have talented employees who ca not get things done. Firms with high commitment but low competence have less talented employees who get things done quickly. According to Dave Ulrich both are dangerous because intellectual capital requires both competence and commitment. He also points out that the important matter is the equation and not the sum of the two because a low score of either of them reduces the overall intellectual capital for the organization.[38]

3.3.4 The Patrick Sullivan Jr. and Sr. approach

These gentlemen argue that the valuation of knowledge companies has come to be more important these days since the majority or at least a great part of all companies fit into this category. They define a knowledge company as a company that profits from converting knowledge into value. And in the core of that definition are those companies whose profit comes predominantly from commercializing ideas and innovations. According to Patrick Sullivan Jr. and Sr. they consider intellectual capital almost similar to knowledge and further clarify and complement their definition of a knowledge company as one where knowledge or intellectual capital is the company's major asset. They look at knowledge companies as the total of three elements, intellectual capital and two different forms of structural capital. One of these forms they call generic structural capital, which includes tangible assets and the second form of structural capital is the firm's complementary business assets. This definition is illustrated in figure 3.3.4.1 below.

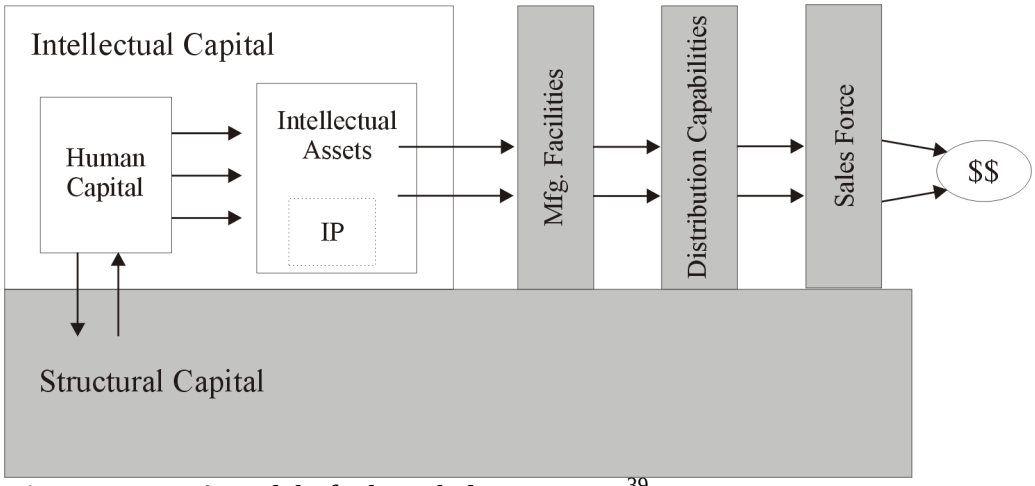


Figure 3.3.4.1 A model of a knowledge company[39]

[38] Ulrich, Dave. "Intellectual Capital = Competence * Commitment", (1998)
[39] Sullivan Jr, Patrick H. & Sullivan Sr, Patrick H, "Valuing intangibles companies – An intellectual approach", (2000)

Patrick Sullivan Junior and Senior are using this model of a knowledge company to continue on their way to measuring intellectual capital. This model consists of three parts: intellectual capital, generic structural capital and complementary business assets and these parts are according to Patrick Sullivan Junior and Senior representing the three sources from which all companies creates value that can be seen in their income statements. [40]

When Patrick Sullivan Junior and Senior are trying to value intellectual capital they do this by suggesting how the price of a company that mainly consists of intangible assets could be decided. They argue about the valuation of an intangible company out of two different circumstances. First, they suggest how you are determining the value if the company is going concern and secondly how you are determining the value if the company is the target of a merger or acquisition. They also believe that the value of a knowledge company is the result of two different factors namely the "amount of intellectual capital" that exist within the company and more important the firm's ability to leverage that intellectual capital in its marketplace. In the world of intellectual capital there is two major sources of value, innovation and complementary business assets. In the examples below the authors will show how the valuation of a knowledge company should be done compared to the traditional way of valuating of companies with intangible assets. The traditional way of valuating a company that is going concern is a sum of two things, the value of the tangible assets and the net present value of the company's expected future cash flow.[41] In appendix 3 is different valuation measurement principles presented.

3.3.5 The Karl-Erik Sveiby approach

Karl-Erik Sveiby's work with the invisible balance sheet he looks into the problems of measuring a company when their most important assets are invisible. He has chosen to separate the invisible part of the balance sheet into three different groups[42].

- *Internal structure*: for example patents, computer systems, models and administrative systems. These could be owned by the organization and is therefore connected to it.
- *External structure:* relations with customers and suppliers, brand name and image. Some of these can be owned by the organization but is not as well connected as the internal structure.

The employees' competence: All structure is a result of human behavior and therefore it is important how the employees' act in different situations.

[40] Sullivan Jr, Patrick H. Sullivan Sr, Patrick H, "Valuing intangibles companies – An intellectual approach", (2000)
[41] Sullivan Jr, Patrick H. Sullivan Sr, Patrick H, "Valuing intangibles companies – An intellectual approach", (2000)
[42] E-Mail Interview. Karl-Erik Sveiby. (020418)

Karl-Erik Sveiby further argues that the most important reason to analyst's valuation of a company is how they believe the management will success in creating value of the intangible assets[43]. He further explains that the market price of a company is based on those parts that exist within figure 3.3.5.1.

<table>
<tr><th colspan="3">The company's market value</th></tr>
<tr><td rowspan="3">Equity
(Material assets-
visible debt)</td><td colspan="2">Intangible assets</td></tr>
<tr><td rowspan="2">Extern structure</td><td colspan="2">Knowledge capital</td></tr>
<tr><td>Intern structure</td><td>The employee's competence</td></tr>
</table>

Figure 3.3.5.1, The company's market value[44]

A company's market value can be very dependent on the intangible assets depending on what structure the company has and what kind of business it function in. Karl-Erik Sveiby also point out that the intangible assets only have an impact on the market value if the intangibles have a connection to the overall business concept. Therefore a valuation of intellectual capital can differ from company to company but more importantly it could differ a lot according to a change in the company's business concept.

Karl-Erik Sveiby explains that there is a variety of ways and numbers that could be included when a company measures and manages their activities. He further suggests that companies should choose a set of measurements that is well connected to the company's overall strategy[45]. He moreover points out that the most important factors when choosing measurements is to find the ones that reflect the efficiency and the renewal.

Below, in figure 3.3.5.2, is what Karl-Erik Sveiby calls the business indicator or strategy indicator presented, where he gives some examples of measurements[46].

[43] E-Mail Interview. Karl-Erik Sveiby. (020418)
[44] Sveiby, Karl-Erik. *Kunskapsledning* (1990)
[45] Interview Karl-Erik Sveiby. (020418)
[46] Sveiby, Karl-Erik. *Kunskapsflödet* (1996)

Business Indicator (Example company Inc)			
Equity Organic growth Capital growth Profit marginal	**Invisible balance sheet /intangible assets)**		
	Extern structure Change in market share Image/Image change among customers and potential employees Customer satisfaction index Number of returning products	**Knowledge capital** Intern structure Index of the employees' attitude toward management, work climate, customers. Computer investments/ employee	The employees' competence Average work experience Average grades Employee turnover
Efficiency Profit/Refining value Profitability Invoicing/employee Capital turnover	**Efficiency** Profit/Customer Invoicing/Expert	**Efficiency** Nr. of Experts/total employees' attitude Invoicing/administrative-employee Telephone availability	**Efficiency** Refining value/expert Debit degree (time to customer maintenance
Renewal R&D costs/invoicing	**Renewal** Time to increase customer volume R&D costs/invoicing Revenues/image enhancing customers	**Renewal** Revenue form structure increasing project Time to internal R&D project	**Renewal** Revenue from competence enhancing customers Competence turnover Change in average educational level

Figure 3.3.5.2, Business Indicator[47]

3.4 Creating an intellectual capital statement

In 1998 on the request of the Danish government the Danish Agency for Trade and Industry co-coordinated a project in setting up a guideline for how to an intellectual statement should be developed. This report is partly based on a

[47] Sveiby, Karl-Erik. *Kunskapsflödet* (1996)

prototype work made by Skandia in 1993. In charge of the guideline development was Jan Mouritsen, Professor at Copenhagen Business School. According to the report from the Danish Agency for Trade and Industry, The Danish report, an intellectual capital statement works as a tool for managing knowledge resources and thus creating added value in organizations.

The intellectual capital statement can be used for managing and bringing focus to the development of the company's resources. In contrast to the above-presented approaches, Jan Mouritsen further means that the objective of an intellectual capital statement is not to calculate the value of the company's knowledge in financial terms, which is probably not feasible[48]. Thus, an intellectual capital statement cannot be used to explain the difference between an organizations book value and its market value, although this is sometimes the stated purpose of intellectual capital statements. Such use of the statement is for several reasons meaningless. Firstly, there are differences in accounting standards and how markets develop. Secondly, it would require that the market already knew the true value of the company, thus eliminating the need for calculation.[49] Jan Mouritsen however agrees on the fact that being able to take optimal advantage of one's knowledge will be a decisive competitive parameter in the present and for the future. Such insights raises a demand to employ the best tools and methods to support and structure knowledge management.

Jan Mouritsen's objective of measuring intellectual capital is to present an intellectual statement, which should be used to manage and develop intangible assets. According to Mouritsen the statement consists of three elements: a knowledge narrative, management challenges and reporting.[50]

1) A knowledge narrative: According to Jan Mouritsen this part describes how the company can ensure that its products and services fulfill their customers' requirements. This also tells how the company has organized its resources. Moreover the knowledge narrative could be divided into three elements:

- The company's mission with special regard to the user.
- The use value of the company's products or services
- The company's basic conditions of production disclosing the knowledge resources required meeting user needs.

The point of the concept knowledge narrative is that narratives contain an idea involving a whole chain of events, in which many interdependent individuals and problem situations are put together and ultimately become resolved in some acceptable solution. Furthermore knowledge narrative describes how services or products help the user, and how the company has organized its resources to achieve this. A knowledge narrative should therefore establish the connection between the user and the company's know-how. The service or product must be tied to the knowledge resources that should be structured to support the user

[48] Interview Jan Mouritsen (020418)
[49] Danish Agency for Trade and Industry, "Guideline for creating an intellectual statement" (2000)
[50] Interview. Jan Mouritsen (020418)

value. In summary, the knowledge narrative reflects the ambition of matching users needs and company performance.[51]

2) Management challenges is the next step in the process, which is the series of challenges within knowledge management that the company has to master in order to implement the knowledge narrative. Translating the knowledge narrative into management challenges defines the company strategies for the creation of user value. The management challenges are further extended into actions that each has to do with customers, employees, processes or technologies. These actions are generally targeted on every day matters like employee training, quality assurance and customer service and orientation.[52] In other words, the management challenges are a well-defined set of challenges derived from the knowledge narrative, which further are translated into actions for implementing the ambition of the knowledge narrative.

3) Reporting is the third step and here Jan Mouritsen makes a clear difference between internal and external statements of intellectual capital. The external intellectual capital statement is made as a means of communication with employees, current as well as potential customers and other stakeholders. The people that take interest in the intellectual capital statement helps to strengthen the company's knowledge management. Customers, employees and others that are actively engaged in the development of the company are crucial to the company's competitive power. [53] Finally, the intellectual capital statement creates value by advising interested parties how to exert their motivated interest.

The external intellectual capital statement should show a combination of text, figures and illustration aimed at communicating the knowledge narrative, the management challenges and the actions, and indicators. The figures are used to illustrate the text, the company documents of how the management challenges are being implemented. Some companies employ their own models for displaying figures, while others choose existing models like balanced scorecard or the EFQM model. These models differ and serve different purpose. The models should be viewed as a framework for the presentation of indicators and figures.[54]

According to the Danish report an intellectual statement consist of the three above mentioned elements but the process of creating the statement could be described in four steps. The fourth step, which also should be included in the process is "actions and indicators".

The action and indicators means that senses of actions are identified to translate the management challenges into concrete activities. Resources can classify these actions and the parts consist of employees, customers, processes and technology. This process, which is further clarified in figure 3.4.1, indicates that this should be viewed as a circle or an ongoing process. Once you have reported the first set you

[51] Danish Agency for Trade and Industry, "Guideline for creating an intellectual statement" (2000)
[52] Danish Agency for Trade and Industry, "Guideline for creating an intellectual statement" (2000)
[53] Danish Agency for Trade and Industry, "Guideline for creating an intellectual statement" (2000)
[54] Danish Agency for Trade and Industry, "Guideline for creating an intellectual statement" (2000)

have to start over again and control if you are using the right indicator or actions and also if the management challenges are decided in a correct way and so on.

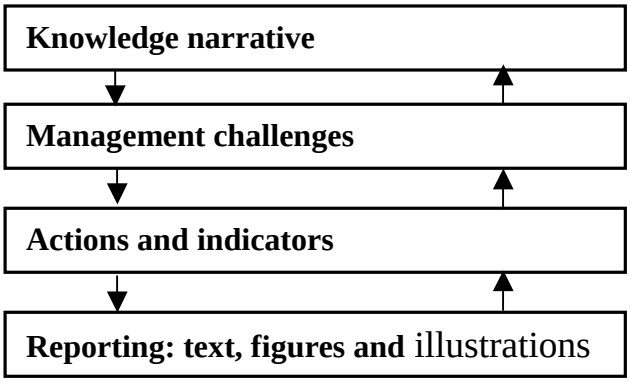


Figure 3.4.1, The process of creating an intellectual statement

Creating an intellectual capital statement makes the managing of the company's knowledge resources easier[55]. An intellectual statement could for instance help the stimulation of developing new products, strengthen business relations and ensure more ready application of new technologies in production. But according to Jan Mouritsen there are four major key benefits to be gained from an intellectual statement. First, a statement works as a tool for managing the company's knowledge resources and it creates added value to the organization. Secondly, a statement helps the organization to focus on what it really does to develop knowledge resources and what the effects are of those activities. The third creation of the statement could also help the organization to create a knowledge sharing culture within the company. Finally Jan Mouritsen believes that the statement could lead to better internal and external communication. External, in the way that it could attract new customers or improve the relation with the current customers. Internal, improvements in the way that it could motivate the employees to be more involved in the development of the company.

3.5 The Balanced Scorecard

New key figures, which measures factors like customer service, companies' power to develop and employee development have besides the traditional economical measuring principles gained increased signification. In the beginning of the 1990 the two American economists Robert Kaplan and David Norton formulated the theory of the balanced scorecard. The purpose with this measurement was to put together different ways of management to get an organization in balance.[56] The balanced scorecard illustrates the organization from out of more measurements than the traditional financial statements, which in reality only analyzes the past. Instead the scorecard gives the companies an opportunity to analyze the organizations different perspectives and time dimensions, which creates a better understanding of the entirety.

[55] Interview Jan Mouritsen. (020418)
[56] Kaplan, R & Norton, D, *The Balanced Scorecard* (1996)

When creating a balanced scorecard, the companies' fundamental vision is the starting point according to Kaplan and Norton. This vision will constitute the overall goal that everybody within the organization will have the long-term intention to reach.[57] The vision is then broken into a strategy, which more clearly formulates the organization's goal and constitutes the course of action that will lead to the fulfilling of the vision.[58] Furthermore Kaplan and Norton means that a central thought with the balanced scorecard is that it illuminates the companies from different perspective. Thanks to that it is suitable to design a strategy for each of the chosen perspectives. The four most common perspectives are financial perspective, customer perspective, internal process perspective and development perspective. It is up to the user of this tool how many of the perspectives presented above he or she chooses to use. It is entirely depended of the organizations different situations.[59]

The financial perspective can be compared to the traditional financial statement, with key figures like solidity, profitableness, evaluation of profitability etc. It only reflects past information and gives no indications of what the present will provide or what activities that increases the result.

The customer perspective illuminates the interaction between the company and its customers. The importance of the customers' opinions and the need for customer satisfaction has increased due to the added competition. The measurement reflects the present and a positive development of this perspective may lead to increased financial improvements.

The internal perspective describes the internal aspects of the present, which the company itself can effect. Examples of key figures can be quality measurement, productivity measurement and turnaround time.

The development perspective illuminates the organization's future learning and ability to innovate. This perspective describes the future and the meaning is that the organization should and must focus on long-term important aspects. This approach decreases the risk of only short-term investments. The revenue per employee, the development time for new products and the competence of the employee are examples of key figures that are connected to this perspective.

Each perspective consists of about four to five developed key figures that will identify the critical key factors that are important to achieve the companies' goals. These key figures give a complete picture of the company and how it chooses to present the picture is individually decided. The information technology makes it easy to get a clear picture of the development. However, the companies constantly have to evaluate and develop the key figures for each perspective in order to better fulfill its function with the organizational changes. It is important to uphold connection between the individual measurements in the different perspectives. The output of one perspective will reflect another. Lately the traditional Balanced

[57] Kaplan, R & Norton, D, *The Balanced Scorecard* (1996)
[58] Anthony, Robert N & Govindarjan, Vijay, *Management control systems* (1998)
[59] Kaplan, R & Norton, D, *The Balanced Scorecard* (1996)

Scorecard model is often complemented with a fifth perspective, the human perspective.[60]

3.6 The importance of knowledge

In order to productively describe the problems of managing intellectual capital and knowledge a distinguishing between the concepts of data, information, knowledge and competence must be made. According to Davenport and Prusak data can be viewed as raw or unabridged descriptions or observations of the past, the present or the future. These objective facts are alone of miner importance, while it constitutes the construction of information. Information is the patterns that individuals find or imbue in data.[61] According to Blackler knowledge on the other hand, is a product of human reflection and experience. Knowledge is a resource that is always located in an individual or a collective, or embedded in a routine or process. Embodied in language, stories, concepts, rules and tolls. Knowledge results in an increased capacity for decision-making and action to achieve some purpose.[62] Finally, according to Eneroth competence is a combination of knowledge, the capacity to use the knowledge and engagement.[63] Sveiby's definition of competence is similar to Eneroth's discussion but considers two more parameters, individual values and social competence.[64]

Ikujiro Nonaka argues that the only reliable source of competitive advantage is knowledge and successful strategy is integrally linked to knowledge creation.

> *In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge.* [65]

The future belongs to those organizations, which can create new forms of knowledge and translate this knowledge into action via new technological knowledge embodied in products and processes. The knowledge that Nonaka describes does not lie outside the organization, but latent in the organization itself. The key to unlocking this source of competitive advantage is to create a sense of identity between the employee and organization and tap into the commitment that is thus generated. According to Nonaka creating new knowledge is not simply a matter of processing objective information. Rather, it depends on tapping the tacit and often highly subjective insights, intuitions and hunches of individual employees and making those insights available for testing and use by the company as a whole. The key to the process is personal commitment, the employees' sense of identity with the enterprise and its mission.[66]

New knowledge always begins with the individual and making personal knowledge available to others is the central activity of the knowledge-creating

[60] Kaplan, R & Norton, D, *The Balanced Scorecard* (1996)
[61] Davenport, Thomas. H & Prusak, L, *Working Knowledge* (2000)
[62] Blackler, Frank, *Knowledge, Knowledge Work and Organizations* (1995)
[63] Eneroth, Kristina, "Mapping knowledge and motivational assets*"* (2001)
[64] Sveiby, Karl Erik, *Kunskapsledning (*1990)
[65] Nonaka, Ikujiro, *The knowledge-creating company* (1996)
[66] Nonaka, Ikujiro, *The knowledge-creating company* (1996)

company. The starting point of knowledge creating and innovation is tacit knowledge, which consist of highly personal, hard to formalize skills that are difficult to communicate to others. Tacit knowledge is also deeply rooted in actions and in an individual's commitment to a specific context. This tacit knowledge consists partly of technical skills and partly cognitive dimensions. Explicit knowledge, on the other hand, is formal and systematic. For this reason, it can be easily communicated and shared, in product specifications of scientific formulas or computer programs. Furthermore Nonaka believes that each type of knowledge can be converted into new knowledge.[67]

De Long and Fahey argue for three distinct types of knowledge: human knowledge, social knowledge and structured knowledge.[68]

- *Human knowledge* constitutes what individuals know or know how to do. Human or individual knowledge is manifested in skill or expertise and usually combines both tacit and explicit knowledge. This type of knowledge may be located in the body, such as knowing how to ride a bicycle. It may also be cognitive, that is, largely conceptual and abstract.[69]

- *Social knowledge* that only exists in relationships between individuals or within groups, for example high-performing teams that share certain knowledge that is more than the sum of the individual knowledge of the teams' members. Social and collective knowledge is largely tacit, shared by group members and develops only as a result of working together. Its presence is reflected by an ability to collaborate effectively.[70]

- *Structured knowledge* signifies the embedded knowledge in an organization's system processes, tools and routines. Knowledge in this form is explicit and based on rules. A key distinction between structured knowledge and the first two types is that structured knowledge is assumed to exist independently of human knowledge. Instead it is an organizational recourse. [71]

3.7 Development of Intellectual capital

One way to define capital is as being an asset, which entails that the concept intellectual capital may be viewed as an asset. This view reflects the picture that it is something, which is systematically organized and valuable. Thomas A. Stewart argue that the human capital is the most important asset in an organization but it is

[67] Nonaka, Ikujiro , *The knowledge-creating company* (1996)
[68] De Long , David W & Fahey, Liam, "Diagnosing cultural barriers to knowledge management" (2000)
[69] De Long , David W & Fahey, Liam, "Diagnosing cultural barriers to knowledge management" (2000)
[70] De Long , David W & Fahey, Liam, "Diagnosing cultural barriers to knowledge management" (2000)
[71] De Long , David W & Fahey, Liam, "Diagnosing cultural barriers to knowledge management" (2000)

not company property and that is why the management's most important challenge is to transfer the human capital into structural capital. The most important difference between human and structural capital is that structural capital can be owned, but even more important it can be shared and reproduced[72]

Human capital contributes to the innovation and renewal of the company in order to match changes in the environment, while structural capital guarantees the sharing of the knowledge created. Companies' and especially knowledge companies' most important capacity is linked with individuals of the organizations. It is however not certain that the individuals alone make the company unique. It is rather the organization's surroundings where the individuals work that have a vital importance to knowledge companies' capacity to create value.

Sveiby believes the structural capital as the organizational conditions and process that makes the intellectual or knowledge capital in the organization to be more valuable than the sum of the pieces of human capital. Furthermore Sveiby defines that the structural capital consists of three elements: personal, ability to solve problems and market. The personal element is characterized by the fact that within an organization exists conditions that contributes to making the employees form a certain attitude to the company. This attitude is often a kind of organizational culture or spirit. The organizational capacity to solve problems consists of the product or service the organization is offering and selling. In order to increase the customer value the human capital needs to be complemented with work models, problem solving processes, computer systems and manuals. These models all constitute a structural capital that creates value to the organizations intellectual capital. Moreover Sveiby argues that the structural capital constitutes the markets view of the company and its services.[73]

The development of structural capital can be viewed from the perspective that it is a transformation of human capital. Viewing knowledge as company assets makes it important and obvious to concentrate on structural capital development. Moreover it is crucial to emphasize that development of the private individuals, or in other words the human capital, still is important when the individual contributes to customer value and their knowledge constitute the structural capital. Below follow a discussion of different perspective of how organizations successfully can develop its knowledge intense structural capital. The elements are divided into two fields. First, Human resource principles, knowledge transition and knowledge management represent the requirements that are necessary for development of structural capital. Secondly, Supporting elements such as organization culture and management as well as motivation and rewards further explains the development of structural capital.

[72] Stewart, Thomas, *Intellectual Capital* (1997)
[73] Sveiby, Karl Erik, *Kunskapsledning (*1990)

3.7.1 Human Resource principles

The recruitment policy of a company is of great importance to receive desirable competence. Tichey et al. argues that recruitment is a process that includes all those activities related to the internal movement of people across positions and external hiring into the organization.[74].

To hire or buy new competence increases the knowledge and competence at the firm. Bowen et al argues about the importance of hiring individuals that fit the organization rather than individuals that fit to a certain position within the company. The importance of having the right people in the organization affects the individuals as well as the organizational learning. To buy new knowledge and competence works when talent are available and accessible. A risk of not finding external talents that is better or more qualified that internal talent is a risk when recruiting new employees.[75] Furthermore Ulrich believes that having the most skilled employees would reflect the customer value. He argues that companies also can change the employee structure by discharge or transfer individuals to another position. People who were once qualified but have failed to develop new skills and are unqualified for current work practices must be removed from the organization. Insourcing knowledge is also a popular phenomenon where organizations invest in outside vendors who bring ideas, frameworks and tools to make the organization stronger. Effectively used consultants or network are examples of how organizations can insource knowledge.[76]

According to Ulrich, to buy, bounce or borrow the workforce does not alone explain the increase of knowledge. Education of existing employees is also of great importance for making it possible to provide customer satisfaction. An internal education system helps to create knowledge within the organization. Some learning situations occur in formal training programmers and canters while others can be found in structured on-the-job experiences. Development is more than an academic exercise. Since training is tied to business results and not theory, systematic learning from job occurs through experience. To build new knowledge within the organization is important since it increases the company's ability to solve the problems of the client.[77]

3.7.2 Knowledge transition

The above discussion about Ikujiro Nonaka's distinction between tacit and explicit knowledge has resulted in an ongoing process, spiral, which suggests four basic patterns, figure 3.7.2.1 for creating and transfer knowledge in an organization.[78]

[74] Tichey N.M, Fombrun C.J & Devana M.A, "Strategic Human Resource Management" (1982)
[75] Bowen, D. E., Ledford, G. E. & Nathan, B. R., "Hiring for the organization, not the job" (1991)
[76] Ulrich, Dave, "Intellectual Capital = Competence * Commitment" (1998)
[77] Ulrich, Dave, "Intellectual Capital = Competence * Commitment" (1998)
[78] Nonaka, Ikujiro, "A Dynamic Theory of Organizational Knowledge Creation" (1994)

	Tacit	Explicit
Tacit	Socialization	Externalization
Explicit	Internalization	Combination

Figure 3.7.2.1, The spiral of knowledge[79]

Socialization is when tacit knowledge is transferred to tacit knowledge, which takes place when individuals share tacit knowledge directly with one another. Tacit to tacit interaction takes place through observations, imitations and practice and are embodied in individuals own tacit knowledge base. Socialization is however a rather limited form of knowledge creation and when the knowledge does not become explicit it cannot easily be leveraged by the organization as a whole.

Combination is when the knowledge is transferred from explicit to explicit knowledge. An individual can also combine discrete pieces of explicit knowledge into a new whole. One example is to collect information from the organization and put it together in a financial report. The report is new knowledge in the sense that it synthesizes information from many different sources. This combination, however, does not really extend the company's existing knowledge base either

Externalization means that the knowledge creating process goes from tacit to explicit knowledge and when interaction between these two distinctions of knowledge occurs something powerful happens. To develop the example above, instead of merely compiling a conventional financial plan for the company, an innovative new approach to budgetary control is developed based on tacit knowledge developed over years in the job.

Internalization occurs when explicit knowledge is transferred to tacit knowledge. When new and explicit knowledge is shared throughout the organization, other employees begin to use it to broaden, extend and reframe their own tacit knowledge.

Furthermore Ikujiro Nonaka argues that the interactions between explicit and tacit knowledge become larger in scale and faster in speed, if more participants are integrated. Therefore, he compares the organizational knowledge creation with an upward spiral process, which starts at the individual level and may move up to the inter-organizational level. In particular, he describes this process as follows:

Starting point, and heart of the knowledge creating process, is an individual's tacit knowledge. In order to make it also accessible for other members of the company, social interaction is necessary. First, socialization takes place in self-organizing teams, which facilitate the sharing of members' experiences, while considering the aim of creating a common perspective. Second, this perspective is externalized through continuous dialogues, while especially using metaphors, when there is no

[79] Nonaka, Ikujiro, "A Dynamic Theory of Organizational Knowledge Creation" (1994)

adequate expression of an image. Third, the new created knowledge is combined with other existing, explicit knowledge through sorting, adding, re-categorizing and re-conceptualizing. Fourth, the knowledge is internalized. This is commonly done by experimentation. Here, tacit knowledge is concerned again so that a new knowledge creating process is induced and will repeat, until the management interrupts it in order to accelerate the sharing of created knowledge beyond the boundary of the organization for further knowledge creation. This starts the spiral of knowledge all over again but this time at higher level.[80]

According to Nonaka externalization and internalization are the critical steps in this spiral of knowledge, while both require the active involvement of personal commitment.[81]

3.7.3 Knowledge Management

Hansen, Nohria & Tierney discuss two contrasting knowledge management strategies and point out the importance of the right choice for knowledge-intensive firms. They call the strategies presented in their article *codification* and *personalization.* Codification means that people's knowledge is codified and stored in databases, so that it is accessible for all other employees in the company, too. Accordingly, it can be reused and applied to other cases by other persons. Personalization means that knowledge is transferred through communication between individuals. This communication includes personal dialogue between individuals and conversation via media, e.g. emails, videoconferences or by telephone.[82]

It is made clear by the authors that it is neither possible nor sensitive to use only one of the two opposing strategies. Instead, they suggest choosing one dominant and one supporting strategy, while striving for a relationship of about 80 percent to 20 percent. On the one hand, there must be a non-ambiguous focus in order to be effective. On the other hand, up to a certain extent, both strategies can supplement each other. If codification is chosen, some additional personal advice may be necessary so that the documents are not blindly applied to unsuitable situations, since the richness of knowledge cannot be expressed in documents completely. If personalization is the strategy in favor, it is nonetheless necessary to bring both persons together, e.g. by using a people finder. Moreover, before meeting each other, a certain background may be needed and can easily be provided through codified knowledge. Nevertheless, the coexistence with equal rights of personalization and codification is principally not recommendable, but may be possible in business units operating like stand-alone companies.[83]

The authors emphasize that the choice of the knowledge-management strategy is not isolated, but depends on the overall competitive strategy of the company. It is

[80] Nonaka, Ikujiro, "A Dynamic Theory of Organizational Knowledge Creation" (1994)
[81] Nonaka, Ikujiro, "A Dynamic Theory of Organizational Knowledge Creation" (1994.
[82] Hansen, M. T., Nohria, N. & Tierney, T, "What is your strategy for managing knowledge" (1999)
[83] Hansen, M. T., Nohria, N. & Tierney, T, "What is your strategy for managing knowledge" (1999)

argued that codification is proper, if the company produces standardized and mature products with employees possessing explicit knowledge. Personalization on the other hand is proper if the company produces customized and innovative products with employees possessing tacit knowledge. Of course, the strategies of other divisions should also be in correspondence with the above-mentioned choice. For instance, codification can be supported by high investments in IT and the employment of college graduates who are suited to the reuse of knowledge. Personalization can be supported by only moderate investments in IT facilitating conversation and the employment of MBA's who like problem solving and are able to tolerate ambiguity[84]

The two strategies are both dependent upon a well developed Intranet. To implement the codification strategy successfully all information must exist in the Intranet. Personalization assumes that the Intranet can identify individuals with relevant knowledge at the right time and make the communication between these easier.[85]

3.7.3.1 Work models and IT- system

An important work model that exists in most organizations is a project group with variable number of members. Project groups can according to Brainer et al. be divided into three types: permanent, occasional and opened. The authors argue that groups that have features of more than one type of project group can exist. The dimension that separates the different projects is the degree of clearness in the result, the clearness of structure and formalization and the level of knowledge that distinguishes the project group. Characterization of the permanent type is that the participants devote their time to the project work full time. The project form is well tested and despite that the assignment can differ exist work models that builds upon earlier experience and thereby might be used.[86]

Models are used to simplify and systemize complex conditions. Bakka et al. argues for the use of the model's different purposes. In practical problem solving models can function as a tool that is used to analyze and study a specific problem. Models can also be used in a pure pedagogical purpose or like an element in other models.[87]

According to Thomas A. Stewart the most important tool for transferring human capital into structural capital is knowledge databases. Knowledge databases support organizations in sharing, developing, mapping knowledge and much more. Databases has to be created according to every organizations special needs but there are three parts that are basic and facilitate knowledge saving and sharing in an organization:[88]

[84] Hansen, M. T., Nohria, N. & Tierney, T, "What is your strategy for managing knowledge" (1999)
[85]Hansen, M. T., Nohria, N. & Tierney, T, "What is your strategy for managing knowledge" (1999)
[86] Brainer, W, Geddas, M & Hastings, C, *Projektledaren*. Stockholm: Svenska Förlaget (1999).
[87] Bakka, J. F, Fivelsdalm, . & Lindkvist, L, *Organizationsteori* (1993).
[88] Stewart, Thomas A, *Intellectual capital*, (1997)

- *The corporate yellow pages*. With this function in a database it facilitates answers to everyday questions like who knows that, who worked there, who speaks Arabic and so on
- *Lessons learned*. In many organizations a way to increase structural capital is to bank lessons learned, what went wrong or why did that happen. In many cases knowledge work is custom work and therefore it is important to leverage what the organization has learned to be able to increase the work next time.
- *Competitor intelligence*. If there is a possibility of loosing a manager or someone else with knowledge about the organizations competitive landscape this could be the most important function of a database.

Information technology, or in other words data and telecommunication technology, has during the past forty years increased the organizations possibilities to make business. Behind the implementation of an IT-system exists a huge investment, which is necessary to assimilate the advantages that a successful IT-implementation entails. According to Applegate the information technology can strengthen and make the company's infrastructure effective by supporting the functions in the value chain and having central information in readiness.[89]

The need for central databases differs depending on the company's strategy and structure.[90] Further it is the private organizations' mission to create the contents of the Intranet, which are best made when all of the company's divisions contribute and take part of the contents of the intranet.[91] According to Stewart a well-functioned IT-system can give valuable contribution to knowledge transformation and thereby strengthen the structural capital, but it is not enough if they are not adapted to the employees' capacity. Further a well-functioned IT-system opens the possibility to make the organizations implicit knowledge accessible to almost everybody.[92]

Davenport and Prusak points out that information technology and databases only works as a distributor and storage of knowledge, and not as knowledge generators. They argue further that organizations should not expect that transformation of knowledge is taking place only through establishment of a system for knowledge creating and transformation. Furthermore Davenport and Prusak argue that it is the market power that guides the transformation of knowledge within an organization and that these must be understandable to make the knowledge distribution effective. They are talking about purchasers, sellers and brokers of knowledge and mean that there are different ways of getting paid for knowledge distribution within an organization. The payment takes place by a process of a mutual exchange or by means of the purchaser helping the seller to create a

[89] Appelgate, L. M, McFarlan, F. W & McKenny, J. L, *Corporate Information Systems Management: Text and Cases* (1996)
[90] Appelgate, L. M, McFarlan, F. W & McKenny, J. L, *Corporate Information Systems Management: Text and Cases* (1996)
[91] Koehler, J. W, et al. *The human side of intranets: content, style and politics*.(1998)
[92] Nonaka, I., Reinmoeller, P. & Senoo, D, "Integrated IT Systems to Capitalize on Market Knowledge" (2000).

helpful or skilful reputation. To make the distribution of knowledge possible a confidence between the purchaser and the seller must exist.[93]

3.7.4 Organization culture

All companies develop a culture, which briefly can be described as shared values, norms and convictions within an organization. An organization's culture can be described as the way of thinking, acting, living and existing in a specific company. The culture affects and decides the decision-making process, promotion process, the problem solving process and the communication process within the organization. A central part in the organizational culture is the conception and common language that are developed internally.

Nonaka argues that to understand the knowledge creation as a process of making tacit knowledge explicit has direct implications for how a company designs its organization and defines managerial roles and responsibilities within it. These are the structures and practices that translate a company's mission into innovative technologies and products. According to Nonaka the building of a redundant organization is the first step in managing a knowledge creating company. Redundancy is important because it encourages frequent dialogue and communication. This redundancy helps create a common cognitive ground among employees and facilitates the transfer of tacit knowledge. Redundancy also spreads new explicit knowledge through the organization so that it can be internalized by the employees. Strategic rotation and free access to company information are examples of aspects that will help building redundancy.[94]

According to Bruzelius and Skärvad an organization culture can be described best from its elements: dominating ideas and values, significant participants and role models, norms and rules and informal communication channels. [95]

- *Dominating ideas and values* describes the common apprehension that are desirable or not desirable in an organization, good or bad, which behavior should be rewarded and which should not and what should be obtained and what should be avoided. It can contain demand for a specific dress code, a certain moral or etiquette. It also reflects the managers' ways of controlling their employees and if the control systems can be viewed as organic or bureaucracy. The dominating ideas can be derived to the company's overall business idea and business strategy.

- *Significant participants* concerns the individuals with enough power and influence to change dominating ideas and values. A strong and respected leader becomes a role model to the members of the organization. These role models embody the organizations values into words and actions.

[93] Davenport, Thomas. H. & Prusak, L., *Working Knowledg* (2000)
[94] Nonaka, Ikujiro, "The knowledge-creating company" (1996)
[95] Bruzelius, L & Skärvad, P-H, *Integrerad organizationslära* (1995)

- *Norms and rules* are the elements that describe how the employees are expected to behave in the organization. These norms and rules can either be formal or informal.

- *Informal communication channels* are the networks between individuals within the organization. These networks are mostly informal and function as a tool that is used to develop and transfer knowledge within the organization. The network also mediates values and norms.

According to Peters and Waterman a connection between a strong company culture and a company's success exists. A strong company culture is characterizes by a clearly formulated company vision and business idea. The fundamental values should be identifiable and shared among the employees. The significant participants should function as role models. The company's norms and rules should support the values and missions. Finally, the rituals and informal communication channels should strengthen the organization's values.[96]

A knowledge intense organization requires a learning climate that supports the learning process. Geoffery argues that the company should function as an ecosystem where the company follows the changing markets and hire individuals with complementing competences, which fits with the organization for the moment. The individuals' ambitions and personal goals should be associated with the organizations mission. The manager's primary task should be to organize recourses that supports the employees work. Decisions should be made at the most suitable level in the hierarchy. Furthermore he argues that every employee should be viewed as the organizations' most important person. The high demands of the employees should be rewarded by competence development to be able to solve the complex tasks. The vision must be communicated in the entire organization. Individuals that contribute to the organization's success should be rewarded. The employees should also be able to make mistakes and learn form these[97]

3.7.4.1 Management

Among other things leadership and control philosophy have a great impact on the organization's result. The leadership affects the formal directives that exist in an organization, the employees' attitude towards the company and the organization culture that exist within the company. Bruzelius and Skärvad define leadership as the process by which a person influences other to achieve goals. They argue that a distinction between effective and good leadership should be made. The point is that a leader can generate desirable results and succeed in motivating employees without being respected. The mission of a leader includes handling, ordinate and control of the organization.[98] Pfeffer points out the importance of an active leadership that tries to create organizational value by managing through symbolic

[96] Peters, Thomas. J & Waterman Robert.H Jr, *In search of excellence* (1982)
[97] Geoffrey, James, **"**Success Secrets from Silicon Valley" (1996)
[98] Bruzelius, L & Skärvad, P-H, *Integrerad organizationslära* (1995)

actions. The employees work moral and values can be shaped through an active leadership.[99]

Managers affect the employees and distribute the company's missions and ideas. The employees constitute the aggregated human capital that shapes the norms and values that constitute the company culture. The business and employee idea therefore connects with the organization culture and mission. It is the manager's task to create and control the mode of action.

3.7.5 Motivation and rewards

Motivation is an important supporting element for knowledge generating and knowledge transfer. Eneroth argues that the relationship is best characterized as the more motivation the more knowledge. Moreover Lack of motivation will prevent the development of new knowledge. While motivation acts as a driver in developing the ability to apply knowledge.[100] However motivation is not a unitary concept and a common distinction is that motivation can be of an extrinsic or intrinsic nature. Extrinsic motivation comes from outside a person. This outside motivation could consist of either a carrot or a stick. If an employee know that he or she will be given a pay rise this person, if extrinsic motivation works, will perform better. Extrinsic motivation is usually linked with money as reward system. Even though money rarely stops people from being creative, it does not always help. The intrinsic motivation are therefore of importance to spark creativity. Intrinsic motivation comes from the work itself and is not given to the individual from the outside. Thus creating an environment that encourages intrinsic motivation becomes important for any organization. Creativity derives from motivation by interest, satisfaction and challenge of the work itself, and not by external pressure.[101]

It is important to pay attention to the potential benefits of intrinsic motivation when attempting to develop novel competence. However though it is important to recognize the benefits of intrinsic motivation, organizations cannot ignore extrinsic motivation.

In order to motivate individuals to work the organizations reward systems should be connected to the goals of the individuals'. Tichey et al. as well as Eneroth claims that monetary rewards should be complemented with social status raised incentive structures. This includes non-financial rewards like fame carrier opportunities, education and responsibility. Bonus payments can result in short term decisions, where as non-financial reward system should constitute a central part for the company's HRM.[102] Furthermore rewards may be viewed as either formal or informal, where the latter is more based on social aspects such as low stress and comfort. Rewards can also be individual or collective. Companies that

[99] Pfeffer, Jeffrey, "Management as Symbolic Action" (1981)
[100] Eneroth, Kristina, "Mapping knowledge and motivational assets" (2001)
[101] Eneroth, Kristina, *Strategi och kompetensdynamik* (1997)
[102] Tichey N.M, Fombrun C.J & Devana M.A, "Strategic Human Resource Management" (1982)

succeed in making a combination of the different types of reward system are traditionally successful.[103]

3.8 Theoretical summary

A short summary is presented to summarize the theoretical chapter in order to give the reader an overview to further stress the most important parts of the theoretical chapter.

There are almost as many different ways of defining intellectual capital, as there are authors in the field. However if you look further into the different ways of viewing the subject, there are some parameters that almost are the same. Intellectual capital consists of human capital together with structural capital, and then there are different ways of looking at structural capital and what should be included and not included in that conception.

The Leif Edvinsson and Michael S. Malone approach to measure and visualize intellectual capital is to start explaining it out of the value perspective where the intellectual capital in an organization together with the financial capital constitute the organizations' market value. These authors further develop the subject by explaining how an organization might act to maneuver their intellectual capital. This is stated by explaining the Skandia navigator, which partly is the base of Leif Edvinsson's and Michael S. Malone's theory presented in this thesis, which shows five different focus areas within their navigator. The Navigator model clearly shows that the human capital is the most important part of the organization and the authors are even describing the human capital as the heart of the organization. Moreover the authors gives three recommendations on what an effective navigator should fulfill, namely to look inwards and review the measurement, to look upwards against meta measures and finally it should look outwards against the user.

Patrick Sullivan Jr. and Sr. argue that intellectual capital is the same as knowledge and that a knowledge company is a company that has intellectual capital as its major asset. They further describe a knowledge company as made up by generic structural capital, complementary business assets and intellectual capital. Patrick Sullivan Jr and Sr believe that the value of a knowledge company depends on the amount of intellectual capital and the company's ability to leverage that intellectual capital in the market place.

Karl-Erik Sveiby separates the invisible part of the balance sheet into *internal structure,* that can be owned by the organization, *extern structure,* that only partly can be owned by the organization, and *employees' competence* that cannot be owned by anyone else but the individuals. Karl-Erik Sveiby clearly points out that the value of the intangibles is strongly connected to the organizations overall business concept. In the business indicator he gives a set of measurements that could be used in visualizing intangibles, where he believes that measures that reflect efficiency and renewal are the most important ones.

[103] Blackburn, R & Rosen, B, "Total quality and human resource management" (1993)

The guideline of how an intellectual capital statement could be developed, made by the Danish government gives a good overview of what steps in creating the statement that has to be included. The four steps, which are presented in the report, are *knowledge narrative*, which describes how an organization ensures that they fulfill their customers' needs. The *management challenges* which shows what has to be obtained to implement the goals of the knowledge narrative. The *action and indicator*, which explains how the management challenges, should be translated into concrete activities. Finally the *reporting* where the report makes a distinction between internal and external reporting and what kind of aspects that are important in each.

A development of human capital increases the knowledge base in the company, which according to Nonaka should create competitive advantages. Therefore it is important for companies' to create an environment where the employees are motivated to a constant learning. Furthermore the education and learning should be connected to the organizations overall strategy and the new knowledge should be used to increase the value of the companies' products or services. This however is not enough to create sustainable competitive advantages. If organizations spend a lot of money on developing individuals' knowledge they become quite vulnerable since the employees might walk out the door with their increased knowledge and never come back. Companies therefore must create an environment that makes the transfer of knowledge easy. The next step in the process is then the transformation of human capital into structural capital.

The human capital consists of the total knowledge and competence that the private individuals in the organization possess. The structural capital is in this viewed as the infrastructure that the company uses to increase the transmission of the human capital. Different elements that are required for the development of structural capital as well as supporting elements are used in this thesis to clarify the development of structural capital. Human resource principles, knowledge transition and knowledge management represent the requirements that are necessary for development of structural capital. Secondly, Supporting elements such as organization culture and management as well as motivation and rewards further explains the development of structural capital.

To give the reader a picture of how the human and structural capital are studied and to create a usable analytic model there are some limitations worth pointing out. This thesis is limited to the extent that the focus is not on the individuals' knowledge but the organizations ability to transfer this knowledge into increased product value. Furthermore the other parts that often is included in the definition of structural capital, like brand name customer relations, patents, network and reputation will not be studied more closely in this thesis. If companies however succeed in using the knowledge to innovate and create product value this automatically will increase the brand name, customer relations and reputation. It is however not the only explanation of how to develop these latter mentioned elements. The chosen parts are however the most relevant ones for the realization of this thesis. The used models are shortly presented below.

4. REFERENCE PRACTICE

In this chapter a presentation of the reference company is made. The presented information is made to generate a broad understanding of how the filed of intellectual capital is utilized in practice.

4.1 Celemi

Celemi is a learning design consultancy that helps companies improving business performance by developing the skills and knowledge of their own people. The company has 80 employees spread over their offices in Sweden. Celemi had in the year 2000 a turnover of 130 million Swedish Crowns. Celemi is creating experiential learning programs and it use a variety of media, including simulation models, WorkMats, CD-ROMs, Web-based applications and hand-held digital devices to quickly reach large number of people in diverse geographic locations. Customers use the learning tools and processes that Celemi delivers as a strategic tool to, among other things, support mergers and acquisitions, organizational change programs and product launches. Some of the most well known customers are Castrol, Ericsson and ABB.[104]

Celemi helps companies to communicate its corporate mission to its workforce. The company develops learning programs that help the employees to understand their company's strategy on a national or global level. By using these learning programs companies can more easily communicate its vision and allow its employees to place projects in line with the vision. This can further be used to create priority lists and ways of measuring where the customer is in terms of reaching their objectives.[105]

To better understand its customer's strategic learning needs, Celemi is structured around three business areas:

- *Celemi Learning Marketing* focuses on improving ROI in sales and marketing programs.
- *Celemi Learning Change* handles improvement of operational efficiency.
- *Celemi Learning Business* works with raising the level of business literacy

According to Margareta Barchan founder and former CEO of the company Celemi is a good example of a knowledge company where the employees are the most important assets. In 1995 when Celemi launched Tango, a business performance simulator, which were created in cooperation with Karl-Erik Sveiby, an idea was born. During the development process of Tango, Celemi's management noticed that since Celemi itself is a knowledge company why not put

[104] Annual report Celemi (2000)
[105] Interview. Margareta Barchan (020416)

the key learning point from tango into practice within the company. Celemi is now measuring and visualizing intangible, or knowledge, assets. The three categories that are monitored are the customers (external structure), the people (competence) and the organization (internal structure). The reasons for using these categories are that they indicate the fundamental factors or driving forces, of Celemi's continued success.

4.1.1 Visualization and measurement principles

Celemi is using a model, figure 4.1.1.1, for measuring, visualizing and monitoring its intangible assets, which is called Intangible Assets Monitor.

Celemi Monitorn 2000	2000	1999
Our Customers		
Growth / Renewal		
Revenue growth	9%	22%
Image Enhancing Customers (5,12)	41%	54%
Efficiency		
Revenues per customer (5,26)	355	367
Stability		
Customer satisfaction Index (32)	5	5
Repeat orders (23)	78%	68%
5 Largest Customers (5,10)	39%	29%
Our Organization		
Growth / Renewal		
Organization enhancing customers (5,18)	8%	21%
Revenues from new products (24)	26%	17%
R&D / Revenues	5%	14%
Intangibles investments % Value added (13,30)	14%	22%
Efficiency		
Proportion of Admin. Staff (2,22)	13%	20%
Revenues per Admin. Staff TSEK (2,17,26)	12727.0	9205.0
Stability		
Admin Staff turnover (1,2)	17%	33%
Admin Staff Seniority, years (2,28)	4.2	3.8
Rookie ratio (17,27)	41%	36%
Our people		
Growth / Renewal		

Average professional Experience, years (3,9)	10.1	9.2
Competence Enhancing Customers (4,5)	44%	27%
Growth in Professional Competence (11)	18%	38%
Experts with Teritary Degree (6,8)	75%	80%
Efficiency		
Value Added per Expert TSEK (9,17,30)	817.0	892.0
Value Added Margin on Sales TSEK (30)	48%	49%
Stability		
People Satisfaction Index (31)	48%	5
Expert Turnover (7,9)	16%	14%
Expert Seniority, Years (9,28)	4	4
Median Age All Employees (17)	39	37

Figure 4.1.1.1 Celemi Monitorn[106]

- *Customers* provides, according to Margareta Barchan, a picture of how the relationship between the company and its customer works and more importantly how this relation the impact of revenue, growth, competence and image this relationship.

- *People* presents which competence that exists within Celemi. This element further presents the employees' ability to act different in a wide variety of situations.

- *Organization* represents the internal corporate structure, including systems and processes, business tools, patents, trademarks and the company culture.

According to Barchan there are some key points to stress when measuring the company's intangible assets. First, in a knowledge company a financial statement does not necessarily represent the true value of the company. If you want to show a correct value of your company you have to start measuring your intangibles. Moreover Margareta Barchan claims that measuring intangible assets build internal and external confidence, improving employees' business sense and attract stakeholders' attention to the organizations self-awareness. Unlike the traditional financial statement the Intangible Asset Monitor can better function as an indicator to Celemi's future efforts.[107]

Furthermore Margareta Barchan explains that the company can not own its customers or its employees and for exactly that reason it is important that these elements get converted into a measurable asset that can be owned by the company. By creating processes, new systems or policies that can be reused or

[106] Annual report Celemi (2000)
[107] Interview. Margareta Barchan (020416)

applied in other fields one could make this transformation happen. Moreover Barchan claims that this is a circle argument. If you understand more of the value of your intangible assets you will be able to learn more about your customer and if you do so and understand that relationship you could educate your employees, create new solutions and ensure continued revenue growth for your company. Celemi has three primary sources of intangible value within the company, Customer value, the internal structure (tools and processes) and human resources.[108]

[108] Interview. Margareta Barchan (020416)

5. PRACTICE

In the following chapter a comprehensive description of the research companies are made. The description is intended to give the reader an insight and a deeper understanding of the research companies' background. The research companies constitute a foundation to the empiric research. The presentation is designed from the earlier chosen perspectives.

5.1 Heart and Lung Center

Middle Skåne's health care district is one of five healthcare districts within Region Skåne. The health district consists of ten town districts that together has about 280 000 inhabitants. The districts' business is to offer the inhabitants health care and medical treatment regardless of income or status. The district committee is responsible for the distribution of resources within the district. Assigned contribution to healthcare within the district is, for the year 2002, 2 671 million Swedish crowns and for pharmaceutical preparation in open healthcare 481 million Swedish crowns.[109] The government-owned University Hospital in Lund offers specialized medical treatment to the inhabitants of the southern region of Sweden. The hospital is divided into eight different departments, each responsible for a specific field.[110]

At Lund University Hospital the specialized care of patients with cardiac and pulmonary diseases has been brought together in one unit, the Heart and Lung Center, HLC. According to Claes Arén the fundamental idea behind the new division is to increase the customer value. During diagnosis, treatment and nursing care the patient will find that the staff are working together, without organizational dividing lines, in order to alleviate the patient's disease in the best way possible. Today the division consists of 650 employees where of 90 are physicians. The turnover is 500 million Swedish crowns. The vision of HLC is:

> *In those cases where there is a choice, the HLC in Lund will be the natural and obvious choice for patients and those referring them, as well as for employees, students, researchers and those financing research.*[111]

The new division is organized as a matrix organization. Below the head of the division and his team the division is divided into five departments that work

[109] http://www.sjukvardenmss.skane.se/Page.asp?Id=9020 11/5 2002
[110] http://www.lund.skane.se/job/Page.asp?id=13973 11/5 2002
[111] Internal document, HLC - Scorecard

jointly with five fields of specialties. Therefore the center is more flat and decisions are made decentralized within the division.

The departments within HLC:

- *The department of Coronary Artery Disease* treats patients with arteriosclerosis in the coronary arteries.
- *The department of Heart Failure and Valve Disease* works with the most critical patients that suffer from heart failure. Fore those who most need it heart and lung transplantation can be offered.
- *The department of Cardiac Arrhythmias* treat patients with all types of heart rhythm disturbances.
- *The Department of Respiratory Medicine and Allergy* treat and care for patients with all forms of pulmonary diseases, with the expectation of cancer in the respiratory tract.
- *The Department of Thoracic Oncology* works with patients with tumors in the thorax.

5.1.1 Visualization and measurement principles

Claes Arén stated that with help of HLC's Scorecards, figure 5.1.1.1, vision, strategic objectives and successful factors for the activities are established at different levels in the division. Action plans determines what must be done and through repeated measurements of indications they follow up whether the standards have been achieved. The mission is to implement Scorecards on five levels in the organization. Today fifteen IT-supported Scorecards exists within the organization, which are spread as presented below:

1 Division Scorecard
8 Department Scorecards
7 Business area Scorecards
4 Function Scorecards

According to Anna-Karin Bryder there also exists employee Scorecards, which however are not yet included in the internal IT-supported Scorecard system called the Dolphin.

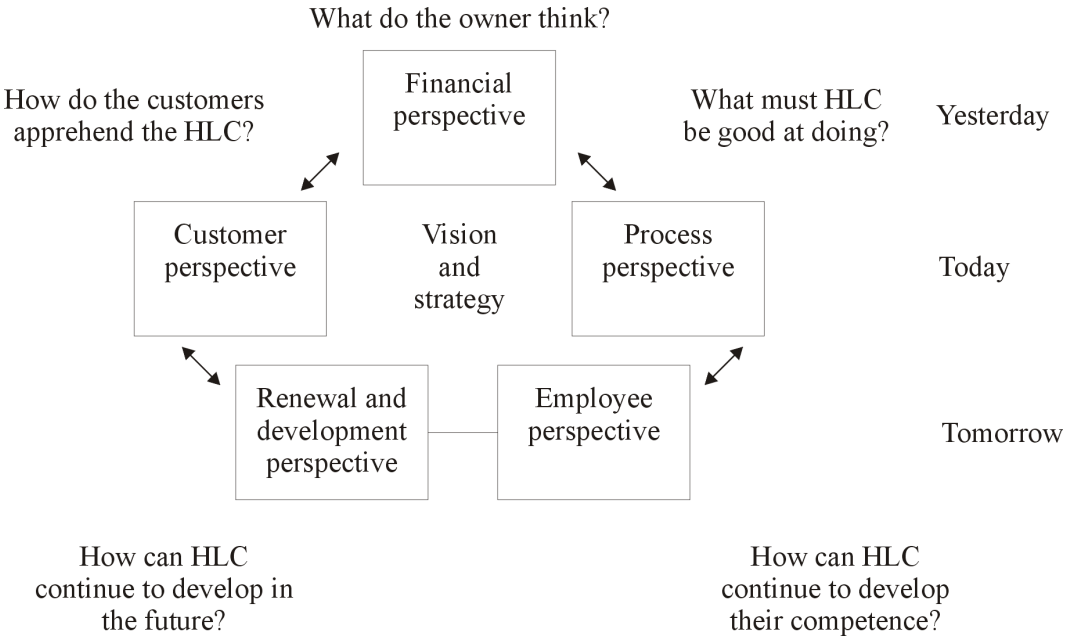


Figure 5.1.1.1, HLC Scorecard[112]

In the interview Claes Arén pointed out that the Scorecards are used as a strategic management system to plan, manage and evaluate the organization. The use of the HLC Scorecard makes it possible to view several perspectives that are not possible through only financial measurements. These Scorecards gives the center an opportunity to manage through present and future facts instead of historical data. The short-term organization management is connected to a long-term vision and strategy. He also explained that the HLC scorecard is developed from out of five perspectives: client perspective, process perspective, financial perspective, employee perspective and renewal and education perspective. In figure 5.1.1.2 are the perspective as well as the strategic objectives, success factors, and action plan visualized in figure 5.1.1.2.

[112] Internal document, HLC - Scorecard

HLC Scorecard Perspectives

Indicators	Customer	Process	Employee	Renewal and development	Financial
The strategic objectives	The right service at the right time	Care and effectiveness	Competence and work satisfaction	Reflect and improve, predict and renew	Balanced economy
The success factors	Accessibility Participation Professionalism	Co-operation Common goal focus Effective processes	Elucidated expectations Achievements	Culture of changes External analysis and system Resources	Economic consciousness Organizational planning Revenue development Business related economy system
Key measures and action plan	Web site Written materials Reduce waiting time	IT-educations	IT-education Recruitment policy Research opportunities Leadership and introduction program	Network Education IT-support	Development of system Iincrease production Develop measures for IC

Figure 5.1.1.2, HLC Scorecard

According to Anna-Karin Bryder the Scorecards constantly are evaluated and put together in reports and are communicated throughout the division through the IT-supported system, the Dolphin. The Dolphin is originally created at Skandia and HLC has bought some rights to use the IT-system. Once a month the director of the division presents the results and the development from the scorecards to the management team. Bryder highlighted the importance of communicating the work with intellectual capital development and Scorecards to the managers, since these reflect the organization's possibilities to development.

5.1.2 Organization structure

According to Claes Arén HLC is since April the 15th 2000 organized in five departments, in order to create an overall perspective in diagnosis, treatment and nursing care. Each department is based on the type of disorder from which the patient is suffering. The five departments are: Coronary artery disease, Heart failure and valve disease, Cardiac arrhythmias, Respiratory medicine and allergy and Thoracic oncology. A director, who has the functional and financial responsibility for the specific diagnostic area, heads each department. The physicians within the HLC are organized into five specialties: Cardiology, Pulmonary medicine, Cardio thoracic surgery, Cardio thoracic anesthesia and Cardiac radiology. Each specialty is led by a consultant who is responsible for staffing within the departments and for the training of existing and future

specialists. Within the respective departments there is also a nursing developer. The various wards or clinics concentrate on certain areas and each serves different departments. Below a model for how the organization is constructed and actually works is presented, figure 5.1.2.1

	Cardiology	Pulmonary Medicine	Cardio thoracic Surgery	Cardio thoracic anesthesia	Cardiac Radiology	Nurturing Care
Coronary Artery	X		X	X	X	X
Heart Failure and valve Disease	X		X	X	X	X
Cardiac Arrhythmias	X		X	X		X
Respiratory Medicine and Allergy		X	X	X		X
Thoracic Oncology		X	X	X		X

Figure 5.1.2.1, Organization structure - Departments and specialties.[113]

Claes Arén stated that a director from each department, a consult from each of the field of specialists and one responsible nurse constitute a process management team that are managing each and every of the departments. The team's responsibility includes economy, quality, efficiency and development processes within the departments.

Government-owned organizations are often static and bureaucratic and decisions are made at the top of the hierarchy. HLC's attempt to create a new more dynamic organization came from a new economic view of doing business, where the aim was to create a process-oriented organization. A matrix organization is effective when it really works, but can on the other hand be a disaster if it does not or as Anna-Karin Bryder expressed it:

> *…A matrix organization is a source to huge conflicts, but also a source to great co-operation…*[114]

5.1.3 Organization climate and management

Ann Gyllenberg argued that the work climate at HLC is characterized by communication and openness. The organization culture attracts employees that have or want to develop unique competence. Quantitative as well as qualitative correctly adapted staffs contribute to a stimulating organization culture. The HLC's ambition is that its managers and staff members have the greatest possible responsibility and authority in the organization. Openness, an ongoing inventory of colleagues' ideas, support from central organization and systematic continuing education are therefore important components in their work. The openness derives from the pleasant surrounding within the organization. Social activities, such as rounder tournaments, spring and Christmas parties and separated departments activities, contribute to the openness within the organization.

[113] Internal documents, HLC – The organization
[114] Interview Anna-Karin Bryder, (020510)

According to Claes Arén the HLC scorecard is a big part of the organization culture. It helps visualizing important work models and features and presents ways of how you are supposed to act within the organization. The HLC scorecard visualizes the employees' importance in the organization. The individuals more can easily view their work and things that have to be made in order to generate value for customers. Work satisfaction is created through good communication and the opportunity to make your own decisions.

According to Ann Gyllenberg the management team and directors are fiery spirits in the field of IC development within the organization. Their behavior and interest in the subject reflects the entire organizations way of acting and thinking of how employees should act. Ann Gyllenberg stated:

> *…The directors inspire us to take initiative and come up with new ideas…*[115]

She further pointed out that they work all the time and like it. Even at home employees can come up with ideas that successfully can be implemented in the organization. Almost everybody in the division are creative and like their work. Their work satisfaction derives to a great extent from the managers' ways of acting.

5.1.4 Inspiration and rewards

According to Anna-Karin Bryder it is a certain group of people who are making their career in the health care business. The career within Swedish healthcare is, due to the state owned company, not about money. The fact that it is a state owned organization gives no room for highly increasing salaries. The individuals that work at HLC are interested in working with people. The HLC keeps its employees by offering a stimulating environment. The work tasks permeate of quick changes. New techniques and new ways of working require the employees to be up-to-date all the time, which is considered stimulating. The people working at the HLC feel that they make a difference. They have the opportunity to affect the organization routines and work models, which makes their work even more stimulating.

Ann Gyllenberg argued that the organization shows its appreciation by rewarding the employees that are generating new ideas or work models that will affect the organization in an effective way. The rewards are acknowledgement, rather than monetary. The employees may for example get movie tickets as a symbol of appreciation. To be appreciated for your work and to be able to affect the organizations direction is a reward in itself.

The loose boundaries, according to Anna-Karin Bryder, also motivate people too seek new opportunities. The social activities make the boundaries between physicians and nurses indistinct. These indistinct boundaries affect the communication between the different fields of work. When colleges also know

[115] Interview Anna-Karin Bryder, (020510)

each other on a personal level, it is easier to understand each other and to communicate. It does not feel strange to ask for help or to be assisted by any member of the organization.

5.1.5 Human Resource principles

According to Anna-Karin Bryder three is presently a shortage of employees and the ways to attract potential work force are several. HLC is a special division of the Lund University Hospital and the division's work models differs from the traditional, which makes it important that the right people get employed. HLC tries to attract individuals that are ambitious and interested in constant development. Recruited individuals also must have achieved requested skills for a special position. They cannot simply employ a person that fits the organization but lacks the professional skills. Ann Gyllenberg stated that HLC attract students by encouraging them to pursue research within the division. The organization then has the opportunity to present the different departments and make the students a part of their operational activities. HLC attract the students by having a clinical lector and a clinical aid that can help and assist the students in their work. The relation to students is complicated when they at the same time are viewed as both customers and potential employees, which makes them an important group to satisfy.

HLC also has a trainee program for newly trained nurses. The purpose of the program is to provide nurses with knowledge and experience of the different activities within the HLC. In addition, they want to encourage the exchange of knowledge and learning between newly trained and experienced nurses. In this program nurses has the opportunity to visit different specialist areas. The students must as an ongoing process fill in evaluation forms. This evaluation has resulted in that most of the students view HLC as an interesting potential work place.[116]

Ann Gyllenberg stated that there are opportunities for employees to develop their skills and academic research since it is a University hospital. Despite the HLC's lack of employee the organization has restriction that no external staffing is allowed to occur. The organization therefore cannot expand their work force by hiring employees from different staffing companies.

Claes Arén mentioned that HLC is a part of a well-developed network and co-operates closely with other organizations. One example is NIKIS, a network for intellectual capital within healthcare, that is an independent network for people interested in questions about intellectual capital within the Swedish healthcare sector. It is this organization that has sponsored HLC to use the IT-supported program, the Dolphin, which originates from Skandia. HLC is also a part of Lund University Hospital that in turn is a part of the district of Region Skåne. The HLC and its implementation of scorecards has become the pilot project of Region Skåne.

[116] Internal documentation – Cooperation across the dividing lines

HLC constantly arrange both internal and external education programs. Internally, besides their trainee program, it has a physician-training program where it is responsible for the clinical training of medical students and pulmonary diseases. Furthermore HLC has a clinical training in nursing care that is directed at specialized care of heart and lung patients.[117] Anne Gyllenberg pointed out that once a month education seminars at each department are held. These seminars deal with scientific news and other interesting features. The seminars are available to all employees in their ordinary work time. In co-operation with the university external education programs are made to further expand the employees knowledge and competence. Information technology is frequently used in the organization. Internal IT-training programs have therefore been developed and are offered to the employees that are not so familiar with computers. Easily to forget is the constant competence development that happens through observations and experience. By just watch and observe colleges, improved routines and work models occur. Anna-Karin Bryder stated that competence development is planed and carried through based on the organization and employees needs. The employees also regularly have to fill in evaluation forms to evaluate their situation and needs. The organization thereby gets a picture of how satisfied the employees are with their work situation and has a possibility to make it better.

5.1.6 Work models and IT-system

Anna-Karin Bryder stated that besides seminars, education programs and practical work models the HLC has an Intranet where information can be reached. Managers place important documents at the site for the employees to read. All the seminars that are held at the different departments are documented and stored in the database. Employees that do not have the opportunity to attend a seminar can easily get the information anyhow. The internal magazine that earlier existed has been replaced with the Intranet. This is an attempt to get the employees more familiar with computers and IT-systems. More and more information are spread throughout the IT-system and the mission is to store as much information as possible for the employees to use. Their IT-supported Scorecard system, the Dolphin, presents material that never before has been within reach of the employees. Things from personal indicators to financial measurements can easily be found within the Dolphin, which makes it easy for the employees to see what they have to achieve to reach the objectives. The Scorecards create opportunities for organizational learning through the systematic measurement of the organization's important elements. This information is used in an ongoing discussion about the development of the organization.

5.2 Öhrlings PricewaterhouseCoopers

PricewaterhouseCoopers, PwC, is the worlds biggest accounting and consulting organization with over 160 000 employees in 150 countries. The company is lead by James J. Schiro, who is the chairman of the board. The company does not have a formal head office and the global management are made from New York,

[117] Internal document – Cooperation across the dividing lines

Frankfurt and London. The motive for not having a formal head office is the company's philosophy that the head office should be placed where the customers are. Öhrlings PricewaterhouseCoopers, ÖPwC, is the Swedish part of the global firm PricewaterhouseCoopers. In Sweden 3.000 employees are stationed in over 130 offices in the country, which means that ÖPwC is the biggest accounting and consulting business in Sweden. According to Christofer Hultén, who is an accountant at ÖPwC´s Malmö office the company is either market leader or number two in all markets where they act. The company's customers are to be found in several businesses. ÖPwC in Sweden have 40.000 clients stationed in a mix of big, middle-sized and small companies. ÖPwC's offerings have been organized into five lines of services:[118]

- *Assurance and Business Advisory Services, ABAS*, service in the areas of finance/ accounting, internal audit, tax compliance, applications process, procurement, human resources, and real estate services.
- *Global Risk Management Solutions, GRMS,* offers innovative, high quality and cost-effective solutions to organizations' financial control, regulatory reporting, shareholder value and technology issue.
- *Corporate Finance & Recovery, CFR,* offers comprehensive financial, economic, and strategic advice to companies with complex business problems and disputes.
- *PwC Consulting* service in the areas of management consulting and human resource consulting. It offers consulting in the areas of strategic change management, process improvement, and technology solutions.
- *Tax and Legal Services, TLS,* formulate effective strategies for optimizing taxes, implementing innovative tax planning, and effectively maintaining compliance

According to Swedish laws approved or authorized accountants must at least own 75% of their accounting companies[119]. Christofer Hultén explained that this law makes it impossible to have a global ownership on concern level. ÖPwC is therefore not a subsidiary, but a separate company owned by Swedish partners that are active within the firm. ÖPwC pays an annual fee to PwC's global organization and for this fee the company gets access to work models, brand name and the global network.

Worth to point out is that the empirical research took place at the Assurance and Business Advisory Services. The information presented foremost will represent accounting business.

5.2.1 Visualization and measurement principles

ÖPwC do not evaluate its own intellectual capital by using any concrete measuring method. Qualitative data, rather than quantitative data, are used to maneuver the company into the right position in the market. ÖPwC has however received good indications that the company is developing in the right way.

[118] http://www.pwcglobal.com/se/swe/about/main/index.html
[119] Interview Christofer Hultén (020506)

According to Christofer Hultén important indicators of the development of human and structural capital are low staff turnover, attractive customers and the rating of the employer barometer. The company has a good reputation which Christofer Hultén argue could be further explained or divided into three factors, serious, independent and knowledgeable. These parameters are also seen as evaluation of the company's intellectual capital. Besides these key numbers ÖPwC also internally as well as externally make researches into its employees and its customers, in a form that they have named employee and customer barometer. The employees and customers are regularly asked to fill in a form that is composed of three parts: professional, individual and atmosphere aspects. The company then compounds the information and work actively to develop and do changes in order to fulfill the comments from customers and employees.

Even though ÖPwC do not measure and visualize the company's intellectual capital they have a service to other companies that do so. Eric Salander presented a service the company was selling called ValueReporting, which today only are made at companies that are quoted on the stock exchange. ÖPwC help organizations to find a fairer market value by visualizing its clients' intangible assets. ÖPwC's role is to analyze the client's organization, not only the tangible assets but also the intangible assets, and present a fair view of the result. These measurements and the visualization are made from different perspectives to attract new investors and increase the stock exchange price. The reason that ÖPwC is not using this measuring method in its own company is the fact that the company is owned by its partners and not quoted at the stock exchange. The company therefore feels that it does not have the need for openly show and present its intangible assets.

5.2.1.1 ValueReporting

According to Alison Thomas and an investigation made by PricewaterhouseCoopers international, more than 70 % of all business managers believe that their company is under valued. This is one of the major issues and arguments that PricewaterhouseCoopers is using when the company is working with ValueReporting. According to Alison Thomas, PwC explains this under-valuation problem as the value gap. The value gap is the difference between what business managers believe their company is worth and the market valuation of the company. According to Alison Thomas one of the major benefits by hiring PwC to apply ValueReporting in a company is that this difference will decrease and finally disappear. The value gap can be further explained and better understood by dividing it into five different parts where each part of course can differ in size depending of situation[120].

Information Gap. The difference between the importance analysts and investors attach to a measure and how satisfied they are that their information needs on that measure are being met by companies´ managers.

[120] Eccles, Robert et al, *The ValueReporting Revolution*, (2001)

Reporting Gap. The difference between the importance managers attach to a measure and the actively they work to report on it.
Quality Gap. The difference between the importance managers attach to a measure and the reliability of the information their internal system provide on it.
Understanding Gap. The difference between the importance managers attach to a measure and the importance analysts and investors attach to it.
Perception Gap. The difference between how actively managers think they work to report on a measure and how analysts and investors perceive the adequacy of the information they get on it.

According to Alison Thomas the conclusion is obvious, the market disagree with most managers valuation of their companies and ValueReporting is the tool for handling this. According to Eric Salander what make ÖPwC special compared to its competitors is not the knowledge of that there is a problem in this area, because most accounting firms are aware of that, but it is that ÖPwC actually has a working tools that could solve these problems. According to Eric Salander, ÖPwC have three major products or services, which are value reporter; value detector and value creator that they offer to customers who want to decrease the value gap.

PricewaterhouseCoopers is ongoing doing researches, focused on the capital markets across numerous industries, which according to Eric Salander confirms that there are significant gaps in the information companies report and the information the markets request. During an investigation conducted by PwC where they questioned companies, analysts and investors both in Europe, USA and Asia about what types of information, both financial and non-financial that is most important to be able to measure performance in companies[121]. The results were separated in three categories where the ten most important measures according to the survey were;

- Strategic direction
- Cash flow
- Market growth
- Gross margin
- Quality/ experience of management teams
- Market size
- Competitive landscape
- Earnings
- Speed to market (first to market)
- Market share

This according to Alison Thomas further convinced PwC that ValueReporting, where non-financial numbers are emphasized as well, were needed and should be further used and developed.

ValueReporting seeks to help companies realize their full value in the capital markets. It addresses the gaps between the current financial reporting model and

[121] Eccles, Robert et al, *The ValueReporting Revolution* (2001)

the demand by investors and other stakeholders for more information on market dynamics, strategy, and intangible and non-financial drivers of shareholder value. ValueReporting provides greater clarity and transparency to investors and other corporate stakeholders and supports better decision making by managers.[122]

According to Eric Salander, ValueReporting offers a comprehensive framework for corporate reporting that can assist companies in realizing their full value in the capital markets. ValueReporting focuses on giving the markets a better understanding of how companies actually create value for investors. Eric Salander described the framework, figure 5.2.1.1.1, which is based on four major elements of external reporting. The framework builds on a number of underlying principles, the key being transparency. It assumes that shareholders come first, but recognizes that long-term, sustainable value is realized only if the needs of all stakeholders are properly understood and managed.

Market Overview	**Value Strategy**	**Managing for Value**	**Value Platform**
Competitive environment	Goals and objectives	Economic performance	Innovation
Regulatory environment	Organizational design	Financial position	Brands
Macro-economic environment	Governance	Risk management	Customers Supply chain
		Segmental performance	
			People
			Corporate reputation

Figure 5.2.1.1.1 The framework for ValueReporting[123]

Market Overview describes competitors and their competitive positions, assumptions on the macroeconomic environment and industrial growth, views on the regulatory environment, and perceptions of current and future technologies.

Value Strategy describes the company's overall corporate strategy and its strategies for major business units, as well as how the company intends to implement these strategies in terms of organization and governance structures and processes.

Managing for Value describes the measures the company believes most closely reflect determinants of and changes in shareholder value, actual income statement and balance sheet results compared to targets and benchmarked against competitors, segment information, and information on risk and risk management.

Value Platform provides information on the non-financial value drivers, typically the leading indicators of future financial performance, including innovation, intellectual capital, customers, brands, the supply chain, people, and reputation.

[122] http://www.pwcglobal.com/Extweb/service.nsf/docid/AB064C302625199F85256B3C00537F7
[123] http://www.pwcglobal.com/Extweb/service.nsf/docid/AB064C302625199F85256B3C00537F7

5.2.2 Organization structure

Eric Salander mentioned that the organizational structure at ÖPwC´s Assurance and Business Advisory Services is complex and floating and could be viewed as a three-dimensional matrix organization. First, there exist a traditional organization structure, which are based on different functions like production, administration and sales. More interesting is that, as a parallel structure a partner-managed organization exists. Below the partners, there is an office manager that is managing a number of groups consisting of ten to fifteen members of which one is a group manager. It is however a non-hierarchic organization where reporting not always take place to the closest manager. The last structure is the mentor organization, which function as an extra support to the employees. The mentors help develop the private individuals and at the same time develop the structural capital.

Christofer Hultén explained that partners own ÖPwC according to Swedish regulations. The partnership and the hierarchy are however effectively used in the organization. The hierarchy or grading system consists of seven levels where a newly employed start as an Associate then continue to Senior Associate, Assistant Manager, Manager, Senior Manager, Director and finally Partner. Promotion and a higher position in the company occur either after age spent in the company or by doing exceptional good work. The mentor system that exists in the organization plays an important part in finding valuable persons and guide them in their careers.

5.2.3 Organization climate and management

The organization culture at ÖPwC is according to Eric Salander permeated with comfort and a good atmosphere. The company actively works with treat dissatisfaction. To create an organization culture with great harmony and creativity, ÖPwC constantly arrange social activities. It is the persons that are in charge of the groups that puts together the different teams and thereby influences the culture. Furthermore the types of clients involved affect the culture. After every commission there is time for evaluation and feedback of the employees work. According to Christofer Hultén ÖPwC have a culture where it is allowed to make mistakes and learn from them.

The culture is also permeated with friendship. Christofer Hultén pointed out that many of the employees in ÖPwC not only worked together but also met outside the organization. This friendship has begun after the individual started their employment at ÖPwC. The common social activities are a great part of the structures design and people that get along and have the same goals make work tasks easier.

The organization structure identifies the formal managers called partners, office managers and group managers. The office managers put together teams and thereby affect the employees. It is their mission to permeate the entire organization with the directives and norms that should maneuver the organization to reach the company’s decided goals. According to Christofer Hultén these

managers also affect the organization culture that make knowledge creating and transfer possible. More informal leaders also exist, like the mentors that in a more personal level develop and evaluate the employees' performance. These mentors' mission is to motivate the private individuals knowledge creating as well as influencing the willingness of sharing knowledge throughout the organization.

5.2.4 Inspiration and rewards

According to Christofer Hultén the mentor system also functions as a motivational element to the individuals educational development. The younger employees have a mentor who is older and more experienced and the older employees and the employees that have reached higher positions can have mentor that works within as well as outside the organization. The mentor's mission is to collect the evaluations and help the individuals to further education and development. They also stimulate the individuals to continue to rise up the hierarchy and to set individual goals for the future.

According to Christofer Hultén the organization structure is also a way to motivate and reward individuals that remain within the organization. Climbing the hierarchy does not only mean recognition, appreciation and different work tasks but also a higher salary and a bonus system which for people high up in the organization partly is based on the organization's overall profit.

5.2.5 Human Resource principles

According to Liam Ulvhage ÖPwC is the market leader in many markets and through this position they facilitate their ambition to attract important employees and valuable customers. Because ÖPwC is a big company there also exists great opportunities for employees to further develop their skills both through stimulating projects but also by internal education. The company execute a conscious recruitment policy where they almost exclusive recruits employees directly from the Universities. According to Christofer Hultén the company has elected a student counsel that handles the recruitment issues. The council have established a close co-operation between the company and different Universities to attract potential employees. Students have graded ÖPwC as the most interesting employer a couple of years in a row, which indicates that their strategy of attracting new people is a success[124].

According to Eric Salander it is natural at ÖPwC to help the newly employed to feel comfortable with the organization and the new tasks. The existing mentor organization is a conscious way to prepare and help the newly employed people. They hereby always have a more experienced person to turn to when having problems or questions. The mentor helps the employee to proceed with his or her career within the company and develop together with the individual personal goals and education programs. The mentor also helps to create new ideas by stimulating and forwarding the innovation upward in the hierarchy.

[124] Kunskap = "Kunskap från universitet" (2001) Dagens Industri

According to Christofer Hultén the historical attention at ÖPwC has always been the financial debit item, while today the development of the employees is more in focus. The company sells knowledge and the knowledge creating process is therefore important to stay competitive. The company organizes different internal education programs to make the individuals' development possible. The company is also interested in creating global conceptions and a common language within the entire organization.

5.2.6 Work models and IT-system

ÖPwC´s work models and tools are strongly connected to the accounting company's IT-system, which within the Assurance and Business Advisory Services is named Team Asset. Eric Salander explained that the Intranet collects information and makes it accessible for the employees in the entire organization, national as well as international. The information is made up of knowledge about clients and business specific environment. The information also consists of direct work models that describe how the employees should act in different settings. Due to the accountants professional secrecy is information in Team Asset is stored that only are shared among individuals that directly have connection to the client. The employees that work together with a specific client thereby can use Team Asset as a communicating forum and easily store important information of a client that later can be of importance.

Christofer Hultén described the factor of success as the company's capacity to capture the knowledge. By using Team Asset relevant knowledge can be identified. In the Intranet system a lot of information is stored which, decreases the paperwork and makes it easy for involved employees to access relevant information. It also saves time for the involved team members. This procedure reduces the hours spent on clients, which makes the procedure more efficient and in the end ÖPwC more competitive. Team Asset is valuable to all the employees in the organization. However it mostly affects the newly employed, since they can easily get information about clients and work models and more easily communicate with other involved team members. The company constantly tries to improve and develop the Intranet system to capture and store the employees' knowledge.

5.3 Coloplast

Coloplast is a Danish company that develops, manufactures and markets medical disposables for people with physical impairment. Coloplast is traded on the Copenhagen stock market. The family that started the company in 1957, however, still owns a majority of the stocks. Coloplast has approximately 5000 employees and the turnover for 2001 was 4069 million DKK. Coloplast is one of the world's leading manufacturers in many products, among others ostomy bags and

accessories for people who, often as a result of cancer, have had their intestine rerouted through the abdominal wall.[125]

Coloplast is organized within six business areas, which are:

- *Ostomy care* develops products for people whose intestinal outlet has been surgically rerouted through the abdominal wall
- *Continence care* develops products for people with bladder control problems
- *Wound care* manufactures and sell products based on the principle of moist wound healing
- *Skin care* manufactures and market products for prevention and treatment of skin damage
- *Breast care* develops and manufactures various accessories and special textiles for women after breast surgery
- *Consumer products* develops special dressings for blisters, minor skin injuries and protection of exposed skin

According to Torben Steen Nielsen, Coloplast's overall mission states that the company's primary concern is to increase quality of life for the users, people suffering from physical impairment.

5.3.1 Value creation

Coloplast is trying to increase their shareholder value by ensuring a long-term favorable share price development and by payment of dividends. The future success of the company's business is according to Torben Steen Nielsen based on customer satisfaction and employee commitment to the company. Coloplast has identified four main stakeholder groups, which are important to the company. These groups are customers, employees, society and shareholders. According to Torben Steen Nielsen the reason for Coloplast to start making the intellectual capital visible was to get these four stakeholder groups more involved in the value generating process. By doing so Coloplast believes that this process make it possible to increase the overall value year by year.

To define value, Torben Steen Nielsen argues that it is important to make a distinction between customers and users, for Coloplast customers are those that pay for the products or services and the users are those that are using their products which not often tend to be someone else than the customers. The reason why this is more important to Coloplast than other companies is that Coloplast is in the health business and where the customers are often health care facilities that pay for the products or services and the final user is someone else who normally get compensated for his costs at least partially.

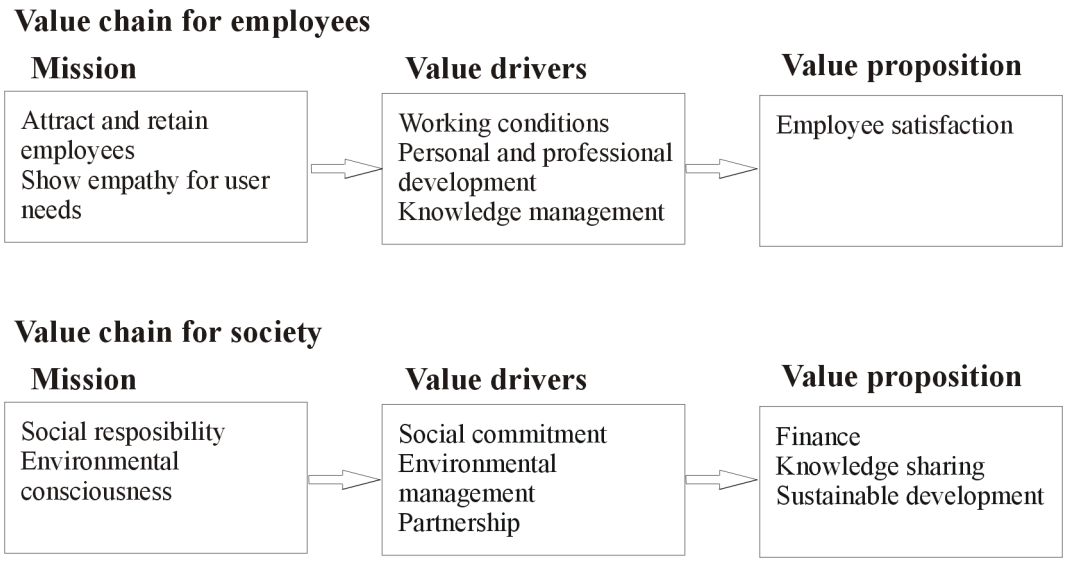
The management of Coloplast believes that quality, innovation and understanding of the daily issues of users is one of the most important factors for the company's

[125] Annual report, Coloplast, 2000/2001

long-term success[126]. Coloplast's desire to improve quality for their customers and users made them develop a special strategy for their intellectual capital. According to Torben Steen Nielsen this desire can be summarized by the challenges that Coloplast's management are focusing on, which are presented below.

Being able to understand the most important physical needs of users. Establishing dialogue groups and personal contact to users and health professionals achieve this understanding.
Ensuring low rejection rates and reliable delivery through comprehensive Quality Assurance for standardized process, process improvement and development activities.
Creating a culture to sustain knowledge sharing and to support product and process development
Building a working environment that will ensure the best development of staff by means of job rotation, self-managed teams, supplementary training and social responsibility to ensure the best development of the company's employees.

To be able to get Coloplast's four main stakeholder groups more involved in the value creating process the company 1995 started to make the company's intellectual capital visible. One step of making the intellectual capital visible was to dedicate a section in the annual report to each of the four stakeholder groups, which Coloplast has been doing the last years. In each of these sections Coloplast both describe and explain what role this group play to the company's business and future success. The company has also in each section created a value chain for each stakeholder group that according to Torben Steen Nielsen helps the company's management, employees and each specific stakeholder group to easier understand the goals and ambitions of Coloplast. The information and value chain to each stakeholder group is shortly described below



[126] Annual report Coloplast 2000/2001

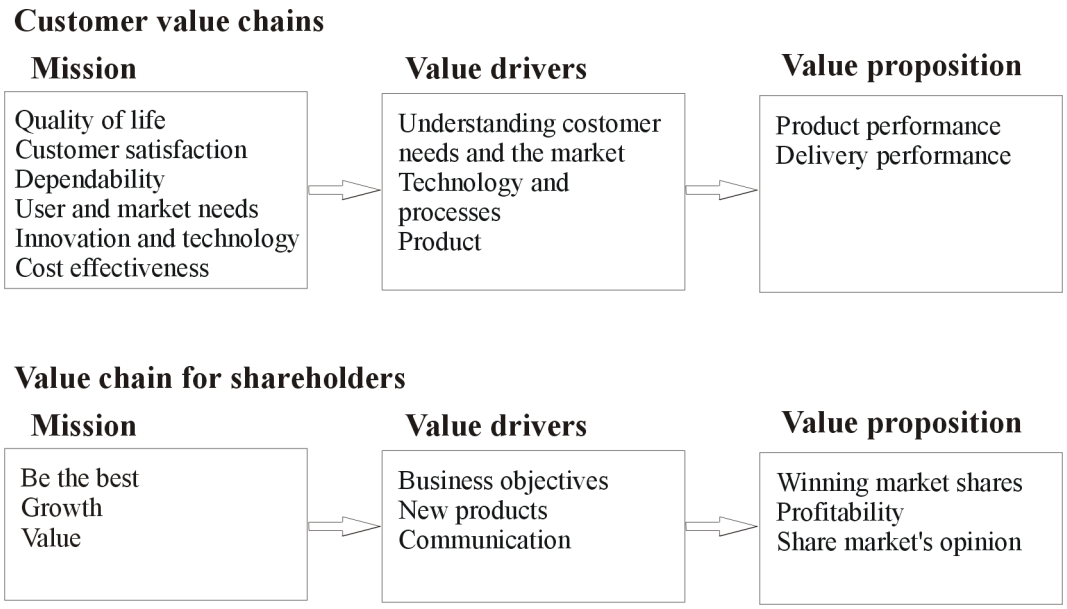


Figure 5.3.1.1, Stakeholder value chains[127]

According to Torben Steen Nielsen the statement of Coloplast's intellectual capital has received positive feedback from both stakeholders and shareholders. The feedback from shareholders clearly shows the rising interest in non-financial information about the company. The statement, which is shown below, is according to Torben Steen Nielsen, an excellent way for a company to communicate with their stakeholders. By doing this kind of statement, he says, you will raise the transparency of the company a factor that the management of Coloplast truly believes is positive. In the annual year of 1999/2000 Coloplast's annual statement was elected to the best annual report. According to Torben Steen Nielsen a company could loose some of their business secrets to competitors but over all there is more to gain in being open and communicate with the world around.

5.3.2 Visualization and measurement principles

In 1995 Coloplast started working with a total quality management model that is based on the ability to define the correlation between value drivers and results. For Coloplast the creation of the intellectual statement was a continuation of the work with total quality management. The total quality management model together with other work lead to that Coloplast in 1996 was rewarded *The Danish Quality Award*. The model that Coloplast started using in 1995 and still uses separates the results into five different subjects: business results, effect on the society, employee satisfaction and customer satisfaction, figure 5.3.2.1.

[127] Annual Report, Coloplast (2000/2001)

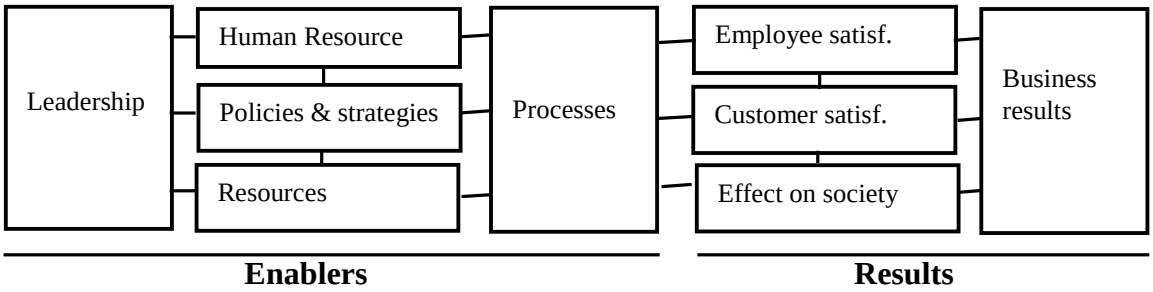


Figure 5.3.2.1, EFQM Excellence model[128]

According to Torben Steen Nielsen, Coloplast decided to continue using this model because it rests on the beliefs, that only when the chosen strategies and activities achieve good financial results and increased satisfaction together with a positive effect on the society, is the company optimally managed, these elements will increase the balanced results.

Coloplast's overall purpose with the intellectual capital statement is to find a good way of reporting knowledge, which according to Torben Steen Nielsen Coloplast already has obtained, but want to develop further. Torben Steen Nielsen believes that the report system of knowledge work very well but thinks it will be hard to find a way to measure and compare the value of knowledge at least in the near future.

5.3.2.1 Intellectual capital statement[129]

Stakeholder / Indicator	99/00	00/01	New	Group	Denmark	Value driver	Value proposition
Customers							
Cooperation with users and professional caregivers (index)	100	156		x		x	
Development projects going threw the AIM process	52	46			x	x	
R&D expenses (%)	4,2	3,9		x		x	
Customer satisfaction measurement	4	19		x		x	
Customer satisfaction (%)	99,2	97,8	x	x			x
Delivery performance (%)	98,1	97,9	x	x			x
Complaints (index)	100	92		x			x
Non- compliances at QMS audit	2	0			x		x

[128] Annual Report, Coloplast (2000/2001)
[129] Annual Report, Coloplast (2000/2001)

Employees							
Training days per employee	4,7	4,4			x	x	
Training expenses per employee (DKK)	5,689	6,855			x	x	
Job rotation (%)	26	16			x	x	
Self- managing teams (%)	60	65			x	x	
Staff turnover (%)							
x Salaried employees	9,9	9			x		x
x Hourly-paid employees	16,7	15,7			x		x
Absence (%)							
x Salaried employees	0	2,1	x		x		x
x Hourly-paid employees	5,8	6,3			x		x
Managerial positions internally filled (%) x Denmark	72	72	x	x			x
x Subsidiaries	61	53	x	x			x
Unsolicited applications							
x Salaried employees	616	677			x		x
x Hourly-paid employees	2,426	2,335			x		x
Accidents							
x Number	51	46	x		x		x
x No. Per min work hours	18	15			x		x
Society							
Job training	10	18	x		x	x	
Employees hired after job trainings	3	5	x		x		x
New jobs created							
x Denmark	74	233	x	x	x		x
x Subsidiaries	-48	199	x				x
Neighbour complaints	3	3	x		x		x
Economic value MDKK	552	708	x		x		x
Polymer process waste (index)	100	93	x		x		x
Consumption of volatile organic compounds (index)	100	106	x		x		x
Electricity consumption (index)	100	111	x		x		x
Shareholders							
Patent application filed	15	23				x	

Patent right held	170	180		x		x	
New products' share of turnover (%) x New code numbers	27,3	31,6		x		x	
x New product groups	15,6	21,3	x	x		x	
Turnover per employee	955	958	x	x			x
Operating profit per employee (TDKK)	150	166	x	x			x
Economic profit per employee (TDKK)	39	45	x	x			x
Total shareholder return x Ownership, years	2years	1 year					
x TSR (%)	29	58	x	x			x

5.3.3 Organization structure

According to Torben Steen Nielsen Coloplast's organization is complex. The structure consists of an administrative department, which handles operational questions and at the same time constitutes a support to the other departments of the firm. All the factories within the organization are designed in the same way. In the factory or center 50-80 employees are working in self-governing groups. These self-governing groups are eight to ten in number at each center and handles different functions like logistics, quality assurance, and technology. Further he explains that the organization is highly decentralized and decisions are made throughout the entire organization.

5.3.4 Organization climate and management

The employees' commitment and comfort are important and valuable to the development of Coloplast. The Corporate HR Department that acts as prime mover and coordinator of new corporate initiatives across divisions and subsidiaries therefore has been developed[130]. This department influences the organization culture with its explicit mission to take care of the employees. The HR Department facilitates the introduction of newly employed. According to Torben Steen Nielsen new employees gets a three-day introduction course where, among other things, the importance of quality, employee politics and work tasks are communicated. The introduction makes it easy for newly employed to get to now both old and new employees in the organization. It is important that the individual goals are linked to the goals of the organization to get satisfied employees.

According to Torben Steen Nielsen it is a fundamental management principle that responsibility is decentralized and decisions are best made where they are to be implemented. The organization climate reflects development and power of

[130] Annual report Coloplast (2000/2001)

initiative. To work in teams makes creation and sharing knowledge and competences possible within the organization. Social activities to bring the staff together are also a frequent element in the actions to create stimulation. These happenings enable blue-collar workers to socialize with the head office and get to now each other on a more personal level. The social interaction makes it possible to achieve greater understanding of each other's work tasks.

5.3.5 Inspiration and rewards

Since Coloplast became listed on the Copenhagen Stock Exchange in 1983, employees have been offered employee shares at favorable prices. According to Torben Steen Nielsen these shares are an attempt to create motivation and increase commitment in the daily work. When the individuals feel that a part of their work affect the overall result and in the end will gain them, this will stimulate them to achieve the company's mission.

Further encouragement for development is the intern recruitment policy is. When employees sees that it is possible to change work tasks and advance to new positions this will make them strive to improve their performances. Torben Steen Nielsen said that the expression below is a good way of describing how Coloplast try to motivate its employees

> *… a challenging job is the best carrot you can get...*[131]

5.3.6 Human Resource principles

Torben Steen Nielsen stated that Coloplast's primary concern is to increase quality of life for the users, people suffering from physical impairment. Meeting customer expectations by constantly increasing the quality of the products offered generates customer satisfaction. Knowledge about customer needs is regularly created in different forms depending on experience and background. Examples are open house days, focus group discussions end evaluation forms. This is an attempt to ensure that the products and processes live up to the requirements of the customers. According to Torben Steen Nielsen the employees' loyalty and motivation are vital to corporate growth. The company tries to attract and retain people who are responsible, quality conscious and have the ability to deliver value to the customers. In the company a Human Resource department exists that handles the question of recruitment, education, and individual development.

In order to attract the best possible employees, Torben Steen Nielsen stated that the Company is trying to strengthen the image of Coloplast as being a good organization to work in. Today the company cooperates with schools and educational institutions through presence at educational fairs and by making company presentations.[132]

[131] Interview Torben Steen Nielsen (020506)
[132] Annual Report, Coloplast (2000/2001)

One of the objectives stated in Coloplast's HR policy, Torben Steen Nielsen mentioned, is that the majority of managers should be recruited internally. The company encourages job rotation to enable the individual employee to add qualifications in various job functions and professional competences. Job rotation opportunities across departments, divisions and countries bring about new challenges. In the Danish organization alone, every year about 10% of the employees change to other jobs within the organization. About 65% of all managers in the Group are recruited internally, which offers excellent opportunities for new challenges.[133]

To further collect information and influence decision-making processes that affect the business, Coloplast has entered into partnerships and are cooperating with a number of companies, institutions and private individuals. According to Torben Steen Nielsen, the contractual relationships range from the supply of raw material to machine purchases, contractor agreements, distribution agreements, and research and development agreements. The transactions of many of these supply agreements and information are made through common IT systems.

Highly qualified employees constitute a vital element for the future success of Coloplast, and the company offers educational and personal development to its employees through a number of activities and challenges. Torben Steen Nielsen explained that the company makes courses available to all employees to enhance both job related skills and personal skills. Coloplast has recently introduced Coloplast Academy, which offers strategically important educational activities. Annual development discussions are held where a manager and his team members discuss the quality of working results. They also discuss job norms and plans for the coming year. Depending on the job and plans for the future, a training program is prepared. Coloplast emphasize education and developing its employees. In 2000/01 the HR department organized 65 courses and seminars in Denmark. Coloplast Academy has developed a program consisting go 27 courses within four competence areas with constant training needs. Included in this program are eight courses dedicated to managerial training.[134]

To ensure high work quality and commitment Coloplast, according to Torben Steen Nielsen, regularly evaluates and measures job satisfaction. From this evaluation valuable information is obtained that later are used to develop education plans and social activities to stimulate the employees.

5.3.7 Work models and IT-system

Communication of relevant information has a high priority in the organization. Torben Steen Nielsen mentioned that awareness of the potential for utilizing new knowledge is decisive to Coloplast's ability to complete research and development projects and technological strides within short periods of time. Knowledge management is an important competition parameter, and the company aim to give the employees the best level of information possible, allowing them to

[133] Annual Report Coloplast (2000/2001)
[134] Annual Report Coloplast (2000/2001)

do their job optimally. All employees are responsible for developing, documenting and communicating their knowledge about issues and relations that may affect Coloplast's competitiveness. Nearly all employees have IT access and Coloplast's intranet, InSite, which was introduced in year 2000, is increasingly used for knowledge sharing.

According to Torben Steen Nielsen it does not exist any explicit norms or directions today of that the employees should store their knowledge in the database. Instead knowledge mostly is created through conferences held in the company's auditorium. This new generated information is then informally shared among the employees during discussions or meetings. Moreover it does not exist any formal work models or tools that the employees utilize. The needed information of work tasks is gradually generated when the employees are doing their operational duties.

5.4 Summary of practice

The model below presents a short summary of the important elements found in practice.

	Coloplast	**Heart and Lung Center**	**Öhrlings Pricewaterhouse Coopers**
Visualization principle	EFQM model	Balanced Scorecard	ValueReporting
Focus/Perspective areas	- Employee - Customer - Shareholder - Society	- Customer - Financial - Process - Employee - Renewal/ Development	_____
External/Internal emphasize	External	Internal	External
Organization structure	matrix	matrix	matrix
Organization climate and management	Comfort	Openness	Good atmosphere
Inspiration and rewards	Financial and non-financial	Financial and non-financial	Financial and non-financial
Human Resource principles	- Recruitment to organization - Network - Education	- Recruitment to organization - Network - Education	- Recruitment to organization - Network - Education
Work models	Teamwork	Teamwork	Teamwork
IT-system	InSite	Dolphin	Team Asset

Figure 5.4.1 Summary of practice

6. ANALYSIS

In the present chapter an analysis of the collected and presented material is made. The reference and companies researched together with the theoretical framework constitute a foundation for the presented analysis. The analysis process consists of comparison between significant theories and practice.

6.1 Introduction

Since the society today is getting more and more knowledge intense and the fact that many organizations today view knowledge as their most important asset, it is necessary to find effective ways of managing knowledge. In the last two decades a new conception called intellectual capital have emerged. It is not usual to argue that intellectual capital is without importance or uninteresting but because the conception intellectual capital is comparatively new there is different approaches to the field. The visualization of intellectual capital is important and convey several benefits but maybe more important is to learn and find ways of how intellectual capital could be developed in order for an organization to be successful.

6.2 Short retelling of theory and practice

The theory chapter of this thesis started by further explaining the approaches made by some of the best-known authors in this field to give the reader a better understanding of the important elements in the field of intellectual capital. Most actors in the field of intellectual capital agree about that intellectual capital consist of human capital and structural capital which also is the work distinction of this thesis. The human capital can be defined, according to Leif Edvinsson, as the knowledge that consists among the organizations employees. The structural capital can according to Thomas A. Stewart be defined as everything that supports the organization to keep this knowledge within the organization or according to Leif Edvinsson everything that stays at the office when the employees leave in the afternoon.

Skandia, with Leif Edvinsson, in 1991 was one of the first companies in the world to start measure and visualize its intellectual capital. This visualization was done by presenting the Skandia Navigator, which is a model that include five different areas: human focus, financial focus, customer focus, process focus and focus of renewal and development. These areas are chosen to show what parts of the organization that Skandia focus its attention to and from where the value creation is expected.

Thomas A. Stewart, in 1997, defined human capital as only that part of the workforce, which is difficult to replace and that add high value to the organization. The rest of the workforce should be viewed as labor costs. His suggestions to measure intellectual capital are to measure human capital, structural capital and customer capital separately.

Visualization or measuring intellectual capital has only been done the last decade and only by few organizations. However the interests are rising in this field and the Danish government, in 1999, presented a guideline in which there is four steps to be conducted in creating an intellectual capital statement. These steps are knowledge narrative, management challenges, actions and indicators and finally reporting.

When an understanding of the importance of visualization of organizations intellectual capital is generated the question of how organization can develop its intellectual capital for future success still is left.

The development of human capital increases the knowledge base in the company, which according to Nonaka should create competitive advantages. The human capital consists of the total knowledge and competence that the private individuals within the organization possess. It is however not the human knowledge in itself that is most important. It is rather the structural capital viewed as a possibility to get leverage of the human capital that is vital for a company to gain sustainable competitive advantages. This analysis is limited to the extent that the focus is not on the individuals' knowledge but the organizations ability to transfer this knowledge into increased product value.

Within the frame of this thesis the elements recruiting principles, knowledge management and Knowledge transition is considered as requirements for structural capital development to occur. Furthermore it is important for organizations' to create an environment and motivate employees to constant learning. The organizations culture and management as well as motivation and rewards are elements that should be viewed as influenced factors of the human and structural capital development and can not be separated to only be involved in one of the two parameters of the intellectual capital.

Awareness of that this limitation entails that other part of the structural capital, like brand name customer relations, patents, network and reputation will not be studied to a further extent. If companies however succeed in using the knowledge to innovate and create product value this automatically will increase the brand name, customer relations and reputation. However it is not the only explanation of how to develop these last mentioned elements. The chosen parts are the most relevant ones for the realization of this thesis.

6.3 Separation of visualization methods

Due to the new field of research it only exist few ways of measuring or visualizing intellectual capital and the approaches presented in this work could be

separated into two categories: Market capitalization methods and Scorecard methods.

6.3.1 Market capitalization methods

The Market capitalization method is based on the calculation between the difference of the market value and the value according to the balance sheet. This method is used to attract attention to the importance of intellectual capital. When Öhrlings PricewaterhouseCoopers is presenting the idea behind ValueReporting to its customers this method, is its overall explanation to why ValueReporting is valuable to them. This method is valuable because most organizations want explanations of why there is a difference between the book value and the market value. The Market capitalization method is not the method of ValueReporting but the method is used to create an interest of this service.

The Tobin's Q, which Thomas Stewart describes, fits in the category of Market capitalization methods because the "q" is the ratio between the replacement cost of an asset and the stock market value. Changes in the "q" gives an indication of how effective the organization is using its intellectual capital.

The method used by Patrick Sullivan Jr. and Sr. represents the Market capitalization method where the authors put a price or a value on a company. The method could be used to assessing price to all kinds of intellectual property. Furthermore the method is used in different kinds of purposes and is very useful in acquisition situations. This method further describes structural capital, which the authors argue is the actual acquirement in an acquisition situation of knowledge companies.

The model market-to-book value, which Thomas Stewart states is the easiest model to use, could also be included in this category of methods. This method works well as an explanation but would not function as well as the other methods. The limitations of using the market value is that it is insecure, because of that this value is often argued to be over or under valued. Even using the book value is combined with insecurity out of the argument that it as well, often is wrong valued. At Coloplast this method is often used as an explanation of intellectual capital but nothing else. Another negative aspect of this method is that it does not work in organizations, like the Heart and Lung Center, where the market value is uncertain or the booked value could be questioned.

The advantage with this method however is that it is easy to use, understand and that it illustrates the monetary value of intellectual capital, which is important to receive increased attention. The disadvantage is in contradiction the same factor, putting a monetary value on intellectual capital. By claiming that the intellectual capital is the only explanation of the difference between the market value and the book value is the reason why this method gets criticized and questioned.

6.3.2 Scorecard methods

The Scorecard method has several similarities with The Balance Scorecard created by Kaplan and Norton in 1992. One interesting part by this method is that The Balance Scorecard were originally not created as a visualizing devise but is now often used as both a visualizing and navigating tool in the field of intellectual capital. This is a good proof that it is possible and in some situations effective to use a model for visualizing even if that is not the originally purpose of the model.

The visualizing method used by the Heart and Lung Center is based on this method as well as the Navigator created by Skandia. This method works very well when presenting a comprehensive picture of an organization and to disseminate information within an organization. Another benefit by this method is that it is easy to apply to different levels within an organization, which is done at HLC where they at the moment are having four different levels of Scorecards, division, business area, department and functions. The disadvantage is that it is difficult to make comparisons between organizations because each model has to be customized, which make comparisons difficult. Another disadvantage is the amount of information that in some cases could be too much and therefore could be difficult to manage. If there is too much information collected it is difficult to properly use the device to its full potential.

The business excellence model, EFQM, used by Coloplast does also fit in this category. The EFQM model shows the relation between the decisions concerning strategic management, allocation of resources, the implementing of manufacturing processes as well as the degree of satisfaction of employees, customers and society.

Celemi has divided its most important stakeholders into three groups, customer organization and people. These three focus areas can be compared to the Balanced Scorecard model, where the customer focus can be compared to the customer perspective. Furthermore the organization can be viewed as the internal process perspective while the people can be viewed out of the often-complemented perspective in the Balanced Scorecard, called the human perspective. What is interesting is that Celemi do not include any focus that is comparable to the financial perspective in the Balanced Scorecard model.

The two above separated categories of measuring or visualizing methods, Market capitalization and Scorecard, can be used as a first separation of the methods used in this work. Another way of looking at the different methods are at the different focus areas. The two methods further can be communicated in an intellectual capital statement, which efficiently can be created as presented below.

6.4 Intellectual capital statement creation

One way of creating an intellectual capital statement is like the guideline from the Danish Government where the process is separated into four different parts. The first step is the knowledge narrative where the company ensures that it fulfils customers' requirement as well as the procedure for doing so. It is interesting and

probably not by mere accident that the conception *knowledge narrative* is used, which refers to an idea that include many steps in order to find the best solution, which is, what should be included here.

In Coloplast *knowledge narrative* is clearly shown in its value chain for customers where the customers needs are presented in the column mission and the way the company will achieve this in the column of value drivers. In the case of ÖPwC´s ValueReporting this could be compared to the value platform where information of non-financial value drivers are presented. The question of how the company will fulfill its customers' requests is presented in the column of value drivers at Coloplast, which is similar to the column of managing for value at ÖPwC´s ValueReporting.

The second step according to the Danish report is management challenges, where the challenges the company must master in order to implement the knowledge narratives should be presented. In Coloplast this is the last step in its value chains called value proposition, which could span from product performance to employee satisfaction. By communicating these matters it will increase the probability to fulfill these matters because of an increased understanding within the organization. In ÖPwC´s ValueReporting, management challenges could be compared to value strategy. In the value strategy ÖPwC even argue for more transparency in all kinds of goals and objectives that the company have.

The third step in the Danish report is actions and indicators where the company should show what direct actions should be taken to fulfill the knowledge narrative. It, according to the Danish report, exists four different categories, employees, customers, processes and technology, which most actions and indicators could fit into. These indicators are shown in Coloplast's annual statement where the company has chosen around 30 indicators in total. At ÖPwC a survey has been conducted where it found out what the ten most important measures were according to companies, investors and analysts and what is remarkable is that only three of the top ten measures is of direct financial character. This further emphasize that the indicators that is chosen not by any means has to be financial but maybe better the opposite, non financial, to better capture the most important indicators.

The last step in the Danish report Jan Mouritsen state that the knowledge narrative, management challenges and action and indicators should be presented in a report, which could be of both internal and external character. The report made by Coloplast is of an external character where the focus is at current as well as potential customers and employees but also at the society and shareholders.

The means of ÖPwC's ValueReporting is also of external nature with the aim of communicating organizations' intellectual capital to different stakeholders. Reporting, which according to Jan Mouritsen could be of both external and internal character, have similarities to Karl-Erik Sveiby's theories where he argues that the benefits of measuring and visualizing intellectual capital could be of an internal or external character.

Even if HLC not yet has created an intellectual capital statement similarities of the guidelines and the way HLC has designed and implemented its Scorecard are identified. There exist clear connections of HLC's implementation of each perspective in the Scorecard. Similarities between HLC's strategic objectives and the knowledge narrative have been identified. This step explains how HLC ensures that its products and services fulfill its customers' requirements.

The second step in each of HLC's Scorecard perspectives is the success factors that indicate what HLC has to do in order to realize the strategic objectives. This step could be compared to the management challenges described in the Danish report. The third step in the Danish report consists of actions and indicators, which can be compared to HLC's action plan and key measurement where the success factors are developed into concrete activities. The key measurements are further used to increase communication. Finally the fourth and last step in the Danish report is reporting. This reporting in HLC is above all done internally through its Scorecard system.

6.5 Focus areas and perspectives

According to Leif Edvinsson, the Skandia Navigator consist of five different focus areas. These different focus areas should be chosen in order to show which areas the company is focusing at but also from where the value of intellectual capital will be created. There are similarities between viewing the Skandia Navigator and the way Karl-Erik Sveiby present his theory of the invisible balance sheet, where his separation is done between internal structure, external structure and the competence within the workforce.

The way HLC is using its Scorecard have similarities with the Skandia Navigator, which also has similarities to the Balanced Scorecard. In HLC is, what in Skandia is called focuses, called perspectives. HLC's Scorecard consists of five perspectives: finance, customer, process, renewal and development and finally employees. The difference between HLC's Scorecard and the Skandia Navigator is the employee perspective, which is included in HLC. The objectives within this perspective are competence enhancing and satisfaction among the employees. This perspective is not explicit shown in the Skandia Navigator but consists within the renewal and development focus. The renewal and development focus in Skandia is trying to catch the company's possibilities for the future where the employees play an important role.

The way Coloplast has chosen to separate its focus areas also has similarities to the other Scorecard method. Coloplast have chosen both customer and the society as two of its stakeholder groups. This is interesting because since it is the society who pays for some of the company's products and the end-user does not have to pay for all treatment itself. These to groups therefore are the same, but presented in two different focus areas.

The EFQM model that Coloplast uses, does in an effective way connect the mission of the four chosen stakeholder groups to the overall strategy. Each of the stakeholder group has its own value chain where mission, value drivers and value

proposition is visualized. These value chains are connected to the company's processes, the Human Resource Management, policies, strategies and resources function as a good visualizing and managing tool.

The way that Celemi has created its Monitor explains Karl-Erik Sveiby's theory about the invisible balance sheet. There are three different structures: customers, organization and people. These structures are further divided into three groups: growth/renewal, efficiency and stability, which in total makes 32 measures. By using these three levels within each group it makes comparisons easier. The three selected groups further, in an effective way, make comparisons to the financial or tangible side explicit. The growth/renewal could be connected to equity growth and investments. The efficiency could be connected to profit margin and net return on equity. Finally the stability could be connected to solidity and liquidity. By making the comparisons between the financial side and the intellectual capital this visible, it will support increasing of financial results faster than if the comparison were vague.

6.6 Why measure and visualize intellectual capital

There are several arguments of why organizations should start visualize its intellectual capital. Karl-Erik Sveiby has separated his arguments into external and internal reasons. The external reason where the aim is to increase the understanding of the organization to its customers, investors and credit institutions is what ÖPwC is trying to achieve by its ValueReporting. However what is interesting with ÖPwC and ValueReporting is that the company do not use ValueReporting in its own firm but only as a service to its clients. ÖPwC´s argument to not use it on its own organization is that it is a partner-owned organization and do not in the extent has to communicate its value to external stakeholders. This is an argument, which question the credibility of ValueReporting because it is supposed to fit in all organizations even if ÖPwC´s focus is on companies represented on the stock market.

The external purpose also was important to Coloplast when they started visualizing its intellectual capital. The response they received from its customers and investors are now being used as a motivational aspect to further develop its way of visualizing the intellectual capital. The external purpose is also to enable learning by communicating with its stakeholders, which Coloplast have realized.

The internal purpose, which also Jan Mouritsen emphasize as important, is clearly shown in both Celemi and HLC, where the major purposes with the visualization is to manage the knowledge resources in a more effective way. The internal purpose is also clear in Coloplast where the visualization of the EFQM is done in order to increase the understanding of connections between each stakeholder group and the managing of knowledge resources. In the ValueReporting the internal purpose is important but is not emphasized as the major factor.

Jan Mouritsen further state that the communication will increase as an effect of visualizing organizations' intellectual capital, which is what happened at HLC where the employees sees the difference very clear compared to other divisions

within the hospital. The Scorecard have helped HLC to gain better goal congruence partly as a consequence of increased understanding of everybody's role in the organization but also as a consequence of the more open climate which now is a fact at the division. The communication is also a key aspect for Coloplast where its aim is to get its four chosen stakeholder groups more involved and make more value creation possible.

After the insights of how and why intellectual capital can and should be visualized the interest of the elements that influence the development of intellectual capital still remains. The meaning of the elements, both requirements and supporting elements are of importance when managing organizations for future success.

6.7 Intellectual capital development

Ikujiro Nonakas discussion of that the only reliable source of competitive advantage is knowledge and that successful strategy integrally is linked to knowledge creation, reflects all of the three researched companies views of how to be successful. HLC at Lund University Hospital is a government-owned organization with little incentives to work with economic improvement within the division. Still the division is doing just that, and the fundamental idea behind the design of the division is to increase customer value. This is an attempt to make the division more efficient in order to maintain successful. To be able to increase customer value, knowledge about the division's customers must be generated and transferred through out the entire division. Stewart in similarities to Nonaka claims that the human capital therefore is central for future success.

Öhrlings PricewaterhouseCoopers main business is providing knowledge to its clients. The owner structure consisting of operational accountants makes the incentives for profitability clear, and in order to stay competitive human capital is the main competitive weapon. In similarities with HLC as well as Nonaka's discussion ÖPwC develop human capital in order to increase the company's profit.

The family owned company has incentives just like ÖPwC, to make the company efficient. Coloplast's overall mission and primary concern is to increase quality of life for the users, people suffering from physical impairment. In order to succeed with this mission Coloplast constantly increases company's knowledgebase by developing the human capital in order to make improvements, which is in line with Stewart's discussion.

Three different companies', in three different businesses with three different owner structures all view knowledge as human capital as the most important element to future success and survival. Nonaka´s discussion about knowledge as the only competitive advantage fits the three organizations strategies for being successful.

The employees' knowledge contributes to the innovation and renewal of the companies in order to match changes of the environment. However the human capital alone is not sufficient to value creation and it is rather the organizations

surrounding within the individuals work that has a vital importance to companies' capacity to create value. The structural capital, how an organization develops, share and tie knowledge to its organization, has the potential of being the most powerful weapon to create sustainable competitive advantages.

Karl-Erik Sveiby defines structural capital as the organizational conditions and process that makes the intellectual capital in the organization to be more valuable than the sum of the pieces of human capital. De Long and Fahey define structural capital as knowledge that exists in the organizations systems, processes and routines. This type of knowledge is bound to the organization and independently in condition to the individuals that are using it. The structural capital presented in this thesis, can be viewed from the perspectives of how organizations develop, share and tie knowledge to the organization in order to be more competitive and less vulnerable. Connections can be identified with both Sveiby's and De Long's and Fahey's definitions where the elements share and tie could be reflected to De Long and Fahey's discussion of knowledge existing in organizations routines, processes and system. The element develop in the work distinction is a means, as according to Sveiby, to make the human knowledge more important by using it in a complex whole.

According to De Long's and Fahey's definition, Team Asset at ÖPwC can be viewed as structural capital when it stores private individuals knowledge. Team Asset thereby function as a knowledge base where information and tools are accessible to the employees. Different members of the organization can reach and use the information stored in Team Asset. This accessibility is a means of getting leverage of human capital, which is consistent with Sveiby's definition of structural capital.

The structural capital within HLC can be viewed as two separate parts. The first consist of, what De Long Fahey defines as processes and routines. The head of the department and his closest staff of two development secretaries work together with development of the division's intellectual capital. Discussions of that this is human rather than structural capital ca be made but the fact that their knowledge is shared and organized in order to get leverage of the human capital it could be viewed as structural capital in the line of Sveiby´s theory. The IT-based Scorecard system where information is stored, presented and for the employees to utilize, is the second part of HLC's structural capital and according to De Long and Fahey consist of what they call as system.

Coloplast in difference to the other two companies today do not have a clear strategy of tying the human capital to the organization. However the company has a functional Intranet system where the employees are supposed to store important knowledge, what De Long and Fahey name as the system. The design and structure of the company's factories can be viewed as an attempt to get leverage of the human capital as well as the auditorium that is used to educate and share knowledge. This auditorium is designed and structured to make the transition of knowledge, easy which according to Sveiby can be viewed as processes to make leverage of the human capital and according to De Long and Fahey consist of the elements processes and routines.

The three companies all have noticed the importance of develop, share and store human capital. The ways of utilizing as well as getting leverage of human capital differs between the three companies. They all use Intranet as storing information and tying the knowledge to the company. The sharing and the developing of knowledge are made differently in the organizations researched and the utilization of intranet for that objective is used in different extension.

Different elements that affects and influence organizations ability to develop intellectual capital has been identified. Firstly, some requirements exist in order to make the development occur. The requirements are presented as human resource principles, knowledge management and knowledge transition including work models and IT-system. The supporting functions are presented as organization culture and management as well as motivation and rewards.

6.7.1 Human Resource principles

Tichey et al. argues that recruitment is a process that includes all those activities related to the internal movement of people across positions and external hiring into the organization. Bowen et al further argues about the importance of hiring individuals that fit the organization rather than individuals that fit to a certain position within the company. The importance of having right people in the organization affects the individual as well as organizational learning. Dave Ulrich launches the idea that having the most skilled employees would reflect the customer value. He argues that companies also can change the employee structure by discharging or transferring individuals into another position. Moreover, he claims that borrowing, or insourcing, knowledge also is a popular phenomenon where organizations invest in outside vendors, which bring ideas, frameworks and tools to make the organization stronger.

In the line of the discussion of Bowen et al. HLC tries to attract individuals that fit the organization by attracting ambitious people that are interested in constant development. However due to the complex service the division delivers it is important to recruit individuals that also have the skills to perform the services. The division therefore cannot only hire individuals that fit the organization but they must also have the right education and experience.

ÖPwC's recruiting situation is similar to HLC's as well as the theory of Bowen et al. since ÖPwC mostly attract newly graduates to be able to create a common culture with common values. These young and newly graduated individuals are often relatively inexperienced in other work places and are easy to affect and shape in order to fit the organization. ÖPwC, as well as HLC, are dependent on skilled employees, which make the principles of Bowen et al. of finding individuals that fit the company rather than a specific task not completely applicable.

Coloplast as well as the other two companies researched advocate the theory of Bowen et al. of recruiting people to the organization rather than to the specific tasks. However, it is easier for Coloplast to use the principles of Bowen et al.

since the majority of the employees are blue-collar workers who are not required to have specific education in order to do the work tasks.

In the line of Ulrich's theory, Coloplast also advocate principles of changing position to expand the knowledge base. The company views work rotation as a main source for employee development and one of the objectives stated in Coloplast's Human Resource policy is that the majority of managers should be recruited internally. Similar to Coloplast, ÖPwC's structure for advancement is an attempt to change positions of employees within the company and to add qualifications in various job functions and professional competences.

Moreover, Dave Ulrich claims that one should not only hire individuals that suite the company but also discharge individuals that do not fit the organization. This method is due to different laws of employment security not usable for developing the knowledgebase within the three companies researched.

Additionally, Dave Ulrich is not only arguing about hiring and discharging individuals but also recommend companies to use insourcing as a tool to expand its knowledgebase. Despite HLC's lack of employees, the organization has restrictions that no external staffing is allowed to occur. The organization therefore cannot expand its workforce by hiring employees from different staff companies. HLC however is a part of a well-developed network and cooperates closely with other organizations to receive new knowledge and insight. These new insights are further used to expand and develop the division's work, which Ulrich point out is an additional way of expanding the knowledge base. Furthermore Dave Ulrich claims that to build new knowledge within the organization is important since it increases the company's ability to solve problems of clients'. Education of existing employees is also of great importance for making it possible to provide customer satisfaction. All three companies in different ways arrange internal as well as external education programs to expand the knowledge and the ability to perform.

Moreover, all three organizations view the employees in relation to the organizations' surroundings as the most important elements for future success, which enables a supporting recruitment policy. The organizations' researched views the recruiting process according to the theory of Tichey et al. and in line with the discussion of Bowen et al. Thus, they try to attract people that fit the organization rather than a specific position. By these principles creative environments will be shaped that will result in customer satisfactory, products or services. The three companies researched also use Ulrich's approach to buy and insource knowledge as a mean to further expand the knowledge base.

Furthermore personnel restrictions make it difficult to fully use Dave Ulrich's approach since discharging once hired employees on the fact that they do not fit the organization is not allowed. The restrictions make the hiring of new employees even more important, which Tichey argues only is one part of the recruiting process. To hire the right employees from the beginning is hard but of vital importance to all organizations facing the same restrictions as the three organizations researched. To expand knowledge within the three organizations researched networks and co-operation partners are used. The companies however

rarely use external consulting organizations, which according to Ulrich is another way to expand the knowledgebase.

Furthermore, Ulrich claims that knowledge can be generated when individuals with different knowledge meet and interchange theoretical as well as practical ideas and skills. Internal education programs therefore should try to generate more than transfer of knowledge between groups and individuals. To develop structural capital the programs should also contribute to the development of new and useful theoretical knowledge and practical skills. The recruitment process as well as the education system are important elements in the creation and development process of the three companies' intellectual capital. In addition, the education system could be viewed as an important part of the companies' infrastructure, since it is a condition for the employees' personal development and at the same time constitutes a requirement for an effective knowledge transfer.

6.7.2 Knowledge transition

Ikujiro Nonaka argues that new knowledge always begins with the individual and thus, making personal knowledge available to others is the central activity of the knowledge-creating company. Knowledge can be of intrinsic and extrinsic nature, where intrinsic knowledge is the starting point of the creation of knowledge and innovation. Nonaka further claims that each type of knowledge can be converted into new knowledge through an upward spiral process, which starts with the individuals' knowledge and move up to inter-organizational level.[135]

Nonaka explains that the first *socialization* takes place in self-organizing team, which facilitate the sharing of members' experiences. This socialization process at HLC can be described as the employees' ways of working in team and solving problems for its patients together. Knowledge is transferred and competence is created as an ongoing process through observations and experience. By just observing and assisting colleges generate improved routines and work models. At ÖPwC the procedure is similar the procedure of HLC. Since most of the employees have similar education the opportunities to knowledge transfer from tacit to tacit knowledge is large. In the production at Coloplast the tacit knowledge transfer happens every day when employees work together. Newly employed are watching and learning from others how to do the work tasks.

Furthermore Nonaka points out that perspective is *externalized* through continuous dialogues, especially by the use of metaphors. At HLC the teamwork and observations often result in new ways of treating patients, which makes the tacit knowledge of one person explicit to use in the entire organization. The seminars held in the division where tacit knowledge is transferred into another tacit knowledge, are documented and stored at the division's intranet. The information is made explicit and accessible for others to study. Managers also, for the same reason, place important documents at the site for the employees to read.

[135] Nonaka, Ikujiro, *A Dynamic Theory of Organizational Knowledge Creation* (1994).

At ÖPwC the same procedure occurs when information and work models are stored in the company's intranet Team Asset. The intranet collects information and makes it accessible for the employees in the entire organization, national as well as international. Team Asset contains direct work models that describe how the employees should act in different settings. The employees transform their knowledge and makes new models explicit in order to be more efficient. The work models and tools in Team Asset can be viewed in line with Nonaka´s theory as an attempt of transforming tacit to explicit knowledge.

At Coloplast no explicit norms or directions how the employees should store their knowledge in the database exist. Knowledge is mostly created and shared through conferences held in the auditorium of the company. This new generated information is then informally shared among the employees during discussions or meetings. Furthermore there does not exist any formal work models or tools that the employees utilize. The needed information about work tasks is gradually generated when the employees are doing their operational duties. When the new knowledge in different ways is accessible to individuals the knowledge transfer process that Nonaka states as the third part of the spiral of knowledge is created through *combination*.

Fourthly, Nonaka argues that the knowledge should be *internalized*. In this step tacit knowledge is concerned again so that a new knowledge creating process is induced and will be repeated. At HLC the newly created knowledge results in new ways of treating patients. At ÖPwC new work models and tools are created out of the employees' innovative skills. These skills are in different ways spread throughout the organization and ends up in the employees changed behavior. At Coloplast new ways of doing business and new ways of increasing customer value occurs as a result of the knowledge creating process. An occurrence of double loop learning presumes that these processes transforms into a continuing knowledge transfer, like an upward spiral. This internalization therefore starts the spiral of knowledge all over again but this time at a higher level.

The knowledge creating and transition process is similar within the three companies researched. In all three companies the socialization process occurs when the individuals work in teams. The tacit knowledge is transferred through observation and cooperation. ÖPwC and HLC make great efforts to make the individuals tacit knowledge explicit by storing and sharing knowledge through the intranet system. Externalization and Combination occurs when new work models and tools are presented in the intranet in order to develop and change individuals' way of work. Furthermore Coloplast also makes efforts to transfer knowledge throughout the organization by placing important documents on the intranet, InSite. However the company is not using it to its full potential instead the organization is working with highly personalized transformation of knowledge. The internalization process is similar in all of the three companies researched. One way or another the companies expose the employees to the new explicit knowledge, which result in that the employees' unconscious changes their tacit knowledge. This change of tacit knowledge means that the employees experience an individual paradigm change. Structural capital is developed as a result of this paradigm change.

6.7.3 Knowledge Management

Hansen et al. argues that companies that offers standardized solutions to problems are best suited to use a codification strategy, rather than a personalization strategy, for the distribution of knowledge. All information within the organization should thereby be coded and stored in databases. ÖPwC's intranet Team Asset, is a clear example of a codification strategy. Its primary mission is to store and transfer knowledge and provide models and tools to the employees throughout the entire organization. Team Asset is used in order to increase the efficiency of the employees. It however also works successfully as a communication channel between the members in the organization. Furthermore Team Asset makes it easier to access relevant and necessary information since paperwork is efficiently reduced.

With personalization Hansen et al. argue that knowledge is transferred through communication between individuals. The personalization strategy is proper, if the company produces customized and innovative products with employees possessing tacit knowledge. Coloplast is using the personalization strategy when transferring knowledge throughout the organization. Tacit knowledge is constantly transferred to new tacit knowledge through personal communication or formal meetings and seminars. Today HLC also uses the personalization strategy to communicate new knowledge, where meetings, education programs and seminars are important communication channels. The division is storing relevant information in databases as an attempt to change from a personalization to a codification strategy.

Moreover Hansen et al. further argues that the companies that use knowledge distribution effectively use at least one of the above mentioned strategies, but are at the same time not entirely disregarding the other strategy. The authors argue for an 80 to 20 relationship, where 80%, in ÖPwC's case, represents the codification strategy and the remaining 20% represents the personalization strategy. In the Case of Coloplast represents 90% the personalization strategy while only 10% the codification strategy are used to 10%. HLC´s ongoing change of knowledge management strategy has result in that the personalization strategy today is represented to approximately 60% and codification to 40% with the aim that codification should be the dominating strategy as the case of ÖPwC.

ÖPwC is a company that often uses standardized solutions to solve clients' problems. The codification strategy therefore is well suited to the organizations' overall strategy. Nevertheless the company does not entirely disregard the personalization strategy but uses it as a complement to the overall codification strategy. HLC today seem to be changing strategies, and the division naturally does not have the same balance between the different strategies as Hansen et al. recommends. HLC also offers quite standardized solutions to patients and a codification strategy, which HLC is aiming at, therefore suits the organization well. By educating employees in IT and implement a computerized internal magazine is a good way of approaching the target of a new knowledge management strategy.

Coloplast also has standardized solutions in the way that every end-user is not getting special treatment but an overall solution is made and sold to the customers. However the fact that two thirds of the company's employees are blue-collar workers and that their work tasks are highly standardized and not hard to transfer from one individual to another speaks for a codification strategy. Nevertheless Coloplast has chosen to use a personalization strategy since a codification strategy do not fit and support the overall strategy. According to Brainer a codification strategy demands, that high resources are emphasized to install highly integrated IT-systems. These types of resources however are not usable to Coloplast. Insted the existing intranet system and the stored elements are an attempt to complement the personalization strategy. Moreover the choice and design of knowledge management strategies is important for effective transformation of knowledge. How easy the transformation of knowledge is, affect the structural capital development since the knowledge is a foundation for development.

6.7.3.1 Work models and IT-system

Work models can be identified as how organizations structure their operational businesses. Brainer et al. argue that project groups, which exist in almost every organization, are important work models. ÖPwC's principle work model is in the line with the theory of Brainer et al. a permanent one. The employees are working in team to solve clients' problems. Team Asset can, according to the theory of Bakka et al. be viewed as a work model when they argue of work models as a practical problem-solving model, which can function as a tool that is used to analyze and study specific problems.

Coloplast also has permanent project groups, in the line with the theory of Brainer et al. that can be viewed as work models. These however take a more formal shape. Within each factory employees are working in self-governing groups in which routines and models exist. These routines and models according to Bakka, might be viewed as tools and thereby constitute a model for practical problem solving. According to Brainer's discussion of work models HLC, as well as the other two research companies has permanent project groups. HLC is organized into five departments in which employees from different specialties work together.

Information technology is important to the organizations possibilities to make business. Behind the implementation of an IT-system exists a large investment, which according to Bakka are necessary to assimilate the advantages that successful IT-implementation entails. However the level of IT-support a company needs depends on its choice of knowledge management strategy. According to Applegate et al. information technology can strengthen and make the company's infrastructure effective by supporting the functions in the value chain and have central information in readiness. Stewart further claims that databases support organizations in sharing, developing and mapping knowledge. At ÖPwC Team Asset, collects information and makes it accessible for the employees in the entire organization. Team Asset as a source of information, according to the theory of Applegate et al, will strengthen the infrastructure and make it more effective by supporting the functions in the value chain and have central information in

readiness. Furthermore Team Asset can be viewed out of what Stewart mention as the corporate *yellow pages*, which illustrate a database overall functions.

HLC too has an Intranet system where information can be reached. The database is used in line with the discussion of Applegate et al. of render and stores information from meetings and seminars for the employees to read. To make the IT-system more efficient HLC offers IT-education programs to make the employees more comfortable with computers. This form of education can be viewed out of the theory of Applegate et al. of how to support and make IT more effective. Furthermore Nonaka argues that a well-functional IT-system, to be effective, must be adapted after the employees' capacities, which gives a comprehensive view of the means with the IT-education programs at HLC. The organization's IT-supported Scorecard system, the Dolphin, is constantly developing since the employees are involved in the development process, which in the line with Koehler's discussion is efficient to create contents of intranet. The Dolphin creates opportunities for organizational learning through the systematic measurement of the organization's important elements.

Coloplast's intranet system, InSite, is not storing information to the same extent as either ÖPwC or HLC. All employees however are responsible for developing, documenting and communicating their knowledge about issues and relations that may affect Coloplast's competitiveness. InSite supports the functions in the value chain the company view as important and thereby is adequate with Stewart's discussion.

According to Brainer et al. different work models existing as both formal, and informal project groups are identified in all of the three different organizations. These project groups together with the highly developed personal network can be viewed as, according to De Long and Fahey, social knowledge where both tacit and explicit knowledge are shared through the work models. All of the organizations researched have complex organization structures with loose boundaries. These loose boundaries affect communication between the different fields of work and enables people to seek new opportunities. The organization structure and work models play an important role in the transformation process from human to structural capital, and thereby enable development of intellectual capital to occur.

According to Hansen et al. the two knowledge management strategies require different IT infrastructures as well as different levels of support. The IT-systems of the three organizations' researched, function in the line with the discussion of Applegate et al. as a support and strengthen the companies' infrastructure according to their knowledge management principles. According to Stewart, well-functioned IT-system can give valuable contribution to knowledge transformation and thereby strengthen the structural capital. However this is not enough if they are not adapted after the employee's capacity. Moreover a well-functioned IT-system opens the possibility to make the organizations implicit knowledge accessible to almost everybody and important information can be stored to make the organizations less vulnerable. This storage of knowledge is in line with Stewart's discussion of *Competitor intelligence*.

However the information technology and databases only work as a distributor and keeper of knowledge, and not as knowledge generators. Organizations should not expect that transformation of knowledge and development of structural capital are taking place only through the establishing of a system. If knowledge creation and transformation are to occur as well as the contingency to structural capital development a couple of supporting elements systematically must be considered and organized in order to create a developing of intellectual capital and organizational learning.

6.7.4 Organization Culture

According to Bruzelius and Skärvad organization culture best can be described from the following elements: dominating ideas and values, significant participants and role models, norms and rules and informal communication channels. The dominating ideas and values are at Coloplast presented through the introduction program every new employee goes through, in where desirable and not desirable behavior is communicated. At ÖPwC and HLC the work models spread the dominating ideas and values. The explicit dress code that exists within HLC, according to Bruzelus and Skärvad, is a mean of communicate norms and values. ÖPwC has a more implicit but formal dress code, which by sending a message of professionalism, communicate norms and values.

Bruzelius and Skärvad further argue significant participants as a parameter of organization culture. The development secretaries as well as the head of the division at HLC are fire spirits that permeate the entire organization. At Coloplast and ÖPwC the connection is not that strong since the managers or informal leaders do not permeate the organization in the same extension. Still, strong and respected individuals exist in the organization and affect the subgroups that occur when working in teams. Informal communication channels occur in all of the three companies. These networks function as a tool that is used to develop and transfer knowledge within the organization, which is in line with what Bruzelius and Skärvad advocate.

Furthermore Nonaka claims that building a redundant organization is the first step in managing a knowledge creating company since it encourages frequent dialogue and communication. HLC has made an attempt to create a climate where staff members feel as an important part of the divisions overall operational activities. The implemented Scorecards help creating a common cognitive ground among employees and facilitate the transfer of tacit knowledge. According to Nonaka this can be viewed as a way to create redundancy since the Scorecard also spreads new explicit knowledge through the organization for the employees to internalize.

At ÖPwC the organization culture reflects comfort and good atmosphere. Moreover the culture permeates of friendliness that encourages frequent dialogues and communication, what Nonaka views important for building a redundant organization. The company also arranges internal education programs in order to create global conceptions and a common language within the entire organization. A common language is according to Nonaka important because it encourages frequent dialogue and communication.

Within Coloplast a Human Resource department is formed in order to influence the organization climate as well as the development of employees' skills. This department makes communication channels explicit, which is in line with Nonaka's theory, is a means of creating redundant organizations. Coloplast further encourages job rotation and these job rotation opportunities across departments, divisions and countries bring about new challenges. Strategic rotation according to Nonaka further helps building redundancy.

All companies develop a culture, which briefly can be described as the way of how employees think, act and live in a specific company. The culture consists of shared values, norms and conviction within an organization. Every culture is unique and is carefully created in order to encourage creation and sharing of knowledge. A central part in the organizational culture is the conception and common language that are developed internally. ÖPwC makes great efforts to create an international common language and conceptions as means of shaping what Nonaka describes as a redundant organization. This redundancy helps create a common cognitive ground among employees and facilitates the transfer of tacit knowledge. Redundancy also spreads new explicit knowledge through the organization for employees to internalize.

Strategic rotation that Coloplast advocate is its way of creating a redundant organization and knowledge sharing within the company. HLC places resources in free access to company information through its Scorecard system in order to share and spread knowledge throughout the division. Each of the three organizations has different approaches for building a redundant organization. Seeing that redundant organization more easily spreads important knowledge throughout the organization in turn will result in development of structural capital.

Every organization develops differently and there is no right or wrong of how to create organizational learning that affect the structural capital development. Worth to emphasize is that a couple of common elements exist in the organization culture creating process. The communication of vision and business idea, which all of the three organizations communicate identifies the fundamental values and is shared among the employees. This communication is according to Peters and Waterman fundamental for creating a strong organization culture. The organizations further motivate renewal and ideas that contribute to the organizations' success. These elements correspond with Geoffery's view of how to create a learning climate that supports the learning process. The communication of visions and business idea as well as the stimulation of innovations results in a stable culture. The stable culture as a supporting function to knowledge creation and sharing, affect the development of structural capital.

6.7.4.1 Management

Pfeffer argues that rules and norms exist in most organizations and can function as tools to control the organization towards the goals set. The different directives and norms differ from one organization to another and are affected of the management principles. Different management principles can be identified at ÖPwC. The

organization structure and the ladder of career identify both formal managers and informal leaders that affect the individuals' behavior. The different managers and informal leaders impact at ÖPwC however is not that strong and do not alone, as Pfeffer argues, influence the norms and directives within the entire company. However the managers affect the subculture's norms and values. The mentor system further motivates the private individuals' knowledge creating as well as influencing the willingness of sharing knowledge throughout the organization. The mentorship, according to Bruzelius and Skärvad reflect leadership when one individual influence others to achieve goals.

At Coloplast the management structure is rather formal and when a problem occur or an idea is generated it should be reported to the nearest manager in order. The managers' mission can be viewed as Bruzeliu's and Skärvad's view of leadership rather the Pfeffer's idea of that one individual can affect an entire organization. At HLC on the other hand the head of the division as well as the development secretaries are fiery spirits in the constant development of the organization as well as the private individuals. It is both a formal manager and informal leaders that in this organization has the ability, according to Pfeffer, to effect the entire organization. Bruzelius' and Skärvad's principle is usable when these formal and informal leaders influences other in the organization to achieve personal as well as organizational goals. The managers at HLC match Pfeffer's discussion of the importance of an active leadership that tries to create organizational value by controlling through symbolic actions.

Within an organization different management and leadership styles exist when leadership is based upon education as well as personal skills. These personnel skills are hard and even impossible to illuminate, which do not enable one common leadership style. It is not easy to clarify any patterns of how management affects the structural capital. Managers affect the employees and distribute the company's missions and ideas. However it is clear that the management principles affect the organization culture, which in turn affect the knowledge creating and transfer of knowledge. The employees constitute the aggregated human capital that shapes the norms and values that constitute the company culture. The business and employee idea therefore connects with the organization culture and mission. It is the managers' tasks that through symbolic actions create and control the mode of action that encourages knowledge creating and sharing. Leadership therefore has, if not a direct, an indirect impact of the development of structural capital.

6.7.5 Motivation and rewards

The creation of new and valuable human as well as structural capital is dependent on the employees' interest of sharing their knowledge. A functioning reward system is required to motivate employees to develop and share their knowledge and skills with others. According to Eneroth a common distinction is that motivation can be of extrinsic or intrinsic nature. Extrinsic motivation comes from outside a person and is usually linked with money as rewards. ÖPwC's basic monetary system that consists of individual salaries to the entire staff can be viewed as extrinsic motivation. Furthermore to keep the employees and their

knowledge within the company ÖPwC's opportunities to make carrier and eventually become a partner within the organization can be viewed as extrinsic motivation. These gradual advancement opportunities also bind career conscious and loyal individuals to the organization. These advancement opportunities reflects the discussion of Tichey et al. of that monetary reward should be complemented with social status raised incentive structures.

At Coloplast the situation is similar to ÖPwC's, since the employees have a regual salary. The individuals within the organization also have been offered to buy company shares. These monetary rewards are in line with Eneroth's discussion of that extrinsic motivation increases the inspiration of employees. According to the discussion of Tichey et al. about non-financial rewards the internal recruitment policy further function as a motivational tool for employees to advance within the company.

HLC, as the two above presented organizations, has ordinary salary as extrinsic motivational. The career within Swedish healthcare is, due to the state owned company, not all about money. The fact that it is a government-owned organization gives normally no room for highly increasing salaries. When individuals generate important and valuable ideas they get rewarded by small means, which can be viewed as the idea of Tichey et al. about social rewards. The organization structure also functions as a motivational tool. The loose boundaries between the different departments result in the employees seeking new opportunities and cross the line of their original work tasks. Thereby opportunities arise to change work within the division, which according to Tichey et al. also can be viewed as non-financial rewards.

Extrinsic motivation is needed to get employees to start working at companies but do not in the extent necessary explain why employees stays in the company and why they share their knowledge with others. Intrinsic motivation on the other hand, is important for commitment and loyalty that affect knowledge sharing and creativity that results in structural capital development. At ÖPwC the mentors' mission is to transfer their knowledge to younger or less experienced employees they are coaching. The younger or less experienced employees reward the mentors by appreciation. In the organization it have been observed that appreciation, or as Eneroth discusses intrinsic motivation, from colleges is by far the most important and effective means for motivation. The working moral is thereby not only affected by extrinsic motivation like salaries and bonus systems, but also by social and informal rewards. Davenport's and Prusak's argument that appreciation is an effective payment or motivational aspect and the reputation an individual can get for sharing his or her knowledge can function as an incentive of internal working with transformation of knowledge, reflects the situation at ÖPwC well. The work tasks at ÖPwC itself however raise a conflict about knowledge sharing when accountants have professional secrecy. Moreover this secrecy makes it harder to create knowledge sharing within the company while there can be a confusion of which knowledge the individuals are allowed to share.

Coloplast is a family-owned company and long-term thinking permeates the organization. This long-term thinking can according to Blackburn and Rosen be a social incentive that could motivate employees. The usual short-term turnover and

quarterly thinking that exists in most companies are of miner interest in Coloplast, which makes the employees feel comfortable and secure with their jobs. Coloplast also tries to get loyal employees that, due to its long-term thinking, will stay within the company. As Blackburn and Rosen argues of social incentives, a challenging work and opportunity to affect the quality of life for the users creates stimulation.

The individuals that work at HLC are interested in working with people, an intrinsic motivation that can be viewed as a calling. The individuals within HLC feel that they make a difference and affect the organization's routines and work models. The work tasks further permeates of quick changes, which according to Blackburn and Rosen can be viewed as social stimulation connected to comfort. The employees generate ideas and are rewarded by acknowledgement, rather then with money, which further can be connected to Eneroth's discussion of intrinsic motivation.

People need incentives to participate in the knowledge sharing process and the participation in this process further affect the development of structural capital. The three research companies combine extrinsic as well as intrinsic motivation principles. ÖPwC through the mentor system are rewarded not extrinsic but intrinsic by sharing their knowledge. This sharing process however can result in advancement and a career change that highly are of extrinsic nature. HLC that are striving for a codification strategy does not have the same opportunity to offer extrinsic motivation while the government-owned hospital do not have that required budget. The loose boundaries between the departments that affect employees to change carrier can, if manage properly, work as reward. The difficulties lay in measuring and connecting private individual's performance and knowledge sharing and connect it to proper rewards in order to develop structural capital. HLC however has come one step on the way by developing and implementing employee Scorecards.

7. CONCLUSIONS

Finally we in the present chapter give a further explanation of what conclusions we have made from our work with the thesis. From the theory and the practice that we have studied together with the work in the other chapters and what we have learned we have found these conclusions.

In the last couple of years, the differences between the market value of companies and the book value have increased. The difference, which we claim could be further explained by intellectual capital, is essential that needs to be decreased. We further believe that an important part of why this difference has increased is the lack of information. Today many financial analysts mainly analyze and make recommendations out of financial numbers. What we believe is of interest when analyzing a company is not to be found in the financial numbers. We claim that more important are the notes and explanations of how these numbers have occurred. These notes and explanations we believe in many cases are a start to visualizing the intellectual capital. We have not come to any conclusion of how intellectual capital best should be visualized but we consider our work, as one little piece in the process of finding ways of how intellectual capital could be visualized.

7.1 Visualization of intellectual capital

We believe that intellectual capital can be visualized in several ways but we think that an intellectual capital statement is the most effective on. The statement should according to our experience be included in the annual report to function most effectively. The annual report itself does not add any value to the visualization but before visualization of intellectual capital is regulated more specifically in accounting regulations, the annual report could function to increase the reliability of the statement. We further believe according to our gained experience that when the intellectual capital is included in the annual report it will facilitate connections to the financial numbers, which we consider important.

In order to achieve the benefits with visualization, which we broadly claim is finding the best future direction for the organisation and making the managing more effective, an intellectual capital statement is not necessary. We believe that a statement is the final product or at least what organisations should aim at when the focus of the visualization is external. However, we claim that it sometimes not is possible to separate the organisations purpose with the visualization is external or internal.

In order to further explain how visualization of intellectual capital may be done, we believe that a separation between internal and external is proper. An intellectual capital statement is an external visualization if it is publicly presented

and enables communication with people outside the organization. We argue that an external visualization foremost will support the organization to find future directions of its business.

We believe that a Balanced Scorecard used in a traditional way exemplifies an internal visualization where the main focus is among members within the organization. The internal visualization will foremost help the organization to achieve a more effective managing.

We also believe that visualizing intellectual capital should be done in a way that simplifies the organizations attempts to achieve its strategic goals. Therefore it is important to choose a visualizing method or methods according to the strategy of the organization. We further believe that the visualizing also should emphasize what important resources the organization should use in order to achieve its strategic goals. According to our experiences the visualization should also simplify the understanding within the whole organization. We further believe that according to our experiences that a Scorecard or an EFQM model in an effective way will fulfil these tasks. What we believe make these two models useful in visualizing intellectual capital is that they in an effective way combine the organizations strategy with the focus areas or perspectives that has been chosen to emphasize what is being considered more important.

We further believe that a Scorecard or an EFQM model will function efficiently only if the included perspectives or focus areas are chosen correctly. We, however, do not believe that it is possible to generalise about how these choices should be done. We believe it is important to choose perspectives or focus areas that need increased communication in order to fulfil the purpose of the visualization. The communication and the understanding of the chosen areas will, according to or experience, increase within the organization. Therefore should the perspectives or focus areas contain of what the organization consider the most important elements in order to achieve its overall strategy.

However, we believe that visualization should not stop at only a Scorecard or an EFQM model but should be continued to end up in an intellectual capital statement. The statement should consist of the same perspectives or focus areas that were chosen to be included in the Scorecard or the EFQM model. Furthermore, we believe that the employee perspective always should be included in order to emphasize what is most important and what is fundamental to the communication. The customer perspective is also fundamental to most organisations but could as we experienced be separated between customer and user depending of the organisations business. To achieve the most effective tool we believe that the customer and employee perspectives are the most important areas, but they should function together with some more, which depends of business and strategy. According to or experience, between three to six perspectives would maximise the effectiveness.

7.2 The importance of visualization

We believe that there is many incentives for organizations to start visualize its intellectual capital. We have not found anything during our work that indicate that there should be any differences concerning this incentives depending on industry or type of organization. We have seen that there are different benefits according to how an organization decides to visualize the intellectual capital, but we have not seen anything that would argue against visualization in any specific industry or business. However, it is important to emphasize that there is disadvantages with visualization like making the organization more transparent will sometimes make organizations more strategic vulnerable. We believe that the disadvantages only are short-term and in the long run, the most effective organizations will stay competitive.

The difference between the market value and the book value is an important concern for many organisations today and the fact that this difference is increasing is doing it even more relevant. We believe that this difference is of national concern as well, and according to the efforts made by the Danish government confirms this. Moreover, we believe that nations should pay attention to this subject for many reasons. We believe that nations have interests in knowing that companies are valued correctly but it is of course difficult to claim that the responsibility concerning this subject totally should be on a national level. The laws and regulations is another national aspect, which normally are made on national basis. Finally we believe and probably the most important benefit on a national level, that nations like Denmark in the long run will gain from supporting Danish companies in the concern of visualizing intellectual capital. If Danish companies find effective ways of working with the visualisation, it will not only support the companies, but also stakeholders involved in those companies and thereby in the end even the whole nation.

The difference between the market value and the book value is an important question in an accounting perspective as well. What we have experienced during this work, accountants and accounting firms pay close attention to the field of intellectual capital or intangible assets that most accountants prefer to define it. Accounting firms however, do not strive to decrease this gap for no reason. We believe that the accounting business in the near future is undergoing a change.

Our experience from this work is that the accounting firms opinion of the value difference is further explained by an information gap, which we partly agree about. We believe that the information flow between the company and the market is one side of the problem but more important is that we do not believe that managers always know what to report or inform the market of. This is what we believe could be the change for the accounting business. Today accounting is about historical facts, but we believe that the mentioned change will make the information flow and thereby the future more important. Therefore those firms that develop tools and knowledge of how to this information could and should be both spread efficiently and valuated will have an advantage versus its competitors.

We believe that traditional accounting to some point has lost its relevance, which we believe is confirmed by the big difference in the valuation. We believe that the accounting firms should pay attention to and be involved in the process of how intellectual capital could be visualised because this will effect the way of how future accounting will function.

From a company perspective there are several benefits to start visualise intellectual capital. Most important is the benefit of finding new and more effective ways of managing organisations. We believe that visualization will enable better managing because what used to be invisible now gets visible and that will simplify managing organisations resources in a more effective way. We believe that managing organisations effectively means utilizing the organisations intellectual capital well and finding ways of developing it to sustain competitive. The other aspect of managing effectively we believe is finding future directions for the organization. We further claim that visualization of intellectual capital will enable increased communication both internal and external, and this is an important step in finding the best future direction. What we experienced in the Danish company is increased understanding from the four stakeholder groups, which we argue is explained by the increased communication, which is a fact at that company.

By increasing the communication with the most important shareholder groups this is an important start to enable effective learning. We claim that most organizations are facing a bigger insecurity these days compared to only some decades ago and therefore the importance of learning has become more essential. The more insecure the future is the more important the learning will become and therefore like we seen in the Danish company visualization will support learning which in turn makes the company less vulnerable for the future.

Visualization of intellectual capital in government-owned organizations where profit seeking not constitutes the major mission will also benefit from visualization its intellectual capital. We claim after what we experienced in this work that, visualization in this kind of organizations probably is more important than in business organisations. We believe that managing organisations where, in business terms, almost all assets are invisible will be done more efficiently after visualization. In this kind of organisations finding the future directions could be as difficult as in business organisations and therefore have the same need for learning as other organizations. Both internal and external learning in this kind of organisations is important to gain future success. The political appointing of management, which is not unusual in government owned organizations, increase the importance of learning to enable effective management. The visualization of intellectual capital in this kind of organizations according to our experience also functions as motivator and a tool to receive goal congruence within the organization.

7.3 Influences of intellectual capital development

We have experienced during this work that the boundaries between knowledge companies and traditional organization erases since organizations in all businesses

are using the human capital to create value. We believe that human capital must be developed differently according to type of organization, in order to create value for stakeholders. Furthermore the human knowledge must be organized in a sense that supports the overall strategy. We have by this thesis now established and consolidated the fact that human capital today is important in all business.

Moreover, we have found that the human capital alone is not sufficient to value creation and it is rather the organizations surrounding within the individuals work that has a vital importance of organizations' capacity to create value. We believe that the essentials of developing structural capital in short, is to collect, organize and share valuable knowledge among employees to get leverage of the human capital and finally store it in order to sustain competitive. Moreover we emphasize the importance for organizations to focus on the elements below that influences the development of intellectual capital in order to get leverage of the human capital.

7.3.1Human resource principles

In order to develop intellectual capital we have during this work experienced the importance for organizations not only to find employees that fit the fundamental skills, but also to find employees that fits the organization. Furthermore, we claim that the recruiting process do not end with an employment, rather the opposite and when individuals have been employed the knowledge base increase, which in our opinion is a requirement for developing intellectual capital.

To use the existing knowledge base efficiently we claim that organizations should stimulate and arrange opportunities for further development of the human capital. Then, and only then, companies can develop the human capital existing within the company. We argue that effective education programs must serve two purposes. First, it must be designed in order to enable transferring of knowledge between groups and individuals and simultaneously contribute to new useful theoretical knowledge as well as practical skills. Secondly, the education must be of importance and be connected to the strategy and the goals of the company.

Furthermore, we have experienced another important element today, in our opinion according to us, is to build and maintain networks in order to expand the knowledge base of the company. By insourcing knowledge, organizations expand its knowledge base and at the same time prevent the organization to be trapped in a competence trap.

7.3.2 Knowledge transition

In order to get leverage of an organizations human capital it is of importance to identify how the development and sharing of knowledge takes place within the organization. We believe that by identifying the transition process opportunities for effective models for transformation of knowledge will arise. The identification of making tacit knowledge explicit, or vice versa, is of special importance since these processes require the active involvement of personal commitment.

7.3.3 Knowledge Management

We believe that if organizations should achieve effective processes for knowledge transitions it is important to choose and design a knowledge management strategy that fit the organizations overall strategy. Furthermore we believe that it is important not to rely on only one knowledge strategy, but to use the other one as well, as a complement in order to create more effective transition and storage of knowledge.

We have experienced that it exists a disadvantage or risk with a highly integrated codification strategy. Since information is stored and transferred through computerized databases false security can arise. Relying on codified knowledge as a knowledge generator is dangerous since it is the human capital that is the foundation for development of intellectual capital. During this thesis it has become clear that companies using the personalization strategy understand the uniqueness of human capital and realizes that it can generate unlimited possibilities of growth. However this strategy is not truly perfect either and we argue that by heavily relying on personal communication for transformation of knowledge organizations becomes more vulnerable. If competent and important employees leave the company the knowledge disappears with them, which could decrease the company's sustainability. It is therefore important to in an effective way utilize and store some information.

Our experience is to combine the two strategies in a way that it supports the overall strategy. We argue that the knowledge management strategy and the 80/20 rule in itself are not important. We believe that it is rather how the knowledge management strategy affects development of intellectual capital that is essential when choosing strategy. Moreover we believe that one main strategy should be chosen and the other one, should function as a complement for reducing disadvantages from the main strategy.

7.3.3.1 Work models and IT-system

We have found that work models in the line of project groups are important for knowledge creating as well as the transformation of knowledge. By working in team, explicit knowledge and even more important, tacit knowledge can be shared with others. We therefore claim that working in teams or close together with other individuals enable knowledge transferring, which affect the development of intellectual capital.

We further argue that IT-systems are effective models for sharing as well as storing information if they are designed to support the knowledge management strategy. IT-system that is well adapted to organizations' knowledge management strategy has the possibility to make the organizations tacit knowledge accessible to almost everybody. Furthermore we believe that in order for the IT-system to be effective it must be adapted to the employees' capabilities, which could be made through internal education.

7.3.4 Organization culture and management

We believe that the organization culture is very important for developing intellectual capital, probably the most important supporting element. The culture shape the assumption of what knowledge is, and hence which knowledge that is worth sharing. We claim that the climate within organizations mediates relationships between individuals and organizational knowledge and creates the context for social interaction. This social interaction ultimately determines how effective organizations can be at creating, sharing and tying knowledge. Furthermore we believe that the culture shapes the processes by which new organizational knowledge is created, legitimated and distributed.

The creation and design of a culture must reflect the organizations overall strategy and enable support from the company structure. We believe that since managers reflect the culture they therefore must guide the employees instead of controlling them in order to create a knowledge creating and sharing environment. Furthermore we argue that the communication of the company's mission and vision must permeate the entire organization in order to create a common foundation. We believe that by using visualization of intellectual capital as a tool to communicate the importance of knowledge, common language and understanding of the concept will reflect the organization culture. This communication channel enables the organization to gain effective knowledge sharing within the organization that will result in intellectual capital development.

7.3.5 Motivation and reward system

Creativity derives from motivation by interest, satisfaction and challenge of the work itself, and not by external pressure. Therefore we believe that creating an environment that thrives intrinsic motivation therefore becomes important for any organization. We believe that a combination of extrinsic and intrinsic motivation is the best but will emphasize the importance of non-financial motivation. When individuals will start focusing on their talents and what they find stimulating, extrinsic incentives will not be as effective as today. We further argue that this development from extrinsic to intrinsic motivation will be come a fact in a near future.

7.3.6 Organization structure

Our experience from this work has made it clear that organizations reorganize its structure from being static firms to constellations with loose boundaries. Stable organizations that today transform their structure to more complex compositions do this of a reason. When organizations are stable and have balance it find itself in equilibrium with decreased possibility for creativity. This lack of creativity results in a deadlock, in which organizations have no or less possibility for development. Furthermore we have identified that in less structured organizations knowledge is easier transferred due to increased communication. We therefore argue that the design of the organization structure plays an important role in the process of developing intellectual capital. We believe that in order to efficiently develop

intellectual capital, it is important for organizations not to be stuck in a deadlock but to create organizations in chaos or imbalance. Our work model therefore has expanded with one further dimension namely organization structure, figure 7.3.6.1.

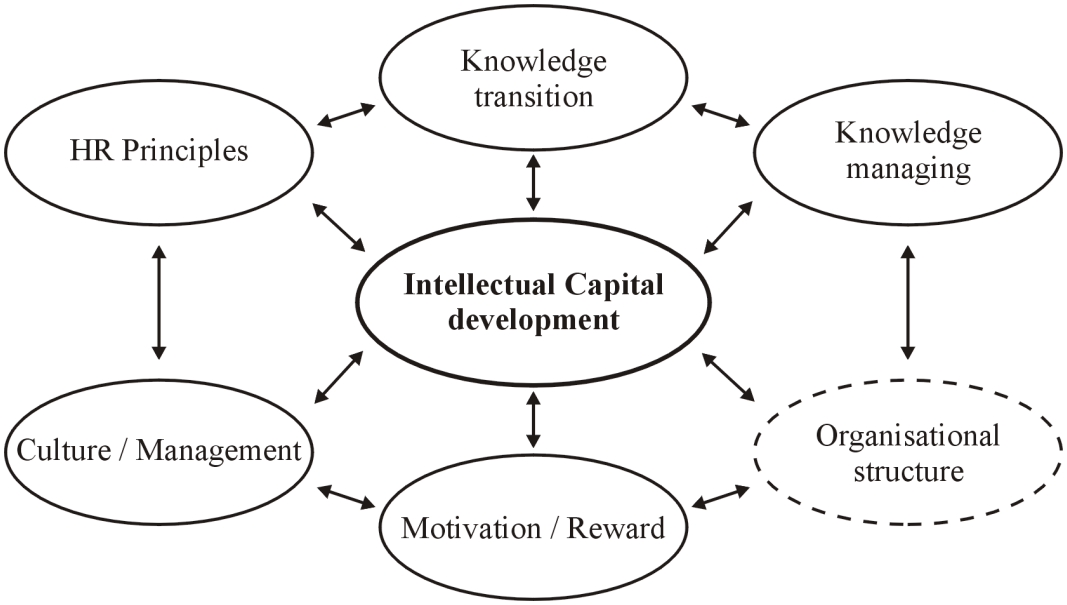


Figure 7.3.6.1, Influencing perspectives of intellectual capital development

During this work we have found that developing intellectual capital is a process, which is not that easy. We believe that some elements are required to enables that knowledge creating and knowledge sharing takes place. However, we do not claim that companies should only focus on these required elements for development of intellectual capital. Companies also have to manage the supporting elements to make development of intellectual capital efficient. Furthermore we believe that it is difficult to separate the elements since they all are closely correlated and together create synergy effects to the development of intellectual capital. However, we have seen that the organization culture as well as the structure is very important since the occurrence of virtual structures that exist in chaos has a vital importance when developing intellectual capital.

Moreover we believe that to efficiently develop intellectual capital, visualization must take place. The measurement and visualizing principles in it self are not the most interesting feature, rather it is how these principles are used to get leverage of the human capital that is of importance for success.

Critics of the idea around intellectual capital would say that this is just the same old wine, only packaged in new bottles. However, we do not agree and prefer to quote a well-known man to further clarify our view.

> *This is not the end, this is not even the beginning of the end but this is the end of the beginning.* Churchill

7.4 Suggestions for further research

We find the subject of intellectual capital very stimulating and we have learned very much during this ten weeks. The first advice we would give any reader who is interested in writing a thesis in the subject of intellectual capital is contact us and we will probably have a million ideas of what to study.

In this thesis we have taken an overall perspective to the subject. We found that necessary since the subject is not that well explored. We are satisfied with the approach we made, but to further researcher we suggest to choose one or two of the elements we studied and make an in-depth study of those instead. It would be interesting to study the impact of the visualization of intellectual capital on stock price, employee satisfaction or competitiveness.

We believe that the relation between human capital and structural capital is the most interesting part to study. How should organizations get maximal leverage of its human capital? How does organizations assure that the human capital is increasing? If a manager sends his employees' to a course or an education, how could he assure himself that the employee is learning much enough to cover the costs of the course? These are subjects that have a million different angles of how it could be studied. Our advice is to get started and you will find that your personal human capital increases many times.

Finally there is something that we were told by a wise man during the journey of this thesis but it took us ten weeks to find out the meaning of his words that were (translation from Swedish):

> *…Intellectual capital is all about not to be controlled, not do what you are told to do but do the things that suits your talent…* Leif Edvinsson

8. SOURCES

8.1 Books

Alvesson, Mats & Sköldberg, Kaj (2000) *Tolkning och reflektion – vetenskapsfilosofi och kvalitativ metod.* Studentlitteratur.

Andersson, Jan-Olof, Jansson, Rolf, Nilsson, Nils & Pihlsgård, Anders (1997) *M2000 - marknadsföring i en ny tid*. Liber Ekonomi AB.

Anthony, Robert N & Govindarajan, Vijay (2000) *Management control system.* McGraw-hill Book.

Appelgate, L. M, McFarlan, F. W & McKenny, J. L (1996) *Corporate Information Systems Management:* Text and Cases 4th ed. USA: Irwin

Bakka, J. F, Fivelsdalm, E & Lindkvist, L, (1993) *Organisationsteori*. Malmö: Liber-Hermods AB

Bra Böckers Lexicon (2000)

Brainer, W, Geddas, M & Hastings, C, (1999) *Projektledaren*. Stockholm: Svenska Förlaget

Bruzelius, L & Skärvad, P-H (1995) *Integrerad organisationslära.* Lund: Studentlitteratur

Copeland, Tom, Koller, Tim & Murrin, Jack (2000) *Valuation measuring and managing the value of companies*. McKinsey & Company, Inc.

Davenport, Thomas. H & Prusak, L (2000) *Working Knowledge: how organizations manage what they know.* USA: Harvard Business School Press

Eccles, Robert G, Herz, Robert H, Keegan, E Mary & Phillips, David M.H. (2001) *The ValueReporting Revolution – Moving Beyond the Earnings Game.* John Wiley & Sons, INC.

Eneroth, Kristina (1997) *Strategi och kompetensdynamik – en studie av Axis Communications,* Lund: University press

Edvinsson, Leif & Malone, Michael S (1997) *Intellectual Capital – the proven way to establish your company's real value by measuring its hidden brainpower.* HarperCollins Publishers Inc.

Kaplan, R & Norton, D (1996) *The Balanced Scorecard. Boston:* HBS Press

Koehler, J. W, et al. (1998) *The human side of intranets: content, style and politics.* Boca Raton, Florida: St. Lucie Press

Kumar, V, Aaker, David. A & Day, George S (1999) *Essentials of marketing research*. John Wiley & Sons Inc.

Lundahl, Ulf & Skärvad, Per-Hugo (1999) *Utredningsmetodik för samhällsvetare och ekonomer*. Studentlitteratur.

Peters, Thomas, J & Waterman, Robert, H Jr (1982) *In search of excellence: lessons from Americas best-run companies*, Harper Collins.

Solomon, Michael, Bamossy, Gary & Askegaard, Sören (2000) *Comsumer behaviour – a European perspective*. Prentice Hall inc.

Stewart, Thomas A (1997) *Intellectual Capital - The new wealth of organizations. London:* Nicholas Brealey Publishing

Sveiby, Karl-Erik (1990) *Kunskapsledning – 101 råd till ledare i kunskapsintensiva organisationer*. Visby: Affärsvärldens förlag AB

Sveiby, Karl-Erik (1996) *Kunskapsflödet – Organisationens immateriella tillgångar*. Visby: Svenska dagbladet förlags AB

8.2 Articles

Blackburn, R & Rosen, B (1993) "Total quality and human resource management: lessons learned from Baldrige Award-winning companies", Academy of Management Executive, vol. 7 nr. 3.

Blackler, Frank (1995) "Knowledge, Knowledge Work and Organizations" The Management School, Lancaster University.

Bowen, D. E, Ledford, G. E & Nathan, B. R (1991) "Hiring for the organization, not the job", Academy of Management Executive, vol. 5 nr. 4.

De Long, David, W & Fahey, Liam (2000) "Diagnosing cultural barriers to knowledge management", Academy of Management Executive, November 2000 vol. 14 nr. 4.

Eneroth, Kristina (2001) "Mapping knowledge and motivational assets" The institute of Economic Research, Lund University.

Engström, Stefan, "Värdering av kunskapsföretag" (1999) Balans nr 3 / 99

Hansen, M. T, Nohria, N & Tierney, T (1999). "What is your strategy for managing knowledge?" Harvard Business Review, March – April

Von Krogh, G & Grand, S (2000). ”Justification in Knowledge Creation: Dominant Logic in Management Discourses”, London: Macmillan Press

Nonaka, Ikujiro (1994) “A Dynamic Theory of Organizational Knowledge Creation”. Organization Science Vol.5, No 1 February 1994.

Nonaka, Ikujiro, (1996) “The knowledge-creating company”: Starkey Ken (editor) How Organizations Learn:

Nonaka, I., Reinmoeller, P & Senoo, D, (2000) ”Integrated IT Systems to Capitalize on Market Knowledge”, London: Macmillan Press

Pfeffer, Jeffrey (1981) “Management as Symbolic Action: The Creation and Maintenance of Organizational Paradigms”, Research in Organizational Behavior, vol. 3.

Sullivan Jr, Patrick H, Sullivan Sr, Patrick H (2000) “Valuing intangibles companies – An intellectual approach”, Journal of Intellectual capital, vol 1 nr. 4,

Tichy, N. M, Fombrun, C. J & Devanna, M. A (1982) “Strategic Human Resource Management”, Sloan Management Review.

Ulrich, Dave (1998) “Intellectual Capital = Competence * Commitment”. Sloan Management Review, Winter 1998.

Anställda = “Anställda den viktigaste tillgången” (2000) Dagens Industri

Danish Agency for Trade and Industry, “Guideline for creating an intellectual statement” (2000)

8.3 Other sources

Electronic Sources

http://www.sjukvardenmss.skane.se/Page.asp?Id=9020 11/5 2002
http://www.lund.skane.se/job/Page.asp?id=13973 11/5 2002
http://www.pwcglobal.com/se/swe/about/main/index.html
http://www.pwcglobal.com/Extweb/service.nsf/docid/AB064C302625199F85256B3C00537F70
http://www.sveiby.com.au/IntellectualCapital.html (020503)

Internal documents

Internal document – HLC – The organization
Internal document – HLC – Scorecard
Internal documentation – Cooperation across the dividing lines

Annual report, Coloplast 2000 / 2001
Annual report, Celemi 2000

Interviews

ÖPwC / PwC
Hultén Christian, 2002-05-06
Salander Eric, 2002-05-14
Thomas Alison, 2002-05-16
Ulvhage Liam, 2002-04-11

Coloplast
Nielsen Torben Steen, 2002-05-06

HLC
Arén Claes, 2002-05-14
Bryder Anna-Karin, 2002-05-10
Gyllenberg Ann, 2002-05-10

Barchan Margareta, 2002-04-16
Mouritsen Jan, 2002-04-18
Sveiby Karl-Erik 2002-02-18

APPENDIX 1

Interview guide for the reference company

The intention with the interviews was that they should be conducted as a discussion of a few topics. The, below presented, guide is an attempt to show how the discussions were structured. The design of the interview guide was used as a tool to cover important features if the dialogue not did cover the topics.

Discussion of general features of intellectual capital

The purpose of this discussion was to receive an overall understanding of the field of research and why companies' should visualize its intellectual capital.

- What is your opinion of why companies today not truly values the importance of visualizing intellectual capital?
- What are the advantages of visualizing intellectual capital?
- Is there any danger of visualizing its intellectual capital?
- Would you like to comment the soon coming international restrictions for organizations to conduct an intellectual capital statement?

Discussion of visualization of intellectual capital

The purpose of this discussion was to receive insights of how visualization can be conducted and to further get an understanding of the thoughts behind visualization.

- What was the reason for the company to start visualizing its intellectual capital?
- How do the company visualize its intellectual capital?
- Which methods or tools are used to make the intellectual capital statement?
- What connection has the visualization to bottom line?

APPENDIX 2

Interview guide for the organizations researched

The intention with the interviews was that they should be conducted as a discussion of a few topics. The, below presented, guide is an attempt to show how the discussions were structured. The design of the interview guide was used as a tool to cover important features if the dialogue not did cover the topics.

Discussion of general features of intellectual capital

The purpose of this discussion was to receive an overall understanding of the field of research and why the researched companies' visualize its intellectual capital.

- Why did the company start visualizing its intellectual capital?
- What have the organization gained from visualizing its intellectual capital?
- Have the organization come across any danger of visualizing its intellectual capital?
- In what way is knowledge important for the organization's competitive ability?

Discussion of visualization of intellectual capital

The purpose of this discussion was to receive insights of how visualization was conducted in the researched companies and to further get an understanding of the thoughts behind its visualization.

- How do the company visualize its intellectual capital?
- Which methods or tools do the organization use in order to present its intellectual capital?
- How is the evaluation of the results conducted?
- How is the visualization of intellectual capital related to the bottom line

Discussion of the development of intellectual capital

The purpose of this discussion was to receive and understanding of how the researched organizations' developed its intellectual capital with structural capital development in focus.

Knowledge management

In what way do the company use the employees' knowledge to generate value?
How do the company utilize the employees knowledge when they are not at work?
In what way is the organization designed to conduct an environment for knowledge transfer?

How is knowledge spread throughout the organization?

HR principles

Which methods and processes do the company utilize when recruiting new employees?
How do the company expand its knowledge base?
Which kind of personal development does the company offers its employees?
In what way reflects the carrier opportunities within the company the process of knowledge sharing?

Culture and management

Describe the climate within the company.
Which elements are included in the organization culture?
In what way do the culture effect the knowledge creating as well as the knowledge sharing process?
In what way do the managers affect the organization culture?
How do managers affect the knowledge sharing process?

Motivation and reward systems

What inspiration do the company offer its employees that enables knowledge sharing?
What reflects the employees' commitment to the company?
How do the organization motivate its employee to development and sharing of knowledge?

APPENDIX 3

Patrick Sullivan Jr and Sr measuring method of IC

Vm = VTA + DCF

Vm = stock market value
VTA = the value of the firm's tangible assets
DCF = the value of the discounted cash future cash flows the firm is to generate.

The traditional way of determining the value that is shown above only differs to some degree from the intellectual capital way of determining the value that is shown below.

Vm = Vsc + Vic

Vm = stock market value
Sc = structural capital
Ic = intellectual capital

What Patrick Sullivan Jr and Sr specifically point out as the difference is the fact that it is the intellectual capital that creates the innovations and these innovations generate cash flow or to put it simple: The intellectual capital is the driver of the cash flow. Thus any formula that is used to forecast the earnings of a firm must use three specific terms. Those terms are connected with what earlier were described as the parts of a knowledge company. There must be a term in the equation for the stream of earnings associated with the income generated by the firm's innovation and intellectual capital, one term that is connected with the earnings generated by the complementary assets and finally one term connected with earnings from generic structural capital. An example of how a valuation like that can be done is shown in the equation below.

$$Vm = VTA + NPV \left(\text{Earnings Ica} + \text{Earnings Icb} + \right) + N \left(\text{EarningsCBAi} + \text{EarningsCBAj} + \cdot \right) + N \left(\text{EarningsSCGx} + \text{EarningsSCGy} + \right)$$

Vm = Market value of the firm
VTA = The value of the firm's tangible assets
IC = Innovation of the firm's intellectual capital
CBA = Complementary business assets
SCG = Generic structural capital

When the authors further describe how the determination of a company's value should be done when the company is a target of a merger or an acquisition they use the same formula that is shown above. This time they point out that the acquiring company should follow the same procedure as mentioned before but value each of the three parts separately. By doing this the value of the intellectual capital within a company could differ according to how the acquiring company value is valuing it.

According to Patrick Sullivan Junior and Senior there are several important reasons for deciding the value of the intellectual capital and in that way also the value of the whole company. It is valuable for the management of the company to be able to provide the investors with information about the return the company delivers on their investment. The authors believe that the value of a company's intellectual capital already is included in the forecasts of the future income that analysts use as their basic tool for valuation.

APPENDIX 4

Explanation of Celemi's Monitor

1. Administrative staff turnover: number of admin. Staff leaving divided by number of admin. staff at beginning of year.

2. Administrative staff: employees other than experts.

3. Average professional experience: experts´ average professional experience in number of years.

4. Competence-enhancing customers: share of revenues from customers: share of revenues from costumers with projects that Celemi´s experts learn from.

5. Costumers: categorized under three headings. Number excludes book customers.

6. Education level at year end: employees with primary education = 1, secondary = 2 and tertiary = 3.

7. Expert turnover: number of experts leaving divided by number of experts at beginning of year.

8. Experts with tertiary degree: no. of experts with a tertiary degree divided by total number of experts.

9. Experts: employees working directly with customer projects. Top management are regarded as experts.

10. Five largest customers: share of revenues from five largest customers.

11. Growth in professional competence: growth over last year in total number of years of professional competence.

12. Image-enhancing customers: share of revenues from customers that improve Celemi´s image or give referrals.

13. Intangible investments % value added: investments in R&D, Marketing and IT charged as cost in normal P&L, divided by value added.

14. Liquid reserves: cash reserves in number of days, assuming normal business.

15. Net investment ratio: Investment in tangible fixed assets as % of fixed assets.

16. Net return on equity: profit after 28 % tax divided by average equity.

17. Number of employees: two definitions are used: average number employed during tear for efficiency indicators, year-end numbers for growth/renewal and stability indicators.

18. Organisation enhancing customers: share of revenues from customers that improve Celemi's organisation: bring R&D or projects that can be leveraged

19. Profit margin: profit before tax divided by total revenues.

20. Profit / value added: "real" profit divided by value added

21. Proportion of admin. staff: number of admin. staff divided by total staff at year end

22. Profit capacity: profit adjusted for R&D charged as cost in normal P&L.

23. Repeat orders: share of revenues from customers who also bought from us last tear.

24. Revenues from new products: share of revenues from products and concepts launched less than five years ago.

25. Revenues per admin. staff: total revenues divided by average number of administrative staff.

26. Revenues per customer: total revenues divided by total number of customers.

27. Rookie ratio: number of employees with less than two years seniority.

28. Seniority: number of years as Celemi employees.

29. Solidity: equity divided by total asset.

30. Value added: the value produced by Celemi's employees after payment to all outside vendors.

31. New measurement system: 48% score 4 or 5 on a five- grade scale. (Last year, an average of the total on a six grade scale.)

32. Customer satisfaction index. Scale 1-6 (highest)