



UNIVERSITY OF GOTHENBURG  
SCHOOL OF BUSINESS, ECONOMICS AND LAW

# Innovation and Internal Reporting of Intellectual Capital

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- An empirical study

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## **Introductory Remark**

This is a Bachelors thesis in business administration at School of Economics, Business and Law at Gothenburg University. This thesis aims to investigate the relationship between internal reporting of intellectual capital and innovation.

We would like to extend our thanks to the respondents in our study and to our tutor Johan Dergård who has helped us with his invaluable ideas, comments and advice during the writing of this thesis.

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## Abstract

**Purpose** - The aim of this paper is to investigate the relationship between internal reporting of intellectual capital and innovation. Additionally the aim is to explain the advantages and disadvantages of reporting of intellectual capital and give a short overview of the previous research in this area.

**Design/methodology/approach** - A questionnaire was designed and addressed to the CFOs at the companies of the target population (companies within SNI-codes 20, 22 and 23 with between 250-800 employees). We primarily used forced-choice questions and complemented with some open-ended questions. The data was analyzed with SPSS 17 and the Spearman's correlation coefficient was used to find correlating variables.

**Findings** - The results obtained show that there exists a correlation between internal reporting of intellectual capital and innovation for a number of reporting posts, the most prominent in this study was human capital.

**Originality/value** - This paper investigates and highlights the link between internal reporting of intellectual capital and innovation.

**Keywords** Internal reporting, intellectual capital, innovation, Sweden

**Paper type** Bachelor thesis

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## 1. Introduction

The thesis is structured as follows. In chapter one, we will motivate our subject. In chapter two, we will discuss the different definitions and meanings of the concepts we intend to study. In chapter three, an explanation of our methodology will follow accompanied by our study model. The findings from the empirical study will be declared in chapter four and analyzed in chapter five. A conclusion and suggestions for further research to sum up will finish the thesis in chapter six.

### 1.1 Background

The rapidly changing economy of today and the global marketplace, characterized by fierce competition, forces the companies to differentiate themselves and promote innovation. The innovations can take many forms. Innovation may come from in-house research to create a technological product innovation or it can appear in the form of an organizational innovation with accompanying models and concepts (Hitt, Ireland, & Hoskisson, 2007).

When companies invest heavily in intangible assets to further increase their innovative capabilities it consequently poses problems since the traditional accounting system is not built for these types of value adding investments. Assets like staff competencies, administrative systems and relations to customers and suppliers are by accounting standards invisible or non-existing. Therefore, it is becoming increasingly important for enterprises to develop internal models for handling and monitoring their intellectual capital (Chen, Lin, & Chang, 2006), since knowledge management needs knowledge measurement. These internal reporting systems have their foundation in management control systems that historically have been seen as a contradiction to innovation and creativity. These systems have though lately been seen in a new light and contemporary research has proven that they may enhance innovativeness (Davila, 2005). It may also be beneficial for companies to report their intellectual capital in order to better communicate to the market (Tayles, Pike, & Sofian, 2007). However, hereafter we will limit the scope in this thesis to the benefits on internal reporting of intellectual capital.

### 1.2 Aim and Purpose

*“There is a growing need to provide practical examples illustrating how organizations manage, measure and report their knowledge resources...”*

(Boedker, Guthrie, & Cuganesan, 2005)

Boedker, Guthrie and Cuganesan are not the only authors calling for more research concerning measurement and reporting of the companies' intangible assets. Many researchers and practitioners argue that the companies need to take action; Walker (1996) for instance, feels that innovative firms need broader reporting to stay competitive; the common financial reporting is not enough. Carroll & Tansey (2000) is of a similar opinion when they state that companies in the new economy need to manage their intellectual capital in order to have a successful new product development (NPD). Furthermore, Andriessen (2004) argues that

there is a notion that intangible assets are not managed properly and therefore needs a separate framework for measuring and managing these resources. Without these measures the companies will not stay profitable. Additionally, Davila (2005), states that the success of an innovation is more likely if it is connected to some sort of structure, innovation management and supportive management control systems.

These arguments gave us a strong purpose to investigate the relationship between intellectual assets and performance further. Since innovations and NPD are vital for the survival of any company in the long run (Huang & Lin, 2006) (European Commission , 2006) (Ernst, 2002) (Haour, 2004) (Adams, Bessant, & Phelps, 2006). Thus, innovation is an important factor for performance. We therefore in this thesis, through empirical data, try to uncover links between internal reporting of intellectual capital and innovativeness. We will try to find if there are any differences in the internal reporting of intellectual capital between innovative and less innovative companies. We also intend to evaluate if internal reporting of specific categories of intellectual capital such as human capital, structural capital or relational capital and their components has a significant impact on companies' innovativeness. Moreover, this thesis aims to see in what area they are innovative. Most studies thus far have only studied intellectual capital reporting as whole and seldom tried to relate it to innovativeness.

### **1.3 Scope and Delimitations**

Beyond the limitations we highlighted in the introduction, we focused our target of research and study only formal internal reporting concerning intellectual capital. Further discussion in relation to these limitations will follow in Research Design.

## 2. Theory

In this chapter we will define and explain the concepts of intellectual capital and innovation and in what ways these influence the performances and future of companies.

### 2.1 Intellectual Capital

Intellectual capital has become increasingly important in the era of the knowledge economy. Companies in this economy create much of their value through soft, intangible and human factors. The quality of people, organizational structure and relationships is what gives companies in this economy their competitive edge (Tayles, Pike, & Sofian, 2007). Unique resources in companies intellectual capital allows them to enter new markets, gain first movers advantage and create superior products (Hayton, 2005). In times of economic downturn, a high value of intellectual capital protects the company in several ways. For example, a strong brand tends to keep their customers, relational capital secures different kinds of transfers with external partners and flexibility is created through adaptable structures and employees. All these factors combined will make the company more competitive. On the other hand, companies that rely more on other aspects will consequently act more sluggishly in adapting to these situations (Tayles, Pike, & Sofian, 2007).

There is a wide range of definitions of intellectual capital in contemporary literature and no generally accepted definition exists. Van der Meer-Kooistra and Zijlstra (2001) list different definitions of intellectual capital. One of the definitions is: “IC [intellectual capital] is intellectual material that has been formalized, captured and leveraged to produce a higher-valued asset”. This definition limits intellectual capital to what has been captured and formalized and therefore does not include tacit knowledge. Another broader definition which van der Meer-Kooistra and Zijlstra reflect over is, “[intellectual capital] is information, knowledge applied to work to create value”. Another problem concerning the matter is that the definitions of terminology and numerous concepts are both vague and imbricate each other. For instance, in some articles knowledge management may almost be synonymous with intellectual capital, while in other articles they may have two widely different meanings. However, there is a broad consensus that intellectual capital consists of structural capital, relational capital and human capital (Tayles, Pike, & Sofian, 2007). We therefore utilize this structure in our thesis and try to use as few fluctuating technical terms as possible relating to intellectual capital.

#### 2.1.1 Human Capital

Human capital is the sum of components such as; employees' knowledge, skills, capabilities, experience, attitude, wisdom, creativities, commitment etc. Common measures of human capital are; number of employees with e.g. master degree and average length of service of employees. Human capital is not owned by the enterprise and can therefore be lost when employees leave the company (Chen, Lin, & Chang, 2006). However, the innovations produced through the human capital can become intellectual assets which companies can have



ownership of. Measuring and managing the process from human capital and relational capital to intellectual assets is very complex (Taylor, 2007).

### **2.1.2 Structural Capital**

Structural capital is the packaged competence in components such as: manuals, networks, process descriptions, the stock of organizational commitment, reward systems, management systems, organizational capabilities, information technology systems, managerial institution, operation process, databases, managerial philosophies, company images, organizational culture, copyrights, patents, trademarks etc. owned by the company (Chen, Lin, & Chang, 2006). This is to make sure that competence stays within the enterprise even if employees leave. The structural capital sometimes consists of sub-groups such as process capital and innovation capital as in the Skandia Model developed by Edvinsson and Malone (Ax, Johansson, & Kullvén, 2005). Commonly used measurements of structural capital are; number of patents acquired and value of software.

### **2.1.3 Relation Capital**

Relational capital consists of relations with external parts that may provide benefit to the enterprise. Some commonly used measurements are customer satisfaction and market share. Knowledge spillover between firms in the same sector, suppliers, customers and universities are examples of components viewed as relational capital. Universities are an important source of knowledge production which companies can take part of at a low marginal cost via e.g. publications. A stable link with customers and suppliers generate a tacit knowledge transfer between companies and together they can find a successful path. High mobility of skilled labor inside an area and low mobility outside of that area can also generate knowledge spillover effects that may provide benefit to the companies inside the given area. During the 1990s, research towards innovation activities became popular, especially research towards innovation activities that sprung from knowledge gain due to relational capital. Knowledge spillover, collective learning, etc. were put forward as important sources of innovation (Capello, 2001).

### **2.1.4 Intellectual Capital Measurement and Reporting**

There are numerous different ideas on why companies should measure and report their intellectual capital. According to the European Commission (2006), the general idea is that the company shows how it is creating value by developing and using its intellectual capital. Furthermore, the company also presents how it uses its knowledge resources. Another important reason for measuring intangible assets is that it captures information, often lacking in accounting measures, about the company's value drivers for long term (Ittner, 2008).

The European Commission (2006) emphasizes two main reasons for intellectual capital reporting. (1) Reporting of intellectual capital provides additional information which can be used to improve the management of the company as a whole. (2) Reporting of intellectual capital complements the financial statement of the company and therefore provides a broader, more truthful image of the company. However, according to Andriessen (2004) the main

reason for reporting and measuring intellectual capital is that there is a belief that intangible resources are not managed properly and that intangible resources needs to be managed in a different way than other resources. He also implies that measuring and following up on intangible assets gives managers a foundation for making trade-off decisions. Furthermore, he has identified additional reasons for measuring and reporting intangible assets:

1. Focusing attention, "what gets measured gets managed"
2. Improving management of intangible resources
3. Creating resource based strategy
4. Monitoring effects from action
5. Translating business strategy into action
6. Weighing possible courses of action
7. Enhancing the management of the business as a whole

Marr, Gray, & Neely (2003) have identified even more reasons why measuring intellectual capital helps the organization to formulate their strategy. Since the organization needs to identify its competence and resources, assess strategy execution in order to be able to better allocate resources with the help of e.g. key performance indicators, assist in diversification and expansion decisions, therefore the underlying assumption is that by measuring the company's intellectual capital, the company becomes aware of what kind of resources the organization may be missing and consequently may be beneficial and important to acquire. Measurement of intellectual capital can also be used as a complement and as a basis for compensation to avoid myopia problems.

Behind intellectual capital reporting there is an idea that the traditional financial information only provides with information concerning the past performance of the company and none of the enterprises' future potential. There is an implicit notion that the future potential of an enterprise is in its intellectual capital. As mentioned above, reporting of intellectual capital will create a transparency that allows the managers of the enterprise to manage its intangible resources better. By creating transparency it helps management to allocate resources, to monitor development and to create strategy, in summary: it facilitates decision making for companies (European Commission , 2006). In addition, it is crucial to know what to focus on and according to Ittner (2008) the choice of components and the methods to measure these is more influential to performance than the overall choice of category. Moreover, researchers have found that companies that use a diversified basket of measures perform better (Van der Stede, Chow, & Lin, 2006). However, none of these measures will help if the management is insufficient. In order to be successful, measuring and reporting of intellectual capital requires commitment and involvement from the management (Boedker, Guthrie, & Cuganesan, 2005).

Although many good things may come from the implementation of a more profound intellectual capital reporting, it can also cause problems. Sub optimization, for instance, might always be a problem when measuring regardless what measures it concerns (Merchant & van der Stede, 2007).

Andriessen (2004) and Meer-Kooistra & Zijlstra (2001) are some of the authors that criticize the importance and the effectiveness of intellectual capital. They argue that there are various problems concerning the definitions, the evaluation and measurement of intellectual capital. Many involved people in this field of research agree that a discussion would be needed to standardize these aspects; still this is another subject than the one we are trying to investigate. Many companies agree that it is difficult to find the correct measures (Andriessen, 2004). These aspects along with implementing the correct measures seem to be the largest problems. However, with an able and motivated management the problems stated above become relatively minor. In those cases when the performance has not improved after implementing intellectual capital measures, some research suggests that the cause is mainly due to the problems stated above. Therefore, how to measure intellectual capital and how to use the correct measures are and should be something individual for every company to figure out in order to get the best possible effect on the performance (Ittner, 2008). Some researchers also have some doubt of the evaluation and internal accounting technique utilized regarding intellectual capital. Caddy (2000) argues that if intellectual capital exists there should also exist a "mirror image" which he defines as intellectual liabilities to keep good accounting practice. As a result, the intellectual should be derived as a net figure composed of intellectual capital and of intellectual liabilities.

During the recent years numerous models have been developed to deal with these problems. The Skandia Model and Balanced Scorecard are examples of such models. However, Sveiby identified as much as 34 different models for intellectual capital reporting. A problem lies in the fact that experts in this field are more concerned about developing their own models instead of trying to work together and maximize the efficiency of a few (or just one) more general model (Sveiby, 2007). The models developed for managing intellectual capital try to give a picture of the intellectual assets which are often not included in the enterprises' financial statement but can create value for the enterprise.

The framework of most of these models consists of three steps. Step one takes a managerial perspective by focusing on the activities and processes that create intellectual capital. Furthermore, this step tries to link these activities and processes to the company's strategy. Step two focuses on the management of intellectual capital with reporting models. This gives a view of the components of intellectual capital and how they are linked together. The third step focuses on measurements of intellectual capital components, financial and non-financial, qualitative and quantitative and descriptions of processes and activities (Meer-Kooistra & Zijlstra, 2001).

## **2.2 Innovation**

Innovation needs knowledge; new products derive from a process which begins with invention, proceeds with product development and result in market introduction. In order for an innovation to be commercially successful it needs to combine scientific and technical knowledge with knowledge of the market. Traditionally innovation analysis has been limited to the organization of the individual firm (human- and structural capital). However, lately the

notion that external sources of knowledge (relational capital) can help to spur innovation, has gained acceptance (Feldman, 1994).

In this report we have chosen to use the OECD definition of innovation.

*"An innovation is the implementation of a new (for the enterprise, the industry or the world) solution aiming at enhancing its competitive position, its performance, or its know-how. An innovation may be technological or organizational. A technological product (good or service) or process innovation comprises implemented technologically new products and processes and significant technological improvements in any of them. An organizational innovation includes the introduction of significantly changed organizational structures, the implementation of advanced management techniques and the implementation of new, or substantially changed, corporate strategic orientations."*

(European Commission , 2006)

This definition from OECD includes most features of the term innovation according to us. There are however numerous other definitions (Haour, 2004) (Davila, Epstein, & Shelton, 2006). In today's modern marketplace rapid changes occur on demand and the product life cycle is becoming shorter. This dictates the importance for companies to have a flexible structural capital and develop strategies to enhance NPD and shorten their NPD cycles. This together with excellent management systems, processes of knowledge management and operation procedures has been proven to enhance NPD (Chen, Lin, & Chang, 2006).

As the OECD definition of innovation implies, there are numerous and different ways to be innovative, e.g. through: technology, products, marketing, organization, processes etc. and therefore there are also many different ways of measuring innovation, both in its quantitative and its qualitative measures (European Commission , 2006) (Adams, Bessant, & Phelps, 2006).

Product innovation is an improvement of an existing or the development of a new product. According to Chen, Lin and Chang (2006) there are five key factors of product innovativeness. (1) new products are based on customer design; (2) the firm can define the target market, market value, functions, product concept and positioning before to development.; (3) the managers facilitate for employees to use cross-departmental cooperation, implementing new ideas and the development of new products.; (4) the firm has sufficient innovation competence; (5) high level of devotion to quality control and business operation among employees.

Organizational innovations may be new processes or strategies such as implementing a new system for handling of invoices, turning to new markets, renewing processes to rationalize capital used within the company e.g. JIT (Hitt, Ireland, & Hoskisson, 2007).

## 3. Methodology

### 3.1 Research Design

Initially we studied some general articles and books regarding the topics to get a better understanding of the topic. Literature was primarily sought in a number of data bases such as Emerald Fulltext and Business Source Premier (EBSCO). A selection of books for study was also borrowed. Keywords such as: *internal reporting*, *intellectual capital*, *intellectual capital measures*, *innovation*, and *performance* were among the most frequently used terms utilized when searching for articles and other literature. After acquiring several sources of information we found additional references in those sources that dealt with arguments closely related to our subjects. A number of common characteristics were noticed concerning the methodology used in the contemporary literature. We tried to apply the same methods when possible and when favorable to our thesis. The new knowledge acquired also helped us to narrow our scope. New searches in literature were continuously monitored throughout the whole time period of our project.

We decided to study only formal reporting given that informal reporting would need extensive observations and this would have been very time consuming. Only reporting of intellectual capital will be studied, since intellectual capital focuses on the future and value creation, just as innovations have their value in future cash flows. Additionally, reporting of financial measures have been a major focus in already existing research and there are still numerous areas of intellectual capital that have not been extensively studied (Marr, Gray, & Neely, 2003). This limitation also made it possible to conduct a more focused and detailed study, thus probably contributing to a more accurate result.

A larger number of companies were studied instead of conducting a more detailed case study of a few since we aimed to find correlation between internal reporting of intellectual capital and innovation. We believed that one or a few case studies would be more difficult to generalize. Drawing conclusions from existing literature, this has been the method of choice by most experts in this field. In addition, Yin (2006) argues that a survey is the best method to utilize in economical studies when the aim is to acquire knowledge about the presence of certain phenomena. Since that was what we intended to study, we decided to follow his recommendation. However, Marr, Grey and Neely (2003) suggest, due to the large overweight for survey studies in this field, that more emphasis should be placed on longitudinal case studies. Still, since our research period was fixed and too short for that kind of experiment, the decision to choose a cross-sectional quantitative method was the best alternative. The intention of the study was also to examine in a more detailed way if perceived importance of reporting certain intellectual capital measures have an impact on the way a company is innovative, e.g. if a company that put much emphasis on reporting relational capital internally is more innovative marketwise or is developing products together with external actors to a greater extent than the companies that report less of those components.

## 3.2 Selection of Companies

Companies were chosen in lines of businesses that are comparable so we were able to minimize contingency variables. These lines of businesses gave us a large number of companies to choose from within a reasonable size range (number of employees) and we felt that a larger size range was possibly a more interfering contingency factor than the small differences in line of business. We decided to choose companies by SNI codes in the Swedish data base Affärsdata Företagsfakta. The SNI codes are used in Sweden for industry classification when calculating national accounts; they are based on the European NACE standard. The numbers; 20 Manufacture of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms, 22 Manufacture of rubber and plastic products and 23 Manufacture of other non-metallic mineral products were selected. Furthermore, these lines of businesses were suitable since they include both innovative companies and companies that are considered relatively non-innovative. This was crucial as we intended to study the differences in the internal reporting procedure between these two categories.

We decided to delineate potential survey research companies by employee number as mentioned above. Our scope was decided to be in the range of 250 to 800 employees. This is a range in which companies are usually considered large. Smaller companies seldom use a formal reporting system for intellectual capital (European Commission , 2006). On the contrary larger companies might have made it difficult to find a single person with a complete overview concerning the company's internal reporting of intellectual capital and innovativeness. We used both entire companies and subsidiaries related to larger corporate groups since they are very similar in the aspects we intended to study (European Commission , 2006).

We selected our sample in the SNI 20, 22 and 23 categories by listing all the companies that matched our requirements. The population size was in total 62 companies (initially 63 but one of the companies lost employees according to our data while we were working on this thesis). We then contacted the companies on the list from the top to the bottom of the list. When we had called all companies at least three times we had managed to get hold of 15 companies that were willing to participate in our study. Of those companies that did not participate in the survey, the reason were in most cases that we could not get in touch with the person we needed to interview, since we wanted to interview the CFO for quality reasons. The second most common reason for loss of research subjects was due to their unwillingness to participate.

List of companies interviewed (this is not in the same order as they are presented in the appendix):

Name of company	SNI	Size (number of employees)	Age of company (in years)
Alcro-Beckers AB	20	300	111
Ardagh Glass Limmared AB	23	481	62
Benders Sverige AB	23	264	21
Calderys Nordic AB	23	402	93
Cambrex Karlskoga AB	20	328	92
Cementa AB	23	460	92
Domsjö Fabriker AB	20	308	9
Däckia AB	22	314	13
Gislaved Gummi AB	22	241	41
Kongsberg Automotive AB	23	487	62
Maxit AB	22	547	12
Saint-Gobain Isover AB	20 and 23	301	25
SCA Packaging Sweden AB	22	788	71
Trelleborg Sealing Solutions Skelleftea AB	22	255	68
Villeroy & Boch Gustavsberg AB	23	486	17

Gislaved Gummi AB was reported to have 272 employees when we selected our potential interview objects. They have now dropped below our lower limit by nine employees. However, we still feel they are comparable with the others so we will not exclude them from the survey results.

### 3.3 Selection of Respondents

As for company positions of respondents, the interviewees have been CFOs. This was an obvious choice since we considered them to have the best overview, the best knowledge of these concepts and finally because, in most cases, they are responsible for internal reporting. One of the respondents was removed from the study after some discussion between us and our tutor, since the respondent was not a CFO and we felt that some of the answers given were questionable.

## 3.4 Survey Design

### 3.4.1 Question Template Design

The link between the questions and the theory section is crucial (Saris & Gallhofer, 2007) and we have tried to implement the theory section in our question template. Our question template was divided into three sections. In the first sections we asked questions regarding innovation. The questions were formulated as forced-choice agree/disagree questions. If they agreed they were asked to rate, on a seven-level Likert scale, to what extent they felt that their company exerted this type of innovation. The purpose of this section was to determine in what ways (e.g. in strategies, in NPD), if any, the company was innovative.

The second section consisted of forced-choice questions regarding internal reporting of intellectual capital. We chose the 24 components (i.e. measures) commonly used in literature that we felt covered all categories of intellectual capital in the best way. As many as 128 different components/measures have been identified (Beattie & Thomson, 2007) and since several of these are similar, using all of them would have been very time consuming. Further more because the respondents would probably have lost interest, we decided to select a number as stated above. The respondents were asked which of these the measures they reported internally. In addition, the participants were encouraged to mention if they reported additional similar measures in relation to every category. Ittner (2008) opines that one problem with many studies about intellectual capital concerns the implementation; technical problems e.g. weightings of measures etc. is overlooked, therefore the respondents were asked to answer how important they felt that the reporting of that measure was on a seven-level Likert scale. The purpose of this section was that we wanted to be able to relate the answers to the first section in the question template and thereby discover if certain categories or components of intellectual capital related to the different ways of being innovative. The final section was made up by open-ended questions regarding internal reporting of intellectual capital; this was added so the respondents were given the opportunity to provide us with information that could not be acquired in the forced-choice question section.

### 3.4.2 Telephone Interview

We decided to use telephone interview as a method to implement in our survey. It would have been very time consuming and hard to get face-to-face meetings with 15 CFOs and when we initially tried to contact potential participants by e-mail the response rate was very low. As we felt that some of the potential interviewees might be discouraged if not given the chance to be anonymous, we decided in advance that no answers would be associated with their company names (even if they would have wanted it). The respondents were informed of this before questioning proceeded. Some were available for interviews immediately, while some of the participants were occupied. With those that were busy we set another time date for an interview. The interview was research administered, i.e. we, the researchers, were asking the questions and completed the template. The interviewees did not have a copy of the questionnaire.



### **3.5 Analysis Methodology**

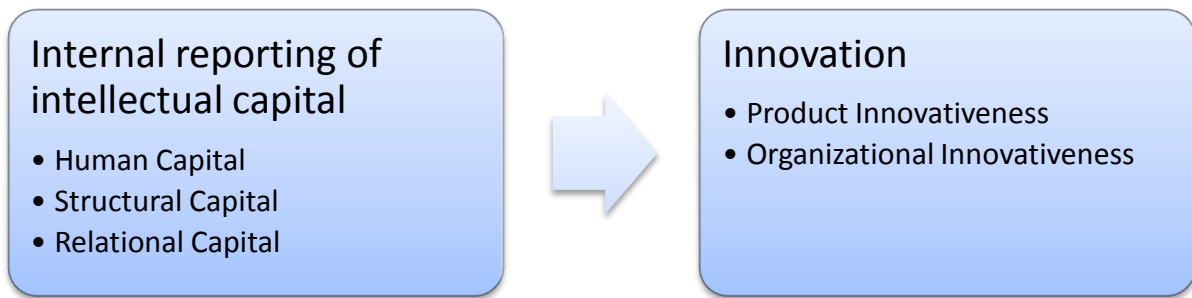
We used our question template design in which we had divided intellectual capital into the three main categories, their components and different ways of being innovative as a basis for our analysis. We began our analysis by testing if there existed any correlations between the different categories of innovativeness and the main categories of intellectual capital. We followed up by divide the main categories of intellectual capital into separate components and searched for correlations to the different kind of innovativeness. In the next phase of the analysis we tested if the number of employees or the age of the company had any impact on any of the variables stated above. The open-ended question part of our question template was then studied and compared to the answers in the forced-choice question section.

We used the respondent's perceived importance of the different measures to grade them since we regarded their perceived importance to be the decisive factor to what extent they used the measures. We used the statistics program SPSS 17 to analyze the collected data and decided to use the Spearman's rank correlation coefficient to test for correlation between the different variables in our data material. Spearman's rank correlation coefficient is a non parametric version of Pearson's correlation coefficient and is used for ordinal data but without the requirement of the data being normally distributed that Pearson's correlation test has. This is important for our study since we cannot assume that our collected data is normally distributed. The data values are replaced with ranks, the lowest value of each variable is assigned the rank 1, the next lowest is given the rank 2 and so on. Spearman's rank correlation coefficient is a measure of linear relation between two sets of data and will take a value between +1 and -1 where +1 signals an exactly positive linear relationship between the variables and a value of -1 signals a perfect negative linear relationship between the variables. A negative correlation is when one variable increase as the other variable decrease. A positive correlation means that both variables increase or decrease together. A value of the coefficient near zero signals that no correlation exists between the chosen variables (Altman, 1991).

### **3.6 Study Model - Innovation and Internal Reporting of Intellectual Capital**

As stated before in this thesis we used three main categories of intellectual capital: human capital comprising of e.g. the knowledge and skills of employees, structural capital comprising of e.g. processes and standard procedures that retains knowledge in the company and relational capital comprising of e.g. valuable relations to external partners for example customers and supplier in our study model. In a similar way innovation was divided into two main categories: product innovativeness and organizational innovativeness.

We intended to study the possible relationship between both the categories of intellectual capital and the different categories of innovation, as well as between the separate components of intellectual capital and the different categories of innovation.



Since we have not found any previous studies devoted to the subject we examine, we will also use this chapter to try to interpret the existing literature to create a possible link between internal reporting of intellectual capital and innovation. We will use this hypothetical link in our further research to facilitate the search for some empirical evidence of its existence.

Günter, Beyer, & Menninger (2005) argues that human capital is the most important intellectual capital factor for company performance. Bontis (1998), Adams, Bessant, & Phelps (2006) and Tayles, Pike, & Sofian (2007) further stresses the importance of employee knowledge and human capital in relation to innovativeness. It has also been proven in many studies that there is a positive correlation between level of education among the employees and a company's innovativeness (Smith & Hitt, 2007).

Cooperation between companies has also been proven to influence the companies' innovativeness since all companies lack some sort of human capital. To facilitate these collaborations, networks are created (a sort of relational capital) to make the companies' human capital available (Hitt, Ireland and Hoskisson, 2007). The choice of partners is important, an aid to facilitate this choice could be with a good internal reporting of relation capital and human capital since this would give a good picture of the relation and what human capital the companies would benefit acquiring from each other.

Internal reporting of intellectual capital may, according to us, also aid three factors that enhance product innovativeness listed by Chen, Lin and Chang (2006). (1) Existence of a standard procedure for finding out the target customers; (2) the firm has the capability to analyze customer complaints and opinions; (3) the firm has the possibility to monitor and analyze the satisfaction level and acceptance of those products.

Cross-functional product development teams have also been documented to facilitate innovations. Therefore, integration and communication between the different departments has to be encouraged (Hitt, Ireland, & Hoskisson, 2007, Ernst, 2002). Formal internal intellectual capital reporting could support these processes. Moreover, if assumingly what gets measures actually gets done (or at least gets improved) for instance through performance targets, internal reporting of relational capital will improve innovations associated to external partners. An example of such could be that new product features requested by customers would be developed. A similar assumption can be drawn regarding measurement and internal reporting of creation and proliferation of knowledge which are other important factors for entrepreneurship and innovation (Hitt, Ireland, & Hoskisson, 2007). The importance of

information sharing is further stressed by Davila, Epstein, & Matusik, (2004) that writes that internal reporting and information sharing facilitate strategic innovation.

### **3.7 Research Evaluation**

We consider our survey to have a high level of objectivity in the sense (Kvale, 2009) defines it, as free from bias. This includes that we have used reliable knowledge, partially controlled it for validity and that no existing prejudices or personal bias are present. Even though we feel we have taken the right measures some concerns may still exist. In this chapter these problems and our intentions to deal with them will be given some discussion.

In order to achieve construct validity we e.g. used a survey similar to others used in literature. We also feel that we were able to take the key concepts from the theory section and operationalize them in our question sheet.

By using a random selection of the population the external validity could be considered high in that aspect (Trochim, 2006). However, there is always a risk of bias when not all potential respondents are able to participate (Hutchinson, 2004). After analyzing the selection and the whole population we have not found any obvious bias; companies from different sizes, line of businesses have participated in a comparable ratio.

Since we decided to use telephone interviews we had to control the time. If we could have had a face-to-face interview time would not have been an equally important restrictive factor (Trochim, 2006). If the respondents belong to a well-educated group, which our respondents do, a survey up to 16 pages will still have a high response (Hutchinson, 2004). Ours, although done via telephone, was ten pages. The respondents in our survey were naturally more concerned of the length of time, which was between 13-19 minutes; 20 minutes are usually considered acceptable. Even if the effect might be weaker in contrast to a face-to-face interview, it is still possible during a telephone interview that the respondent and the researcher affect each other and thereby the results (Trochim, 2006). We also decided to only mention the subject (innovation and internal reporting of intellectual capital) so there would exist no bias in preparation between the respondents that were able to contribute with information immediately and the respondents that we had to contact once more.

During the first interviews we asked the interviewees for feedback, only one of them commented on one question, we realized that that question might become troublesome so we decided to erase this and one other question from the survey.

According to Hutchinson (2004) three conditions are necessary when doing a survey: the respondent's willingness, understanding and ability have to be achieved. We feel that there was no particular reason to misunderstand the questions regarding the intellectual capital measures, either they are used or not, if similar measures exist, the respondent was able to name them. If something was not perfectly understood, we were able to clarify since we were using telephone interview as a method. The respondents were considered more than able to respond to our question as mentioned in the Selection of Respondents section and all of them responded willingly.

We postulate that the interviewees responded honestly and sincerely since they were promised that their company names would not be mentioned in relation with their responses, so the incentives for them to embellish or manipulate their answers would decrease. However, reasons to question this may still exist. A validity problem arises in our study since the truthfulness is dependant of the participants' perception of reality (Hutchinson, 2004). Results based on perceptions more commonly finds relations between perceived performance and self-reported intellectual capital than those that do not use perceptions (Ittner, 2008). Other possible problems are too positive self-perception or that respondents may try to answer what they think is "normal" (Ittner, 2008, Hutchinson, 2004). Trochim (2006) also mentions that respondents may try to guess the hypothesis of the study and therefore shape their answer.

Possible errors in the data because of the human factor may exist. There is always a possibility that some data have been typed in incorrectly. However, both researchers have examined all the numbers in both the physical question templates and in the Excel and SPSS files. Still, there is a chance that erroneous numbers were inserted on the question template in time of the actual interview.

Concerning reliability, we have not tried to reproduce the survey, but if someone else would do this and get similar results this would have made the thesis more reliable (Trochim, 2006). As for the answers, we have weighted them all, both the forced-choice and the open-ended, using the same frame to avoid elite bias (Dalen, 2008).

Several factors may interfere with the results, we have tried to isolate these as much as possible and examine just one. Even if some relations are strong in our research and we have minimized contingency variables, we cannot be definitely sure that other factors did not have an impact on the results and cannot with full internal validity state that these relations are casual (Trochim, 2006, Yin, 2006).

In the Theory section we mentioned problems in literature regarding intellectual capital definitions, terminology etc. the reliability of the literature has been further questioned on some occasions. Andriessen (2004) is somewhat skeptic to the fact that intellectual capital research has primarily been conducted by a relative small number of authors, which are mainly practitioners, and how they process the subject. Moreover, according to Ernst (2002), studies relating NPD often has questionable methodology.

## 4. Empiric Results

In our survey all respondents except one answered that the company had innovation as a prioritized goal and that they continually worked to spur innovation. This indicates that the companies in our survey agree with contemporary literature in that innovation is crucial for a company's future in the long run. 11 of the respondents in our survey also answered that they had developed new products during the last 36 months and 14 had developed new processes or strategies during the last 36 months. Ten respondents stated that they had turned to new markets during the last 36 months and seven of the companies in our study had developed products with an external partner during the last 12 months, such as suppliers, customers and universities. Customers were the most frequent answer.

Relational capital is the category that is the most frequently reported in number of measurements of the different categories of intellectual capital in our survey. The companies also considered this category to be the most important to report.

More comprehensive tables will follow in appendix (part two) due to the length of these tables.

	Number of Yes answers	Sum of how important or to what extent	Mean of how important or to what extent
Is innovation an articulated strategy in your company?	10	47,00	3,3571
Does your company actively work to spur innovation?	11	45,00	3,2143
Have your company changed its product portfolio the last 36 months?	9	40,00	2,8571
To what degree are these products developed by the company itself?	9	46,00	3,2857
To what degree do they differ from previous products?	9	33,00	2,3571
Has your company developed any new processes or strategies during the last 36 months?	13	54,00	3,8571
Has your company started any high risk projects the last 36 months?	5	22,00	1,5714
Has your company turned to any new markets the last 36 months?	9	25,00	1,7857
What percentage of today's turnover derive from products that have been introduced during the last 36 months?	10	255,00	18,2143
To what degree has these products been developed with external partners?	6	34,00	2,4286
How innovative do you consider your company to be compared to your competitors?	14	71,00	5,0714
Do you report internally on human capital?	8	85,00	
Do you report internally on structural capital?	13	222,00	

	Number of Yes answers	Sum of how important or to what extent	Mean of how important or to what extent
Do you report internally on relational capital?	14	292,00	
Do you report internally on organizational capital?	13	173,00	
Do you report internally on process capital?	12	110,00	
Do you report internally on innovation capital?	9	63,00	
Divided in components:			
Do you report internally on lengths of service?	5	14,00	1,0000
Do you report internally on level of your employees' education?	3	10,00	,7143
Do you report internally on skill/abilities of your employees?	1	4,00	,2857
Do you report internally on knowledge dispersion within the company?	0	,00	,0000
Do you report internally on your employees?	3	16,00	1,1429
Do you report internally on your employees' motivation?	4	21,00	1,5000
Do you report internally on administrative costs?	11	61,00	4,3571
Do you report internally on time for handling disbursements/invoices?	3	12,00	,8571
Do you report internally on IT-costs per employee?	3	15,00	1,0714
Do you report internally on value of soft/hardware	1	4,00	,2857
Do you report internally on value of patents?	1	5,00	,3571
Do you report internally on value of owned brands?	0	,00	,0000
Do you report internally on financial measures per employee?	9	39,00	2,7857
Do you report internally on relations to external partners?	8	47,00	3,3571
Do you report internally on market share?	10	57,00	4,0714
Do you report internally on number of customers?	4	17,00	1,2143
Do you report internally on annual sales per customers?	11	62,00	4,4286
Do you report internally on number of lost customers?	5	27,00	1,9286
Do you report internally on number of new customers?	7	39,00	2,7857
Do you report internally on competence cost per employee?	5	18,00	1,2857
Do you report internally on new jobs/available positions?	5	22,00	1,5714
Do you report internally on number of patents applied for?	1	4,00	,2857
Do you report internally on development hours of products?	4	19,00	1,3571

In our qualitative part of our study only one of the respondents stated that they used a renowned model e.g. Balanced Scorecard or the Scandia Model for their reporting of intellectual capital. Five of the respondents stated that they did not use any model for reporting. The remaining eight respondents had developed their own model and structure for reporting. When the companies in our survey were asked to state why they reported internally on their intellectual capital many of the reasons stated in the theory part came up as answers, one respondent answered that they used their reporting to follow up and assess strategies and another respondent answered that they used their information to motivate their prices towards customers (use to communicate with external parts). Yet another reason that was given during the opened-ended part of our survey was that the information was used as a basis for incentive programs. The reasons stated above are three of the main reasons for measuring intellectual capital according to Marr, Gray, & Neely (2003).

When asked about the positive sides of internal reporting of intellectual capital several of the respondents answered that they felt that their employees got more motivated and interested in their work when they had access to more information.

Some of the respondents found it difficult to find the best measures and then use them correctly. This is in line with what we discussed in the theory section regarding problems with intellectual capital. Sub optimization was also stated as a problem with reporting intellectual capital in our open-ended section of the survey (Merchant & van der Stede, 2007).

## 5. Analysis

As stated under Empiric Results ten of the 14 respondents in our survey had turned to new markets during the last 36 months this indicates that external knowledge is incorporated in the companies' innovation process which is consistent with Feldman (1994) observations about external knowledge, explained in the innovation part of this report.

The companies in our study that have stated that innovation is strongly articulated in their strategy have changed their product portfolio to a greater extent than those who stated that innovation were less articulated. We also found a strong correlation between how articulated innovation was in the companies' strategy and how much the newly developed products differed from those previously developed. The more articulated innovation was in the strategy the more the newly developed products differed from previously developed products. This indicates that a strategic focus on innovation seems to make companies more innovative.

The companies in our study that had a high degree of internally developed product were less likely to engage in high risk projects (Sig. = 0.029). This can be a result of that the perceived risk is higher when the risk is not shared with an external partner which makes the companies less willing to invest in high risk projects. Another interesting finding is that two of the most innovative companies seemed to find the three different categories (human, structural and relational capital) equal or similarly important. This may to some extent further verify Van der Stede, Chow, & Lin's (2006) findings in previous studies that diversified measures are superior to focusing on one or two categories, even though their study focused on performance, not exclusively innovation. We also used age and size of the companies as variables and tested for correlations with the other variables in this study. However, we did not find any significant correlations.

		To What Extent Have you Changed Your Product Portfolio	How Articulated is innovation in your strategy
To What Extent Have you Changed Your Product Portfolio	Correlation Coefficient	1,000	,492
	Sig. (2-tailed)	.	,074
	N	14	14

		How Articulated is innovation in your strategy	To What Degree Do They Differ From Previous Products
How Articulated is innovation in your strategy	Correlation Coefficient	1,000	,545
	Sig. (2-tailed)	.	,044
	N	14	14

\*. Correlation is significant at the 0.05 level (2-tailed).



### 5.1 Internal Reporting of Human Capital

The companies in our survey that stated that internally reporting human capital was important had changed their product portfolio to a greater extent and their products also differed compared to their previous products to a greater extent than those companies who stated that it was less or not important at all. These results points out the importance of human capital when working on product innovation and this is also in line with Bontis (1998) among others, who stated that human capital is a source of innovation and renewal as mentioned in our study model.

		Human Capital	To What Extent Have you Changed Your Product Portfolio
Human Capital	Correlation Coefficient	1,000	,651*
	Sig. (2-tailed)	.	,012
	N	14	14

\*. Correlation is significant at the 0.05 level (2-tailed).

		To What Degree Do They Differ From Previous Products	Human Capital
To What Degree Do They Differ From Previous Products	Correlation Coefficient	1,000	,703**
	Sig. (2-tailed)	.	,005
	N	14	14

\*\* . Correlation is significant at the 0.01 level (2-tailed).

We then divided the human capital category into separate components and found that three of the six individual components correlated with different innovation measurements used in our study. The three correlating components were reporting internally on; the average length of service, the level of education of employees and the creativity of employees.

Reporting internally on the employees average length of service appear to have a positive impact on three innovation measurements in our study: to what extent the company had changed their product portfolio, to what degree the new products differed from previous products and to what degree the new products were developed by the company itself. We presume the reason for reporting of the average length of service helps the companies to take measures to keep their valued human capital from leaving the company which assumingly has a positive impact on innovation.

		Lenght of Service
Lenght of Service	Correlation Coefficient	1,000
	Sig. (2-tailed)	.
	N	14
To What Degree are the products Developed by The Company Itself	Correlation Coefficient	,590 <sup>*</sup>
	Sig. (2-tailed)	,026
	N	14
To What Extent Have you Changed Your Product Portfolio	Correlation Coefficient	,569 <sup>*</sup>
	Sig. (2-tailed)	,034
	N	14
To What Degree Do They Differ From Previous Products	Correlation Coefficient	,730 <sup>**</sup>
	Sig. (2-tailed)	,003
	N	14

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

In our study internal reporting of the level of education of the employees has a positive impact on to what extent the companies have changed their product portfolio. We assume that the purpose of measuring the educational factor is to increase the level of education of the employees. A higher level of education has been proven to increase innovativeness of companies (Smith & Hitt, 2007). It is also likely that a higher educational level among the employees has a positive impact on how to what extent the newly developed products differ from previous products. By measuring what knowledge the company have they will also know what knowledge and human capital it lacks and as we stated by referring to Hitt, Ireland, & Hoskisson (2007) before, companies will look for human capital, which they themselves are lacking, at external partners.

		Education level of Employees
Education level of Employees	Correlation Coefficient	1,000
	Sig. (2-tailed)	.
	N	14
To What Extent have you Changed Your Product Portfolio	Correlation Coefficient	,668 <sup>**</sup>
	Sig. (2-tailed)	,009
	N	14
To What Degree Do They Differ From Previous Products	Correlation Coefficient	,595 <sup>*</sup>
	Sig. (2-tailed)	,025
	N	14
To What Degree are these products developed with External parts	Correlation Coefficient	,624 <sup>*</sup>
	Sig. (2-tailed)	,017
	N	14

In the survey a relation between measuring and reporting creativity of employees internally and three of our measures for innovation was established. It seems to have an impact on to what extent the company has changed their product portfolio during the last three years. Our assumption here is that reporting internally is done to enhance and support creativity of the employees. This creativity probably creates innovation propensity. This would also explain why it seems like it also have a positive impact on how much these newly developed products differ from the previous products. This is in line with Adams, Bessant, & Phelps (2006) that acknowledges creativity as one of the important factors in their innovation framework. When it comes to what degree new products have been developed with external parts it seems like reporting internally of creativity has a positive impact here as well. However, we cannot come up with a plausible explanation for this relationship. Besides above listed correlations, we did not find any significant correlations between this category (or its components) and the innovation measures.

		Creativity of employees
Creativity of employees	Correlation Coefficient	1,000
	Sig. (2-tailed)	.
	N	14
To What Extent have you Changed Your Product Portfolio	Correlation Coefficient	,687**
	Sig. (2-tailed)	,007
	N	14
To What Degree Do They Differ From Previous Products	Correlation Coefficient	,581*
	Sig. (2-tailed)	,029
	N	14
To What Degree are these products developed with External parts	Correlation Coefficient	,655*
	Sig. (2-tailed)	,011
	N	14

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

## 5.2 Internal Reporting of Relational Capital

Before the analysis was conducted we expected relational capital the category to have the significant correlations however as seen below this what not the case.

We started out by testing if there were a correlation between innovation and relational capital as a group however we did not find any significant correlation. We followed up by splitting up the relational capital group into separate components and found that it was a strong correlation between reporting number of new customers and to what extent the companies had

changed their product portfolio during the last 36 months. A good dialogue between the company and their customers is likely to spur innovation as the costumers may suggest improvements etc. as discussed in our Study Model in the Methodology section. Reporting new customers also had a relatively strong correlation (Sig. = 0,076) with to what extent new products differed from previous products. This could be the result of focusing on obtaining new customers leads to developing new product segments. An, according to us, interesting observation was made about the reporting of market share that had a relatively strong (Sig. = 0,085) negative correlation with to what extent products were developed with external partners. This could be due to that a strong focus on market share might imply a more competitive strategy which can result in less collaboration with other actors active on this market. Additionally we found a tendency (Sig. = 0,154) that the perceived importance of reporting relations to external partners had an impact on if the companies had turned to new markets. This can be due to if a company has a good relation with e.g. a customer the customer might want the company to supply them with product on other markets in which the customer but not the company is active in.

		New Customers	To What Extent Have you Changed Your Product Portfolio
New Customers	Correlation Coefficient	1,000	,546
	Sig. (2-tailed)	.	,044
	N	14	14

\*. Correlation is significant at the 0.05 level (2-tailed).

We also discovered that there was a correlation between reporting market share internally and if the companies had turned to any new markets during the last three years. This may be because of a good market knowledge helps the company to know what markets to invest in and what markets to withdraw from, thus creating a more flexible and successful market positioning. It may also originate from a focus on acquiring market shares to a larger extent than for instance focusing on cost reduction. This focus on market expansion would encourage moving into new markets. Besides above listed correlations, we did not find any significant correlations between this category (or its components) and the innovation measures.

		Market share	Have you Turned To New Markets during the last 36 months
Market share	Correlation Coefficient	1,000	,549*
	Sig. (2-tailed)	.	,042
	N	14	14

\*. Correlation is significant at the 0.05 level (2-tailed).

### 5.3 Internal Reporting of Structural Capital

We tested if there was a correlation between structural capital as a group and any of the innovation measures, however we did not find such a correlation, consequently we followed up by splitting structural capital into the subcategories process capital and innovation capital. Neither of these groups correlated significantly with the innovation measures. Though, innovation capital correlated vaguely (Sig. = 0,107) with to what extent newly implemented strategies and processes differed from previous strategies and processes. In addition only one of the separate components did correlate with the innovation measures. The only component that seemed to correlate significantly to the innovation measures was the measurement of time efficiency concerning handling invoices that correlated to what extent the product portfolio had changed the last three years. However, this correlation seems to be a spurious correlation. Besides above listed correlations, we did not find any significant correlations between this category (or its components) and the innovation measures.

		Handling Time for Invoices	To What Extent have you Changed Your Product Portfolio
Handling Time for Invoices	Correlation Coefficient	1,000	,563*
	Sig. (2-tailed)	.	,036
	N	14	14

\*. Correlation is significant at the 0.05 level (2-tailed).

### 5.4 Observations from the Open-ended Questions

The majority of the survey participants stated that they did not use any of the more renowned performance management tools (such as Balanced Scorecard), while some mentioned that they had developed their own models. These were in most cases less complicated versions of balanced scorecards. This may be because of the costs of implementing an existing model and since the huge number of different models may discourage searching for the best fit.

## 6. Conclusion

In this section we will explain the conclusions we have drawn through the analysis part of this thesis. This section begins with a review of our aim of the thesis to facilitate and clarify the conclusions for the reader. Finally we will suggest possible subject for future research.

*“We therefore in this thesis, through empirical data, try to uncover links between internal reporting of intellectual capital and innovativeness. We will try to find if there are any differences in the internal reporting of intellectual capital between innovative and less innovative companies. We also intend to evaluate if internal reporting of specific categories of intellectual capital such as human capital, structural capital or relational capital and their components has a significant impact on companies’ innovativeness. Moreover, this thesis aims to see in what area they are innovative.”*

Through our empirical study we have found that there likely exist a correlation between internal reporting of intellectual capital and innovation. This link was especially apparent between the category human capital and product innovativeness. We also found significant correlations between separate components within the category human capital and the innovation measures, also here the link was especially apparent between the separate components and product innovativeness. The other two categories did not seem to correlate to the same extent as human capital with the innovation measures. However, some of the components such as market share seemed to have interesting relations with certain innovation measures. Among the companies in our study, we found that internal reporting of intellectual capital had the greatest affect on the product innovativeness, in contrast to process and strategic innovativeness. We did however find reporting of intellectual capital to have an impact on market innovativeness. In conclusion, the present thesis offers a partially approved approach for evaluation of important links between internal reporting of intellectual capital and the innovativeness of the studied companies

### 6.1 Suggestions for Future Research

In the following section we will state our recommendations for further study on the subject internal reporting of intellectual capital.

It is suggested for the results presented in this study to be subjected to further confirmation to be fully reliable. For this, the study needs to be “duplicated”, preferable using a larger selection of companies. Another important aspect is that this study does not show in what direction the relations stated above works. There is a possibility that companies that are innovative in certain categories decide to report on their intellectual capital in that sector to become even more innovative. The other aspects which should be addressed in a verification study may include:

Different line of businesses (maybe in lines of business that are more familiar with IC like consulting firms or high-tech firms), more companies should be involved, the study should concentrate a bit more on information/knowledge sharing and carry out observations in just

one or a few companies to erase some contingency factors. Another often overlooked factor is informal reporting or all types of information sharing between for example companies of different sizes etc. Yet another approach would be to solely concentrate on internal reporting of human capital and thereby use additional human capital components and preferably more quantitative measures concerning innovation. By doing this it would be possible to test the selected correlations more thoroughly. In all these suggestions it would be very useful to follow a company during a longer period of time to see in what way the correlation works.

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## Appendix

### Appendix One: Question Template

#### **Section One: Innovativeness**

**Is innovation an articulated strategy in your company?**

No  Yes

How articulated is innovation in your strategy?

1            2            3            4            5            6            7

**Does your company actively work to spur innovation?**

No  Yes

To what extent?

1            2            3            4            5            6            7

**Have your company changed its product portfolio during the last 36 months?**

No  Yes

To what extent?

1            2            3            4            5            6            7

To what degree is these products developed by the company itself?

1            2            3            4            5            6            7

To what extent do they differ from previous products?

1            2            3            4            5            6            7

**Has your company developed any new processes or strategies during the last 36 months?**

No  Yes

To what extent do they differ from previous processes or strategies?

1            2            3            4            5            6            7

**Has your company started any new projects with a high degree of risk during the last 36 months?**

No  Yes

How high was the risk in these projects?

1            2            3            4            5            6            7

**Has your company turned to any new markets during the last 36 months?**

No  Yes

To what extent do these markets differ from previous markets?

1            2            3            4            5            6            7

**Has your company developed any new products with an external partner during the last 12 months?**

No  Yes

What kind of external part? Customer, supplier, other: \_\_\_\_\_?

To what extent are your new products developed together with external partners?

1            2            3            4            5            6            7

What percentage of today's turnover derive from products that have been introduced the last 36 months?

1            2            3            4            5            6            7

How innovative do you consider your company compared to your competitors?

1            2            3            4            5            6            7

## **Section Two: Internal reporting of intellectual capital**

### **Human capital**

**Do you report INTERNALLY on the following:**

**Your employees average lengths of service?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**The level of education of your employees?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Skill/individual abilities of your employees?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Knowledge dispersion within the company?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Creativity of your employees?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Motivation among your employees?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Other?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Relational Capital**

**Relations to external stakeholders (customers, suppliers etc.)?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Market share?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Number of customers?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Annual sales per customer?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Number of lost customers?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial



**Number of new customers?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Other?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

## Structural Capital

**Value of hardware/software (data bases, lists of customers etc.)?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Value of patents?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Value of owned brands?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Financial measurements per employee such as turnover/employee?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Other?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

(Organizational Capital)

**Innovation capital**

**The cost of capacity building per employee?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Number of new employees/open positions?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Number of patents applied for?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Number of hours spent on developing products?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Other?**

\_\_\_\_\_

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

# Process Capital

## Administrative costs?

No  Yes

How often?

---

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

## Time for handling disbursements/invoices?

No  Yes

How often?

---

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

## Network capacity per employee?

No  Yes

How often?

---

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**IT-cost per employee?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

**Other?**

No  Yes

How often?

\_\_\_\_\_

How important is the reporting considered to be?

Not at all  1  2  3  4  5  6  7 Crucial

### **Section Three: Internal reporting of intellectual capital**

1. Is there a difference in how much you report a certain type of intellectual capital and its relative value for the company?
2. Do you report different types of intellectual capital in different ways?
3. What is your main purpose for reporting intellectual capital?
4. Do you use a specific model for reporting, for instance Balance Scorecard or the Skandia Navigator?
5. How does the reporting process work? Who collects, compiles and reports the data?
6. What are, according to you, the advantages/disadvantages with your reporting of intellectual capital?
7. Who are allowed to take part of the reports?
8. Who takes part of the reports? Do you follow up on who takes part of the reports? (*This question was deleted*)
9. Is your company exposed to seasonal cycles? If so, do you adapt your reporting to this? In what way?
10. Is intellectual capital incorporated in the budget process somehow?
11. How is your organization constructed? Have you adapted your reporting system to get a better fit with your organizational structure?
12. Do you measure process efficiency? If so, how do you measure and report it? (*This question was deleted*)

## Appendix Two: Tables of Answers

The following tables display the answers acquired from the companies through our survey. A negative answer is marked by a zero (0) in the tables, the other number symbolizes to what extent or how important the respondents considered the concept, measures or components related to the question was. We used a seven-level Likert scale for grading the answers, a one (1) is the lowest number and a seven (7) is the highest. The order of the companies is different from the order they were presented in 3.2 Selection of Companies.

<b>Section one: Innovation</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
How articulated is innovation in your strategy?	0	0	4	5	4	6	0	0	5	5	3	5	4	6
To what extent does your company actively work to spur innovation?	5	0	7	5	3	3	0	0	4	4	2	4	3	5
To what extent has your company changed the product portfolio the last 36 months?	0	3	6	0	3	5	0	0	4	0	2	7	5	5
To what extent are these products developed by the company itself?	0	7	2	0	4	7	0	0	6	0	3	7	6	4
To what degree do these products differ from previous products	0	2	5	0	4	4	0	0	5	0	2	3	2	6
To what extent do your new processes/strategies differ from your previous processes/strategies?	3	3	3	7	3	5	3	3	6	6	3	0	4	5
If your company has entered any high risk projects the last 36 months, how high was the risk degree?	0	5	0	0	0	6	0	0	0	4	0	5	0	2



	1	2	3	4	5	6	7	8	9	10	11	12	13	14
To what extent does the new markets you have entered the last 36 months differ from the original markets?	1	2	4	0	0	4	2	5	0	2	0	2	0	3
What percentage of today's turnover derive from products introduced during the last 36 months?	10	10	10	0	20	75	0	0	10	0	12,5	75	22,5	10
To what extent are your new products developed with an external partner?	6	0	7	0	7	0	0	0	0	0	0	7	3	4
How innovative do you consider your company compared to your competitors?	6	5	5	6	4	6	5	3	5	6	5	6	5	4

The numbers of the categories are the sum of their components.

<b>Section Two: internal reporting of IC The Categories</b>														
<b>Do you use the following measures in internal reporting:</b>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Human capital?	0	0	15	0	2	9	2	0	14	7	0	18	0	18
Structural capital?	14	13	27	12	12	10	31	0	15	18	28	11	15	16
Relational capital?	13	9	25	32	12	14	12	17	28	17	38	35	16	24
Organizational capital	9	9	15	7	11	10	21	0	15	18	20	12	15	11
Process capital?	9	9	15	4	0	4	13	0	11	5	16	12	6	6
Innovation capital	0	0	0	3	11	6	8	0	4	13	4	0	9	5

**Section Two: internal reporting of IC  
The Components**

<b>Do you use the following measures in internal reporting:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Your employees average length of service?	0	0	0	0	2	2	0	0	4	0	0	3	0	3
The educational level of your employees?	0	0	3	0	0	0	0	0	0	0	0	3	0	4
The skill/ability of your employees?	0	0	0	0	0	0	0	0	4	0	0	0	0	0
Knowledge dispersion within the company?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Creativity of your employees?	0	0	6	0	0	0	0	0	0	0	0	5	0	5
The motivation among your employees?	0	0	6	0	0	7	2	0	6	0	0	0	0	0
Administrative costs?	5	5	6	4	0	0	7	0	6	5	6	5	6	6
Time for handling disbursements/invoices?	0	0	4	0	0	0	0	0	5	0	0	3	0	0
Network capacity per employee?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IT-costs per employee?	0	0	0	0	0	4	6	0	0	0	5	0	0	0
Value of hardware/software?	0	0	0	0	0	0	4	0	0	0	0	0	0	0
Value of patents?	0	0	5	0	0	0	0	0	0	0	0	0	0	0

<b>Section Two: internal reporting of IC The Components</b>														
<b>Do you use the following measures in internal reporting:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Value of owned brands?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financial measures per employee?	5	4	7	5	1	0	6	0	0	0	3	3	0	5
Relations to external partners?	0	0	7	6	0	7	4	5	6	6	0	6	0	0
Market share?	0	5	0	5	0	7	6	7	6	6	0	6	3	6
Number of customers?	0	0	0	0	0	0	2	0	0	0	3	6	0	6
Annual sales per customer?	6	4	6	5	0	0	0	5	6	5	5	7	7	6
Number of lost customers?	0	0	6	5	0	0	0	0	5	0	6	5	0	0
Number of new customers?	0	0	6	5	0	0	0	0	5	0	6	5	6	6
The cost of capacity building per employee?	0	0	0	3	0	0	3	0	0	0	4	0	3	5
Number of new employees/available positions?	0	0	0	0	4	3	5	0	0	4	0	0	6	0
Number of patents applied for?	0	0	0	0	0	0	0	0	0	4	0	0	0	0
Number of hours spent on developing products?	0	0	0	0	7	3	0	0	4	5	0	0	0	0