Information Management and the Middle Manager

An Analysis of Three Swedish Companies

Bachelor’s Thesis in Information Management

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Abstract

One form of knowledge that has been proven to be important for companies’ performance during the recent financial crisis is the understanding of the financial data and information.

The purpose of this thesis is to investigate how three Swedish companies – Sto Scandinavia AB, Swedbank and Axfod SSC – communicate internal financial information to their middle managers. As well as how the companies use knowledge management to leverage their financial communication internally.

The study presents an integrated framework of information management and knowledge management based on the works of the leading and often quoted researchers in those fields.

This study uses 12 semi structured interviews to gather qualitative data about how nine middle managers and three top managers view the communication of financial information at their companies. The interviews were complimented with closed question surveys handed to the nine middle managers.

Our analysis concludes that the three companies differ significantly in their approach to communicating financial information. Swedbank uses a wide range of financial information in their daily operations. Further, they have an organized and structured approach to communicating and managing their financial information.

Sto and Axfod (SSC) do not use financial information to the same extent in their operations. Additionally they communicate the information in an informal and unstructured way. Although using a less structured approach, the managers at Axfod were more satisfied with how the company uses financial information then the other companies. This could be due to the lesser importance given to financial information at SSC compared to Swedbank.

We found Sto to be at the verging point from turning from a small company to large company and thus needs to review their current strategy, which has previously been based on the ability of the managers to receive information through informal paths.
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1 Introduction

“Perhaps one of the most remarkable developments of our time is the ‘discovery’ that knowledge is the key, not only to economic progress, but also to business and corporate success” (Nonaka & Teece 2001: 1)

In today’s society companies are relying increasingly on the internal knowledge and intellectual capital of the company to gain a competitive advantage. As a lot of this knowledge is based on experience and cannot be codified it can be hard to spread in the organization. Because of the concealed value of knowledge many organizations have started knowledge management programs to disseminate the knowledge within the company (Bender & Fish, 2000). Ford for example was able to cut their new model development time from 36 to 24 months by implementing a knowledge management program (Gazeau, 1998).

One form of knowledge that has been proven to be particular important for companies performance during previous financial crisis, is the understanding of the financial information (Hubbard, 1991). Although high attention has been given to the field, most of the research has been of theoretical nature, and not many studies have analyzed how information management and knowledge management are used in practice at companies (Sveiby, 1997).

The financial state of a company can be communicated internally through data or information, the former being raw numbers while the later has been given context and meaning. The information can then be transformed into knowledge through personal application (Bender & Fish, 2000). This discussion of which types (data, information or knowledge) that is used to communicate the financial status, shapes the center of the thesis, while focusing on the gap between theoretical discussion and actual application by the Swedish companies. We used financial information as the vehicle for analyzing how information management and knowledge management is used in practice.

1.1 The Companies

Before presenting the different companies and why we chose them, we will define different structures and differences in what direction a department work. Venkatraman (1997) discusses a framework consisting of different types of organizations. The first is the cost center which is as a department only measured by its costs for the company, and consists of operations such as customer service and financial services. Profit center is defined through a sector, which is responsible for revenues and costs, which in a latter phase then will be the profit; usually this is the department, which actually sells the products or services and then receives the inflow of capital. The third center is the Investment center which is held accountable for the operations concerning a strategic focus where it tries to maximize the firm’s potential by scanning, selecting, evaluating and implement emerging products and services.

To create a broad discussion of how the financial information is communicated three different companies from different industries were chosen. We chose three different
types of companies as we expected them to use financial information very differently and thus give a more general picture of how financial information is used in practice.

The companies’ size was the first criteria but we tried to find firms that in one way or another were currently interesting. The banking sector has been frequently discussed after the financial breakdown a couple of years back, the food industry is a sector that always seem to be on a growing market further a company operating within production which should have been affected from the economic slowdown occurring the last years.

The value of categorizing the different companies into different type’s centers might give an explanation to why they have different focus on their information and knowledge management techniques. For instance a cost center only needs to worry about their costs, which will give it a more straightforward mode of operation compared to an investment center.

1.1.1 Sto Scandinavia

Sto Scandinavia AB is a company seated in Linköping, which manufactures and markets products and system solutions in the facade and interior within the housing industry and Floor and Concrete within Construction business.

The company is part of the German group Sto AG that operates worldwide. The Group has over 4200 employees and annual sales of approximately € 950 million. The Nordic countries are represented since 1987. Sto Scandinavia operations include Sweden, Denmark, Norway, Finland, Estonia and Iceland (Sto, 2010).

In the selection process we concluded that a production company like Sto Scandinavia would be interesting to bring into the study since it will be able to give a dimension on how financial figures can be used within the production process. The department included in this study is to be seen as an investment center (Venkatraman, 1997), since it works with production and the process of designing new products.

1.1.2 Swedbank

Swedbank was founded 1820 as the first saving bank in Sweden. Today the bank is operating on a large scale in Ukraine, the Baltic countries and of course in Sweden where it stands with almost 400 branches. Swedbank has almost 9.5 million retail customers and 550, 000 corporate customers (Swedbank, 2010).

In Jönköping and Huskvarna, Swedbank is represented by a total of two branches. Swedbank and their colleagues within the financial sector did all experience major credit losses when the financial crash occurred in the last quarter of 2008, perhaps Swedbank was one of the banks in Sweden that took the hardest hit in the financial crisis (Ivarsson, 2009).

By using Swedbank in this study we were able to see how a financial business dssiilates their financial information. Our focus at Swedbank fell on managers working close to customers within private and company banking services, which are the de-
departments within a bank which is held accountable for profit. The department within Swedbank participating in this study is defined as a Profit center (Venkatraman 1997).

1.1.3 Axfoid SSC

Axfoid is one of Sweden’s largest firms in food retail and wholesale trade in Sweden. It owns different chains such as Willy’s, Hemköp and PrisXtra and have 225 stores around the country. Axfoid also collaborates with a number of 840 proprietors-run stores, which are tied to Axfoid with different types of agreements (Axfoid 2010). In this study we will use Axfoid’s Service and Support Centre (SSC), which is seated in Jönköping. SSC is currently going through major organizational changes, such as a change in financial software and changing location to a new office, which will show an aspect of how changing companies cope with financial information (I. Jeppsson, Personal Communication, 20 April 2010).

Axfoid gives us a third dimension which presents how a firm within the food industry uses financial information and what differentiates it from the banking sector and manufacturing industry. Since this is the sector in the Axfoid Corporation, which is held accountable for financial services and which is not making any profits, it is referred to as a cost center (Venkatraman 1997).

1.2 Problem Discussion

As seen in the preceding discussion, managing information is increasingly important for companies in order to achieve a competitive advantage. Thus, how to manage information is a current and important topic. The emphasis of this thesis is to develop increased insight in how information is managed in practice; we use financial information as a vehicle for analyzing how information management and knowledge management is practiced.

We examine how financial information is distributed from top managers to middle managers, how it is used by and distributed to middle managers and how the companies stimulate the creation of the knowledge that middle managers need to have in order to work with financial information. We focus on internal financial information as the type of information investigated since it is present in almost all organizations. Financial information is simply the type of information we focus on to understand the information and knowledge management techniques within the organizations.

Companies employ different strategies and techniques to communicate information and the results of the company internally, e.g. through planning and control systems and performance measurement systems. They also apply different techniques for training their middle managers in how to use financial information, such as learning by doing. There are also techniques used for how to compare financial information, such as benchmarking. All these practices are related to information and knowledge management and in this thesis we will investigate how they are used in the companies studied.

This thesis analyzes how information is managed, which processes and systems that create, acquire, organize, store, distribute, and use information according to Detlor
(2010). Then the thesis also analyzes how companies apply internal training to help the employees to transform information into knowledge as argued for by Bender & Fish (2000).

According to Sveiby (1997) there has been an intensive debate within this research area, although most attention has been on the theoretical discussion rather than on the practical application. Which makes a study of the actual information and knowledge management practices an important and interesting topic.

The problem of this thesis thus concerns these actual practices of three companies operating in Sweden. How they perceive data, information and knowledge to be present in these companies. How information is used and distributed and how information is leveraged into knowledge that helps the middle managers work with and understand financial information.

1.3 Purpose

Our purpose is to investigate how the three companies Sto Scandinavia, Swedbank and Axfood SSC communicate financial information and the internal results to their middle managers. Our purpose is three-fold and investigates:

- The communication of financial information between middle managers and top management.
- What techniques which are present in the different companies for sharing financial information.
- How the companies use knowledge management to leverage their financial communication internally.
2 Disposition

Below the overall structure of the rest of the thesis is presented; the figure shows what will be included in the five parts that are following. Basically the figure is built upon before getting to the next level the previous different aspects need to be fulfilled.

Frame of Reference
The relevant theories needed to fulfill the purpose are presented. We begin by introducing the definitions of the basic terms in our thesis and present the ongoing debate around the terms. We then introduce information management and knowledge management, and show different strategies on how they can be used to communicate financial information.

Method
Here we present the tools used to obtain our purpose; a combined method using semi-structured interviews and questionnaires with closed-ended scaled questions. Further, we present the techniques used in data collection and why those techniques were chosen.

Empirical Study
In this part we present the data gathered from our interviews with one top and three middle managers at Sto, Swedbank and Axfood. We then present our result from the survey handed to the middle managers.

Analysis
In this part we use information and knowledge management theory to analyze the data gathered from our interviews. Through the analysis we highlight how the companies use financial information in their operations.

Conclusions
Conclusions based on the analysis are presented. In addition the empirical and theoretical contributions of this thesis are discussed. Finally suggestions for further research are presented.
3 Theoretical Framework

In this chapter we will in the first part present a general framework of information, data, knowledge and expertise, the basic and fundamental concepts of this thesis. In the second part we then develop the concept of information further and introduce information management. In that part we will look at how information is used and distributed as well as information techniques such as performance and measurement systems and planning and control systems. In the third part we introduce knowledge management, the socialization, externalization, combination, internalization (SECI) process and knowledge techniques such as benchmarking and learning by doing. In this part we develop the concept of knowledge further, with a focus on how information could be transformed into knowledge through personal application.

3.1 Data, Information, Knowledge and Expertise

When discussing information management there are many different definitions, but it is often divided up into the four main areas (Liyanage, Elhag, Ballal, & Li, 2009).

- **Data** - is unprocessed numbers which are not presented in a meaningful context.

- **Information** - which is processed data.

- **Knowledge** - which refers to authenticated information.

- **Expertise** - is deep knowledge within a certain field. Acquired through extensive training and education.

The four areas build on each other and form the base on which the next is built, see figure 1. Data becomes information through the process of adding, which refers to adding meaning, relevance, purpose and understanding to the data (Bender & Fish, 2000).

Information is transformed into knowledge, when a person adds their own beliefs, values and understanding to the information (Bender & Fish, 2000).

![Figure 1: (Bender & Fish 2000: 126)](image_url)
Knowledge is enriched to expertise when a person uses experience, training and education to improve their own knowledge (Bender & Fish, 2000).

There has been a long debate on how knowledge should be defined. Sveiby (1997) presents two schools of defining knowledge, the first being management of information, which defines knowledge in relation to information. This school regards knowledge as an object, much similar to data in that is can be stored and communicated. We use Bender and Fish’s (2000) definition as part of this school. Their definition states that, knowledge is information, which has been transformed through personal application through values and beliefs.

3.2 Information Management

“Fundamental to the organizational perspective of information management is the view and treatment of information as a strategic resource – one that needs to be managed like any other critical organizational resource, such as people, equipment, and capital” (Detlor, 2002: 104).

Data by itself does not contribute much to an organization as it has not been given meaning to the receiver, it has to be set in a context and given meaning to contribute to the organization. Information is processed data, which is transformed through relevance, meaning and purpose. Information management could then simply be the managing of information; it however carries other connotations, which make it harder to define. It is often used to refer to management of information technology, management of information resources and the management of information policies. Information can also be used by individuals in the organization to form knowledge. In knowledge creation information is transferred or translated into tacit knowledge of the individual. By combining the tacit and explicit information within an organization new theories and knowledge can be created (Choo, 2002).

A second category of information use can be the basis of decision-making, where information is used in the different processes of decision-making, whether it is the identification of a problem, development of solution or selection solution to the problem (Choo, 2002).

Detlor (2010) defines information management as the management of the processes and systems that create, acquire, organize, store, distribute, and use information. Our focus at this stage will be on how information is distributed and used.

3.2.1 Information Distribution and Use

Detlor (2002: 104) states that one of the most critical issues with information management is “eliciting information requirements and matching those information needs in the design and delivery of information systems to promote effective and efficient information use”. Taylor (1991: 230) developed eight different classes of information use (adapted from Choo et al., 2008, Choo et al., 2006):
1. **Enlightenment.** Here information is used to develop a context or to make sense of a situation.

2. **Problem Understanding.** Here information is used to develop a better comprehension of a particular problem.

3. **Instrumental.** Here information is used in a way that allows the individual to know “what to do and how to do” something.

4. **Factual.** Here information is used to determine the facts and to describe reality.

5. **Confirmational.** Here information is used to verify information.

6. **Projective.** Here information is used to predict how things are to become.

7. **Motivational.** Here information is used to attain personal involvement for a chosen course of action.

8. **Personal or Political.** Here information is used to develop relationships, enhance status, reputation, and personal fulfillment.

The different categories are not mutually exclusive (Choo et al. 2008). The eight types of information developed by Taylor (1991) are more extensive and break down the information usage into more groups, but they are still all a part of the two groups of Choo (2002). The reverse can however not be said about Choo’s groups. Choo’s (2002) groups can explain the most important part of information within an organization while Taylors (1991) groups can be a compliment when further depth is required.

### 3.2.2 Financial Information Techniques

For financial information to be utilized it needs to be shared and communicated within the companies. Here we present two important techniques employed by the companies in this thesis for sharing and communicating financial information, the planning and control systems (PCS) and performance measurement systems (PMS).

Abernethya et al. (2010) discusses how the actual way leaders communicate information, such as planning and control system and performance measurement system information will affect organizational goals and objectives. They argue that the way in which information is communicated is of high importance for the organizations.

Information/data from PCSs is used to informally communicate strategic priorities and the higher management beliefs in the how to prioritize in order to reach these priorities. PMSs are applied by top management to monitor behavior and to evaluate performance (Abernethya et al. 2010). Their research shows how organizations communicate the information or data gathered by the PCSs range from being of a “didactic format where targets are already specified and where performance is measured compared to these targets” (Abernethya et al, 2010: 5) to where the information/data is used as “a mechanism to facilitate greater informal and interpersonal communication.
between top management and lower-level managers and/or among the lower-level managers” (Abernethya et al. 2010: 5). The first one is defined as a standardized formal process and the latter as a more “interactive process that facilitates ongoing communication between top management and lower-level managers” (Abernethya et al, 2010: 5, Simons 1990, Burchell et al, 1980).

When PCS’s have been set, top management can utilize PCS as a measure of how successful a project or a department has been, by applying performance measurement systems (PMS). The difference between PCS & PMS is that PCS is a planning tool while PMS is a tool to evaluate how successful the project has been (Abertaya, Bouwens, & Van Lent, 2010).

Together PCS & PMS can be used to empower the employees to make their own decisions in line with the organizations goals, while still holding the accountable to their decisions (Abertaya, Bouwens, & Van Lent, 2010). For the employees to be able to make their own decisions they need to have the knowledge and the companies need to manage the knowledge within the companies.

3.3 Knowledge Management

"Knowledge Management is a business process through which firms create and utilize their institutional or collective knowledge. Organizations manipulate knowledge management for solution of problems, preparation of strategic plans, decision making and learning” (Wajidi and Asim 2009: 123).

Nonaka and Teece (2001) argue that the creation of knowledge needs to be viewed from an individual perspective. They argue that the key question is how a company should provide opportunities for individuals to create and exploit knowledge. To help solve this problem they developed the SECI model. To fit our previous framework (Figure 1) we will simplify the concepts by considering what Nonaka & Teece call tacit knowledge as what we have previously defined as knowledge, and explicit knowledge as data and information.

3.3.1 The SECI Process

The SECI process (figure 2) is based on the notion that an organization “Creates knowledge through the interactions between explicit knowledge and tacit knowledge” (Nonaka & Teece, 2001: 16). Choo (2001) also support the theory that the interaction between explicit and tacit knowledge is what creates organizational or cultural

![Figure 2: The Nonaka Model (Nonaka & Teece 2001: 20)]
knowledge. They refer to the interactions between the two types of knowledge for knowledge conversion and argue that the conversion process makes both the tacit and the explicit knowledge of the organization expand in quality as well as quantity.

1. **Socialization** – Tacit to Tacit
2. **Externalization** – Tacit to Explicit
3. **Combination** – Explicit to Explicit
4. **Internalization** – Explicit to Tacit

As seen in the model in figure 2, Nonaka & Teece (2001) argues that the four stages of knowledge conversion are neither sequential nor circular, but an iterative process.

Socialization is the foundation for all knowledge sharing. The importance of socialization for sharing information and knowledge is supported by both knowledge and information management researchers. Choo et al. (2006) argue for the importance of an information culture where “sharing, proactiveness, transparency, and informality” (Choo et al, 2006: 507) becomes corporate values that allow for socialization. Further he concludes that “While organizational culture affects behavior in general, we suggest that a part of culture that deals specifically with information—the perceptions, values, and norms that people have about creating, sharing, and applying information—has a significant effect on information use outcomes” (Choo et al, 2008: 803). Gooderham (2008) also supports this view and argues that it is managers’ task to create an environment that enable personal relations to develop and states that socialization mechanisms effectively stimulate the creation of the corporate culture.

Nonaka and Teece (2001) define socialization as the process of converting tacit knowledge in one person to new tacit knowledge in another person through shared experiences. Since tacit knowledge is so difficult to formalize and often context specific they argue that tacit knowledge can only be acquired through shared experience, such as socialization (Nonaka & Teece, 2001).

Externalization is defined as “when tacit knowledge is made explicit, knowledge is crystallized, thus allowing it to be shared by others, and it becomes the basis of new knowledge” (Nonaka & Teece, 2001: 17). Externalization is reached through sequential use of metaphor, analogy and model (Nonaka & Teece, 2001: 19). Very simplified externalization is the process of communicating complex (tacit) knowledge in a way which is understandable for those lacking that knowledge. This can for example be done when someone lacking the needed knowledge has the opportunity to work with or study someone who has it. It is perhaps in the externalization step that the previously mentioned iterative process is most important, this since the process is based on initially creating a hunch for the knowledge to be shared, a hunch that in time is developed into understanding and finally becomes knowledge within that person (Nonaka & Teece 2001: 18).

Combination is defined as the processes of converting explicit knowledge into more complex and systematic sets of explicit knowledge. It can also be the breakdown of concepts, breaking down a concept to make it operationally useful for the organization
(Nonaka & Teece, 2001). This could for example be done by breaking down processed data (information) into raw numbers and facts (data). It could also be done through high levels of information transparency, allowing more parts of an organization access to information that could be useful to them even if not directly relevant.

The final stage, internalization, is when explicit knowledge is shared and used throughout an organization so the explicit knowledge becomes tacit in the individuals of the organization in a learning-by-doing process. It is in this step that the authenticated information is created. Knowledge has become internalized when the explicit parts of it have become reflective actions more than structures and processes (Nonaka & Teece, 2001). Job rotation and internal recruiting are techniques that can be used to enhance such knowledge sharing. Or as Nonaka & Teece (2001: 255) put it “Once managers started to use their ‘hands’, the organization could begin using its ‘brain’”.

### 3.3.2 Knowledge Techniques

Chapter 3.3.1 discussed knowledge management from a theoretical perspective; here we will present two knowledge management techniques which are used in practice.

Hiebler (1996) argues that benchmarking should be seen as an important part of knowledge management. Benchmarking gives the managers knowledge over the organization compared to other within the same industry and gives an understanding over competencies and capability. By using benchmarking, Hiebler (1996) argues that a firm will more easily understand where there are possibilities for improvements and growth.

One of the earlier and widely quoted definitions of benchmarking is “Benchmarking is the search for the best industry practices which will lead to exceptional performance through the implementation of these best practices” (Camp, 1989: 62). Since then many different models have emerged as well as new definitions of the same process. Most of them involve the idea that a company compares itself to the industry leader in order to improve its performance. A more recent definition of benchmarking would be “It is the process of identifying, understanding, and adapting outstanding practices from organizations anywhere in the world to help an organization improve its performance. It is an activity that looks outward to find best practice and high performance and then measures actual business operations against those goals” (Kumar et al, 2006: 294).

Learning by doing is a helpful tool for a firm’s knowledge management practices, Dongoghue (1996) argues that learning by doing will ensure that relevant knowledge is used and interpreted. Learning by doing appears to be the most natural learning process available and which one is used by all types of existing creatures. However, while discussing the phenomena in a theoretical perspective it is not as simple as it seems (Reigeluth, 1999).

Dewey (1998) are for many the founder of what would be called progressive education movement that later would be known as learning by doing. Dewey argued already 1938 that education without experience is useless and that there is no alternative to the combination of both experience and education in order to develop full potential
for human beings. Dewey (1938) claimed that learning by doing would help people to develop skills and to motivate them to think critically about their surroundings, which would lead to new solutions and more efficient practices.

Becker (1964) states that learning by doing is to be defined by the procedure when an employee is given time to examine how things are done and then transform it to a daily routine by practicing.

Bahk and Gort (1993) argue that learning by doing is a cost efficient tool when the time is not a key factor, since the method is more of a trial and error process the cost could be high considering that the valuable time of other tasks is wasted. Bahk and Gort (1993) also argue that there is no true connection between learning by doing and an increase in the production function but it should be seen as a tool to increase the effect of other investments that firms put into human capital.

3.4 Our Theoretical Emphasis

We have presented the concepts of data, information, knowledge and expertise and the differences between the four. The basic theory is that each of the four concepts is a further developed version of the preceding one; for example when data is processed and put into a concept it becomes information and when information becomes authenticated and transformed into an individuals own perspective it becomes knowledge(Bender & Fish, 2000). Companies use all four of the four concepts discussed above. Financial information as used in this paper can be seen as data (the financial data), information (the processed data in reports) and knowledge (financial information that a manager has transformed through his own perspective).

In the second part we developed the theoretical framework further when introducing information management, where information is considered a resource for the organization and the focus is on how that resource can be used and distributed within an organization. This part is used to explain how information can be managed within companies.

In the last part we present knowledge management, similar to information management but here knowledge is the resource that needs to be used and distributed within the organizations. Further, we introduce learning by doing and benchmarking, which were are practically applied tools for knowledge management.

The theoretical framework presented will be a tool used in this thesis for presenting how the organizations investigated manages information in practice. These theories of how to utilize and distribute information and how to transform information into knowledge will be employed throughout this thesis to investigate the strategies and techniques used for using and distributing financial information.
3.4.1 Sources Used in Theoretical Framework

Lastly we will explain our process of selecting theoretical framework and references within the theoretical framework. We used to primary tools which where Scopus and a meta-review by Bontis and Serenko (2004). First we did a search on the fields of interest in Scopus, which was followed by several searches on synonyms on within the field to establish which articles had the highest amounts of references in other peer reviewed articles. The results were compared to Bontis & Serenko’s (2004) article in which they did a Meta review on knowledge management and intellectual capital literature. Through comparing our own searches on most used articles with Bontis & Serenko’s (2004) conclusions we were able to sort out the articles which had affected both knowledge management and information management fields to a high degree.

Our secondary tool was through establishing links between articles through cross referencing. This was our last step in establishing which articles should be used in the theoretical framework. We did searches within the articles we had found and cross referenced them to each other to find links in the theoretical discussion, which would allow us to have a coherent and relevant theoretical framework.
4 Method

This chapter discusses the method used to achieve the purpose of our thesis. We here present the combined method approach, an approach that uses both qualitative and quantitative techniques. We present how the interviews have been conducted using a semi-structured interview technique and why we found this technique appropriate given our purpose. Last we present our quantitative technique of using closed questions with scaled answer questionnaires and why we have chosen that technique.

For this thesis we chose a combined method with emphasis on qualitative data gathered through interviews that is supported by quantitative data gathered through questionnaires. We used a combined method with the intent to – through appropriate combination – strengthen our results as argued for by Gorard et al. (2004). Using a combined method we intend to improve the precision of the gathered results by comparing (also referred to as triangulating) the data collected in our semi-structured interviews with quantitative data collected through surveys with closed questions and scaled answers. By comparing the results of the qualitatively collected data to the quantitatively collected data we argue that we attain a more complete description of the situation than we would receive using a single method. Through a combined method we include both motivational factors as well as the scale of the issue (Denscombe, 2007).

4.1 Interviews

Keats (2000) argues that a semi-structured interview has an advantage since it enables additional information to be obtained by probing the initial responses. Interviews give richness to the data and the quantitative methods enable differences in opinions and reasoning to be explored. Therefore interviews are the foundation of our gathered information, but they are supported by a combined methods approach through quantitative data in form of closed question and scaled answer questionnaires as argued for by Keats (2000).

We have obtained the majority of our data through semi-structured interviews. We used the definition of Gillham (2005: 45) which says that semi-structured interviews are interviews where you ask main questions which – based on the answers – are followed by prompts and probes to explore the answers deeper. Through this technique we were able to have a similar base structure for all our interviews, which made it easier to compare the three Swedish companies during the analysis. Gilliam (2005: 70) argues that the semi-structured interview is “the most important way of conducting a research interview”. We used Gilliam’s framework for structuring the interviews.

- The same main questions are asked of all those involved.
- The questions go through a process of development to ensure their connection to the theoretical framework.
• To ensure equivalent coverage interviewees are prompted by supplementary questions if they have not dealt spontaneously with one of the sub-areas of interest.

• Approximately equivalent interview time is allowed in each case.

Both interviews and surveys were held with middle managers and their respective superior at the three companies involved in the study. The main questions were the same for all middle managers. Through semi-structured interviews we attained information from the middle managers personal perspectives regarding the communication process, while not gathering redundant information. We collected data from the top managers through semi-structured interviews on what has been communicated to the middle managers and why. The questions were constructed to give a broad insight into the information management strategy of the companies while also having some question that focused on specific questions, such as how financial information was communicated, if it was communicated with raw numbers or if they were given meaning and context. We organized our interviews in accordance with our three folded purpose, the interviews can be found in Appendix 1.

4.1.1 Number of Interviews

Our interviews were held with three middle managers and one top manager at each of the three different companies, giving us a total of 12 interviews. We decided to have this distribution since our focus was on the communication of financial information between middle managers and top managers; hence we needed to have several interviews with middle managers. We chose to have one interview with a top manager to include the perspectives of the superior on the issues discussed in the interviews as well as identifying their deliberate information and knowledge management techniques. The reason for choosing three Swedish companies was that we wanted to have a more comprehensive picture of how information communication works in Swedish companies than if we are to focus our study on only one company. By choosing three companies we were able to attain a more comprehensive picture of the Swedish environment, while not breaking the time frame of our thesis if we were to include additional companies.

4.1.2 Conducting Interviews

Here we present our design of the semi-structured interviews. All quotes from the interviews are translated by the authors from Swedish. The interviews were divided into three main groups which a focus on different parts of our three-fold purpose. In each of these groups we have both main questions and follow up questions (prompts and probes) which could be asked depending on how the main question was answered. In this way we were able to cover a broad number of possible directions the interviews could take without suffering from the rigid format of a structured interview. The second group was directly focused on the first part of the purpose; the third group was connected to the second part of the purpose. The third part of the purpose was related to all three groups.
First Group – Basic Information Use
The first group of questions were basic questions probing what types of financial information the middle managers used, how they received the financial information they needed, how financial information was used to measure the performance of middle managers (e.g. through PCS, PMS) the availability of financial information and similar questions aimed at creating a understanding of the financial information situation in the company.

Second Group – Communication Middle Managers and Top Management
The second group of questions investigated the communication of financial information between top management and middle managers. We probed into if and how financial information was communicated between those parties, how feedback and other forms of communicative information management techniques were used as well as general questions on how this communication was perceived by both parties.

Third Group – Techniques for Sharing Financial Information
This group of questions focuses on the techniques existing within the investigated company for sharing and developing understanding for financial information. How results were measured, how budgets and key performance ratios were set, how financial information was stored, how the middle managers were taught to use financial information systems and what was done to increase their knowledge and understanding of issues related to financial information.

The first group of questions was aimed at creating a background of the company investigated; the second and third group was directly connected to the first and second part of our purpose. Taking an all-embracing look at the answers to deduct knowledge management practices, how knowledge management was used, allowed us to attain empirical material on the third part of our purpose. Therefore in the empirical study the results from the interviews were divided into four parts, the first three in accordance to the groups mentioned above and the forth group focused on the third part of the purpose; knowledge management deducted from parts of the interviews.

4.2 Questionnaires
To complement our interviews we constructed questionnaires in order to quantify some of the responses from the companies. This allowed us to, for example, measure how satisfied the middle managers were with how financial information was communicated or how satisfied they were with the training they received in how to use it. These measurements were then used in the analysis when discussing how the companies communicate financial information.

Therefore we chose the closed questions with scaled answers approach as part of our combined method technique. All questions were directly connected to interview questions, but in the questionnaire they are closed ended – to limit the responses – and scaled – to measure attitudes (Brace 2004). The questionnaire was designed as a series of statement that the middle managers should grade on a scale 1 to 9 – where 1 is defined as completely wrong and 9 is defined as exactly correct. The questionnaires were done by three middle managers at each of the companies.
An example of how our method was used in practice is when we in the interviews asked how financial information is used to measure the performance of the middle managers and in the questionnaire we asked the middle managers to grade how satisfied they are with how the company uses financial information to measure their performance. Through this combined method we could not only compare the different systems used but also – in this case – how satisfied the middle managers were with the current strategy of the company. See Appendix 1 for the entire interviews and Appendix 2 for questionnaires.

4.3 Trustworthiness

A final note on the method chosen, before we present our empirical findings, is the trustworthiness of our method. As our primary method to collect empirical data is qualitative rather than quantitative, the trustworthiness of our thesis is mostly concerned with how congruent the data is with the reality of the companies (Merriam, 1995). According to Guba (1981) there are four criteria for the trustworthiness of a qualitative study, which are similar to the four criteria used by Merriam (1995) which are often used in quantitative studies, we will use Guba’s (1981) criteria:

- **Credibility** (similar to Merriam’s internal validity) – Refers to how accurate the empirical data has been recorded (Shenton, 2004).

- **Transferability** (similar to Merriam’s external validity) – Refers to how the conclusions drawn in this thesis can be applied in other situations (Merriam, 1995).

- **Dependability** (similar to Merriam’s reliability) – Refers to the results can be replicated by other scholars (Merriam, 1995).

- **Confirmability** (similar to Merriam’s objectivity) – Refers to what extent the results of the thesis is objective (Shenton, 2004).

4.3.1 Credibility

We primarily used triangulation, which is “the use of multiple investigators, multiple sources of data and multiple methods to confirm emerging findings.” (Merriam, 1995: 54). First, during the interviews we were two persons who interviewed and recorded the interviews to be able to confirm the data with each other. Secondly, we interviewed three different middle managers at each of the different companies to confirm their answers with the other manager’s answers. Lastly we had a combined method, where we used quantitative data to confirm our findings from the interviews through a questionnaire.

To further strengthen the empirical findings we used a member check, which is the confirmation of gathered data from the interviewed part (Merriam, 1995). We did this by summarizing our view on what had been said during the interview and let the managers correct us or confirm our picture.
4.3.2 Transferability

As Shenton (2004) argues qualitative studies are generally hard to transfer into other situation, since they study a particular case or organization. He elaborates that the limited transferability can be offset e.g. by the number of organizations included. The authors of this thesis however did not intend to create general conclusions for Swedish companies, instead focus on the three organizations in this thesis. Although, as Shenton (2004) argues that there still can be limited transferability if the presented empirical data is similar to that of another case, then the conclusion can be true for other situations as well.

4.3.3 Dependability

According to Shenton (2004) qualitative studies are often highly dependent on when the study was carried out, hence replication of the presented results can be hard to achieve. Further he argues that authors of qualitative studies can offset this by clearly presenting the method used to receive the empirical data. The authors of this thesis have thus clearly presented the method chosen for the data gathering. Further we have presented our interview guide in Appendix 1 to enable the readers to understand the questions posed to the interviewed managers.

4.3.4 Confirmability

As Shenton (2004) points out the confirmability of a paper deals mostly with how the authors have been able to present an objective picture of the reality of the companies. Although we realize that one can never be completely objective, we have primarily used triangulation as described under credibility to receive an as objective picture as possible. Further by presenting our method and data gathering process we have strived for an open communication with the reader so that our process can be followed and judged on biases.
5 Empirical Study

In this chapter we first present the empirical data based on our 12 interviews – nine with middle managers and three with top management. The empirical data is sorted first by company. The data is then sorted into four different subject areas; basic information use, communication between managers, techniques for sharing financial information and the knowledge process.

We then present and discuss the empirical data gathered from our nine questionnaires that was handed out to all the middle managers interviewed. It is discussed in comparison to the answers given in the interviews. The questionnaire questions are closely linked to the interview questions.

5.1 Sto Scandinavia AB

Sto Scandinavia AB, located in Linköping, was the first company where we conducted interviews and surveys.

5.1.1 Basic Information Use

The distribution manager stated that the financial results of the company are not communicated in a structured way to its middle managers. Some of the middle managers are part of the extended directorate group and those managers receive information regarding the results of the company and the group through these meetings. Those excluded from this group receive little or no information about the results of the company (J. Bäckström, personal communication, 12 April 2010). The financial manager do however give a different impression when he states that they have meetings with all employed at the company at least once annually where strategies, plans for the future, the company’s results and other information is shared with all employees. These meetings are held, as he puts it “you receive input if you give output” (M. Rehnström, personal communication, 29 April 2010).

The TK department (Logistics and Production) at Sto Scandinavia has few structured and reoccurring techniques for sharing information. Except for the meetings in the extended directorate group, there are no structured sessions for sharing financial information. Instead such information is shared and discussed informally via personal communication and e-mail. Through e-mail, SAP and Business Warehouse – the reporting systems of the company SAP (System Application Products). Business Warehouse is a part of the SAP system – the middle managers report and receives all the financial information they use in their work (J. Bäckström, B. Sandegren, G. Bengtsson, personal communication, 12 April 2010). The situation is a bit different for the financial manager since he and his department are the ones who create all the reports. But he still receives most of the data from the reporting systems (M. Rehnström, personal communication, 29 April 2010).

The middle managers have different financial ratios that measure their performance. For logistics the focus is on the net margin and how it is affected by inventory losses, write-offs and the cost of logistics in relation to turnover (J. Bäckström, personal com-
munication, 12 April 2010). The production department is measured by its costs, the number of reclamations and its efficiency in production. The efficiency is measured by how much they can produce per person (G. Bengtsson, personal communication, 12 April 2010). The financial department uses some measurements set centrally, such as all the standardized financial measurements required for a public company, but also more blunt tools such as measurement of how many invoices they are able to process and how many days it takes them to create the financial reports (M. Rehnström, personal communication, 29 April 2010).

In general the middle managers at Sto have access to more data and information than they need and more than they are able to process. The information available is more than raw data, it is processed data presented as information ranging from charts and graphs to detailed reports (J. Bäckström, B. Sandegren, G. Bengtsson, personal communication, 12 April 2010). The financial manager states that the company has a good information structure, through the databases and the directorate meetings (M. Rehnström, personal communication, 29 April 2010).

Within the organization they have several tools beyond the reporting systems to help them understand and retrieve financial information. They have two controllers at their disposal, they can contact the headquarters in Germany to request new reports and they always have the possibility to discuss all problems with others at the company both within the units and in other positions (J. Bäckström, B. Sandegren, personal communication, 12 April 2010).

5.1.2 Communication Middle Managers and Top Management

According to the top manager the information distribution from the top manager to his middle managers there are few structured techniques used for information distribution at Sto. This approach is described as “discursive delegation” by top management (B. Sandegren, personal communication, 12 April 2010). The middle managers describe the information distribution and feedback received as a situation where they only receive it when they either request it or are performing noticeably bad. Most information is received through informal meetings, such as lunch meeting or by stopping by the office of the top manager. But they have the impression that if they request information or feedback, then they will receive it (J. Bäckström, G. Bengtsson, personal communication, 12 April 2010). The top manager looks through all the reports and if he notices something out of the ordinary he sends an email to the person responsible asking for a comment on the issue. If it is a serious problem, the person responsible will then present several possible solutions, which the top manager and the middle manager later discuss in order to create a plan of action for how to solve the problem. They do however rarely analyze the outcomes of those plans to prevent the problem from reoccurring. Sto does not have any structured techniques for analysis in that sense (J. Bäckström, G. Bengtsson, personal communication, 12 April 2010). The financial manager states that whether he receives helpful information from the top management depends on whether he is interested and whether he has the time for it. That is not always the case and thus it is not always his superior has a good understanding for the financial departments results (M. Rehnström, personal communication, 29 April 2010).
The information flow between middle managers and top managers is described as open and informal. There is no formal reporting between middle managers and top managers, all such data are collected through the systems and the internal reports. Further the results of the TK unit, as a whole is not openly shared within the unit. Such information is reserved for the directorate (J. Bäckström, B. Sandegren, G. Bengtsson, personal communication, 29 April 2010). If the department would show poor results, decisions for how to overcome those difficulties are made within the directorate and then the middle managers are given the choir to plan for the implementation of made decisions, e.g. which units to terminate and how (J. Bäckström, personal communication, 12 April 2010).

5.1.3 Techniques for Sharing Financial Information

The top manager at Sto states the main technique used at Sto for sharing financial information is through informal communication and meetings. He also states that there is a lack of structured information sharing and instead an equally clear focus on allowing for unstructured and informal communication. According to several of the middle managers the lack of structure is supposed to make the middle managers – on their own initiative – find suitable ways for gathering the information they need. That way – through discussions directly and informally with those directly connected to the information sought – deepen their understanding and help them learn. Open and informal communication is the way the information structure at Sto was described repeatedly and by all interviewed (J. Bäckström, B. Sandegren, G. Bengtsson, personal communication, 12 April 2010; M. Rehnström, personal communication, 29 April 2010).

The distribution manager revealed that his main technique for attaining guidance when making financial decisions and plans is to use the knowledge of his subordinates. It was primarily in meetings and communication with them that he found the support he needed when making decisions based on financial information (J. Bäckström, personal communication, 12 April 2010). The production manager stated that he also uses the controllers as support when making financial decisions, even if he pointed out that they mainly could help him with creating reports and understanding the causes of the results of these reports. Recruitment and downsizing is the main decisions he makes based on financial data. Those decisions are based on turn over, prognosis of changes in turn over, and experience (G. Bengtsson, personal communication, 12 April 2010).

The financial manager is more formally controlled, both by the CEO of Sto Scandinavia and by the parent company. The financial information he is responsible for is reviewed monthly and compared to the results of previous years (M. Rehnström, personal communication, 29 April 2010).

The financial budget is the central tool at Sto for controlling the middle managers. First the financial department creates a proposal that is complete down to the final result. Then there is a discussion back and forth between the financial department and the unit in question. But there is a dialogue to a certain extent, so if for example the distribution department is planning for an expansion the upcoming year, the distribution manager will calculate planned costs based on historical data and that way the budget will be adapted (J. Bäckström, personal communication, 12 April 2010). Top manager
explains that the budgets are set partly on what the parent company demands, partly on what the unit has achieved historically and partly what is realistic that they can achieve. He states that for the middle managers it is more or less just to accept these budget numbers (B. Sandegren, personal communication, 12 April 2010).

When it comes to setting other financial goals Sto works with setting targets that the middle managers are to realize. It starts with top management setting a goal in a certain field, to for example reduce warehouse value on articles with low turnover. Then the one responsible creates a plan for how to reach the set goal – in discussion with his subordinates and possibly with other departments at the company. The suggested plan is then presented and discussed by middle manager and top management, and if needed changed. When a plan is agreed on it is then implemented in accordance (J. Bäckström, B. Sandegren, personal communication, 12 April 2010). It is the same thing for the financial manager, the parent company sets the guidelines for him, beyond that he has a lot of freedom in his work (M. Rehnström, personal communication, 12 April 2010). Further top management demands that interdepartmental meetings are held at least once a month to discuss the prognosis for the near future, the current trends and to coordinate their operations (B. Sandegren, personal communication, 12 April 2010). All are in agreement that the top manager has a strong understanding for the result drivers and that he is able to give relevant feedback when needed (J. Bäckström, G. Bengtsson, personal communication, 12 April 2010).

The middle managers stated that there is no structured coaching for new managers or newly promoted managers at Sto. No trainee programs or other systems for training or coaching the managers (J. Bäckström, B. Sandegren, G. Bengtsson, personal communication, 12 April 2010; M. Rehnström, personal communication, 29 April 2010). When asked how they were first introduced to their new position, the answers were that they either were not (G. Bengtsson, interview, 12 April 2010) or that they were given a week to observe how things were done (J. Bäckström, personal communication, 12 April 2010). The financial manager states that he learned the job himself through learning-by-doing (M. Rehnström, personal communication, 29 April 2010). The middle managers interviewed all give the same impression; they had to learn by themselves how to do the job, in a learning-by-doing way. The only training they receive in that period is in how to use the companies systems, SAP and Business Warehouse.

According to the top manager, the TK department only works with benchmarking to a limited extent. With one exception; when it comes to inventory losses they are carefully compared to all other units of the parent company. Other financial data varies too much between countries for benchmarking to be relevant. For example the demand for logistics is very different when simply comparing the Scandinavian countries, customers in Finland want to collect their material themselves and customers in Denmark expect to get everything delivered. They argue that these differences make comparing logistic costs between countries quite irrelevant (J. Bäckström, B. Sandegren, personal communication, 12 April 2010). The financial department is however more easily compared with other financial department and the different financial departments in the Scandinavian countries are compared on a regular basis regarding for example the number of employees in relation to the number of invoices. This benchmarking analy-
sis can lead to decision regarding hiring or firing, in discussion with the HR department (M. Rehnström, personal communication, 29 April 2010).

The company has some guides and manuals, but they are more focused on technical conduct than guidelines for how to work with financial data and goals. As stated by the production manager, if he wanted more routines and guidelines it is up to him to write them (G. Bengtsson, personal communication, 12 April 2010). There is an abundance of old financial information stored in SAP and Business Warehouse that is easily accessible (J. Bäckström, B. Sandegren, G. Bengtsson, personal communication, 12 April 2010).

According to the top manager there is a current lack of systemized development of knowledge. Top management is aware of this and is currently developing new techniques for how to overcome that problem. The technique suggested is based upon regular meetings within the Scandinavian organization. In these meetings, results will be openly discussed, with visiting lecturers that are successful in their field to benchmark against, members of other parts of the Sto to support interdepartmental communication. Further participants from the parent company discuss practical techniques for dealing with key ratios (B. Sandegren, personal communication, 12 April 2010).

The top manager stated that, in general, Sto have relatively few formalized and structured techniques for sharing financial Information. The main technique used is to encourage the middle managers to independently search for help and information. To do so is not only something that the Sto allow; they in fact promote and encourage such behavior (B. Sandegren, personal communication, 12 April 2010). The financial manager is a bit more skeptical. He agrees that independent search for knowledge is an often used technique within the organization, but disagrees slightly to the statement that the organization encourages it (M. Rehnström, personal communication, 12 April 2010). Or as the distribution manager puts it, when discussing the openness and informality within the organization, “we don’t even have a dress code, it is a very causal environment” (J. Bäckström, personal communication, 12 April 2010). However the financial manager has a more skeptical outlook on the openness of the company; as he perceives it, it is open to a certain extent, but he feels that it might be an issue that people don’t always dare to voice their issues. (M. Rehnström, personal communication, 29 April 2010).

5.1.4 The Knowledge Process

There are several techniques used at Sto for increasing the knowledge of its managers; the previously mentioned encouragement of increasing the knowledge of middle managers through independent search for the information they need is one example. The company also works with job rotation internally in Sweden where most managers in the organization experience working in another position to increase the interdepartmental understanding and to avoid focusing only on the results of the department they for which they were working. They did the same thing when they opened a warehouse in Denmark; the Danish workers were sent to Sweden to gain insight in how that warehouse operated (J. Bäckström, personal communication, 12 April 2010). The top manager explains that another reason for the rotation was to make them less sensitive
to the loss of personnel. This given the complexity of tasks that many managers are subject to, and the long time it takes to attain that knowledge independently. A manager at Sto must have a broad spectrum of competences given the wide range of tasks that they work with. To be able to work according to the best practice in such conditions the top manager argued that job rotation was necessary. He further argued that the job rotation was supposed to help the middle managers develop their competencies. After the project he could see that these positive benefits had become realized (B. Sandegren, personal communication, 12 April 2010).

Another technique used to increase the understanding and knowledge of the managers at Sto is the opportunity to visit the parent company in Germany to observe their practices and discuss department specific issues with those knowledgeable at the parent company. The distribution manager talks about how he several times has been in Germany on what he refers to as ad hoc educations. During these visits he meet with logistics managers and others that he can discuss practices with and receive advice from, for example on how to increase financial results and ratios. At such occasions they communicate in advance. He mentions who he would be interested in meeting; the parent company has their ideas on who he should meet and in the end he will meet with a variety of people ranging from parent company controllers to the stock manager (J. Bäckström, personal communication, 12 April 2010). The production manager has been at the parent company factory on three occasions; the first two to exchange experiences and learn how they operate and at the third occasion he work down there due to a lack of managers at the factory (G. Bengtsson, personal communication, 12 April 2010). The financial manager is in contact with the parent company on a daily basis and every other month they have meetings discussing how they work and compare their practices. For him that is the most important techniques available in the company for helping him increase his knowledge (M. Rehnström, personal communication, 29 April 2010).

Sto also offers both internal and external courses to develop its managers. Topics reaching from “leader development” to more trade focused courses. According to the top manager he is supposed to have annual performance and competence review meetings with middle managers where they look at the job description to find possible areas where the managers lack knowledge. If such lacks are encountered that knowledge gap will be filled through internal or external courses (B. Sandegren, personal communication, 12 April 2010).

5.2 Swedbank

The second firm is from the financial sector and banking sector, the Jönköping region of Swedbank.

5.2.1 Basic Information Use

The results of Swedbank Sweden are only briefly communicated to the middle managers. Since it is a public company, such information becomes available to them the same time it becomes available to the general public. There is however information available via the intranet that discusses these results briefly (J. Björkdahl, T. Blomqvist, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010).
The results of their department of responsibility, as well as information regarding the
department as a whole, are received once a week through internal reports. Those re-
ports are then reviewed and discussed in the directorate that all the middle managers
interviewed are a part of. Further, it is discussed in general meetings with all employed
at these offices (J. Björkdahl, T. Blomqvist, U. Månsson, personal communication, 13
April 2010; A. Swalander, personal communication, 14 April 2010).

The performance of middle managers at Swedbank is measured by a large number of
ratios and results. Thus they have a broad selection of financial data relevant for them,
reaching from interest rates to the price of money to different margins and revenues.
Such information is received both through the intranet as well as independent search
for external information for example via the central bank of Sweden (J. Björkdahl, T.
Blomqvist, personal communication, 13 April 2010; A. Swalander, personal communica-
tion, 14 April 2010).

Top management responsible for the region has weekly meetings with the entire staff.
During these meetings the results of the previous week are presented and discussed.
All such meetings are used for discussing how the results have accumulated for the
year and discuss what was positive and negative about the preceding week. Top man-
agement focuses on highlighting the positive things from the preceding week with a
focus on those responsible for it and how they did it. This in order to encourage such
behavior (U. Månsson, personal communication, 13 April 2010). Besides the weekly
meetings, there is also the StorInfo once a month where all the relevant financial in-
formation is discussed, all the revenues and costs are broken down into subsections
and analyzed. Based on that analysis, decisions are jointly made regarding possible
changes and actions (J. Björkdahl, personal communication, 13 April 2010).

There are no formal techniques for the reporting of results from middle managers to
top management. The results become available through the company’s internal re-
porting system (J. Björkdahl, T. Blomqvist, personal communication, 13 April 2010; A.
Swalander, personal communication, 14 April 2010).

There is an abundance of available financial information at Swedbank. The private
economy manager states that the supply is far beyond what is demanded (A. Swalander,
personal communication, 14 April 2010); the middle managers receive vast
amounts of information. It is usually processed data presented in contexts such as re-
ports or analytical reports. It is stated that the information received can be a bit blunt
and often require further investigation from the middle managers to be fully relevant
(J. Björkdahl, T. Blomqvist, personal communication, 13 April 2010; A. Swalander, per-
sonal communication, 14 April 2010).

5.2.2 Communication Middle Managers and Top Management

The internal communication at Swedbank is defined as being extremely open. There
are no strict hierarchies, lines of communication or other restrictions of communica-
tion. For example, meetings between only top management and the middle manager
are rare. Instead the meetings are held with entire groups of managers and employees
(J. Björkdahl, personal communication, 13 April 2010). Open and direct two-way com-
munication is strongly encouraged. Feedback is given both as praise of good results
and as constructive criticism of weaker results. When poor results are encountered the middle managers are usually well aware of them before meeting with top management and have internally in their group discussed possible solutions to the stated problem. Then the feedback session is structured in a manner where the problem is first pointed out, then possible solutions are presented and discussed, and finally the chosen solution is implemented (A. Swalander, personal communication, 14 April 2010). Another example of the extreme openness within Swedbank is the fact that the middle managers receive the same information and reports as top management. The information situation is described as one of ‘complete transparency’ (T. Blomqvist, personal communication, 13 April 2010). This has led to a strong understanding between the lines of command and has resulted in synergetic effects where they all work together toward common goals (J. Björkdahl, personal communication, 13 April 2010). This transparency between middle managers and their superior creates a strong understanding for the results — for the middle managers and top management — as well as an understanding for the driver of these results. However it is stated that the further away from the operations you look in the hierarchy, the weaker the understanding becomes. To bridge this gap the middle managers recently became a part of the local top managements meetings with regional management. Further, the middle managers directly receive the same criticism as local top management; they can support the local manager and help explain the situation. This way the middle managers are directly connected to the results of the department as a whole and they find this level of participation motivating (A. Swalander, interview, 14 April 2010). Or as top management describes the high levels of informality and transparency: “They are my deputies; they are more or less me. We are a team” (U. Månsson, personal communication, 13 April 2010).

Even though they have high levels of transparency and openness, the middle managers are still tightly controlled according to one of the middle managers. The corporate accounts manager points out, if you produce poor results it will be pointed out to you and if it continues you will be asked to leave your position (T. Blomqvist, personal communication, 13 April 2010). The private accounts manager gives a similar impression when she states that she is controlled by a vast number of parameters and they do follow up the results, constantly asking her how she plans to improve the weaker figures. However, the feedback is given in an open and constructive manner (A. Swalander, personal communication, 14 April 2010). The top manager say the same thing; “it is the results that counts, that’s just the way it is” (U. Månsson, personal communication, 13 April 2010).

5.2.3 Techniques for Sharing Financial Information

Swedbank uses a wide variety of key ratios to measure performance, and they do so at all levels, reaching from employees to top management. However, the most important measure is the one called K/I tal, which is the ratio that measures costs in contrast to income. The K/I is the most important ratio for all interviewed at Swedbank (J. Björkdahl, T. Blomqvist, U. Månsson, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010). However, the K/I tal is too broad to be working with directly, so it is broken down into a series of different ratios adapted for the different departments. These ratios are set centrally; the goals are set for the long-
term, with a 3-5 year perspective. Then the department creates a budget for how to reach these goals. However the middle managers argue that it is far from all the results that they can control. A lot of these results are highly dependent on market situations in the bank world. For example the financial crisis will influence the results far more than the managers can. Some costs are hard to change in the short run, for example the lease (J. Björkdhal, personal communication, 13 April 2010). The cost that they can influence the most, in order to reach their K/I tal, is their personnel cost. There is however restrictions to how much they can change the personnel cost as well. They cannot operate with too few employees, because then the bank will not function (T. Blomqvist, personal communication, 13 April 2010). So what they can do is to try to reduce the need for personnel over the long-run with e.g. more efficient systems and increase the use of internet services (A. Swalander, personal communication, 14 April 2010).

When it comes to making financial decisions the middle managers have several support systems, such as their team and their colleagues. They rely on that support system more than they do on the support from top management. Other support systems include the controllers, that can assist them with understanding and receiving financial data and the support from other departments within the organization, such as credit departments, marketing departments and similar (T. Blomqvist, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010). Recent reorganizations of Swedbank have been focused on increasing the decision autonomy of its managers. “Now you are the CEO of your own department” (J. Björkdhal, personal communication, 13 April 2010).

Through the internal databases or via controllers the middle managers have access to all the historical data and information that they can possibly need (T. Blomqvist, U. Månsson, personal communication, 13 April 2010).

When it comes to introductory training for middle managers, there are no formal or structured approaches. None of the middle managers interviewed received any kind of introductory training. Instead, in their initial period at their current positions they learned their job through learning-by-doing. None of them was new in the organization when promoted and had a solid background of knowledge of the company, its systems and its result drivers (J. Björkdhal, T. Blomqvist, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010).

There is a range of support systems offered to the middle managers when it comes to interpreting and using financial information. One important tool is the controller who helps the middle managers to find data, as a support function, and as part of meetings discussing the results (J. Björkdhal, T. Blomqvist, U. Månsson, personal communication, 13 April 2010). They also have a support line that they can use if they need help with using the systems or finding something with the systems, such as an invoice (T. Blomqvist, personal communication, 13 April 2010). Beyond the more normal tools, Swedbank also has a weekly reoccurring TV program that all employees watch every Wednesday. The TV program covers everything from central strategies for rents and investments to current information regarding what is happening in the organization. The TV program is described as very informative, but perhaps a bit meager (T.
Blomqvist, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010. The most comprehensive tool is the tool that Swedbank refers to as *Kanal1*, their intranet. Via the intranet at Swedbank there is an abundance of information and data available, from manuals covering all areas of the company, internal news, changes in ratios, and reports to results. When it comes to *Kanal1* everyone interviewed agrees that there is no problem of lack of information. If there is a problem it is that there is too much information available (J. Björkdahl, T. Blomqvist, U. Månsson, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010).

The middle managers also create their own measurement systems when needed. For example the private accounts manager is currently trying to figure out the optimal number of employees by measuring waiting time for customers at the office and the number of transactions at each register.

### 5.2.4 The Knowledge Process

Swedbank stimulates knowledge development in several ways. One technique used is to allow for large amounts of freedom regarding the search for knowledge. The high degree of independence combined with goal oriented leadership forces the middle managers to deepen their own knowledge to be able to perform (J. Björkdahl, personal communication, 13 April 2010).

The openness stretches beyond the local bank offices. One technique used – that initially was started on central command, but that now is used informally by the middle managers – is the *kontorschefsnätverk*; a network of managers at different bank offices operating in similar conditions (T. Blomqvist, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010). In these network constellations the middle managers are able to share their experiences and thus find new ways for how to do things, benchmark their results against other departments and learn how they reach their goals, and it also functions as a support group. Except for the managers from different offices there has also been external speakers invited. All those interviewed appreciate these networks and emphasize the importance of this network (J. Björkdahl, T. Blomqvist, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010).

When discussing learning-by-doing with top management, he states that he does not believe that managers can be trained to become managers “either they have it or not” (U. Månsson, personal communication, 13 April 2010). The corporate accounts manager states that his learning is influenced by learning-by-doing practices, and that it is through the knowledge of his colleagues (T. Blomqvist, personal communication, 13 April 2010). The private accounts manager states that there are quite poor systemized help systems for the managers and that she was more or less thrown into her position and had to figure out how to do the job as she did it. She also states that it would of course be helpful if she had received more guidance (A. Swalander, personal communication, 14 April 2010). That sentiment is shared with the deputy bank manager who explains that there was no initial training. He applied for the job, he got it and then it was just to familiarize himself with the job through learning by doing (J. Björkdahl, per-
sonal communication, 13 April 2010). Top management rationalizes this system by explaining that new managers have usually been a part of the organization for a long time. It is not uncommon that they start at the counter and work their way up to managerial positions. They have been a part of all the weekly information meetings and result meetings for a long time. That way they have built up a strong understanding for the economical contexts, the result drivers and an understanding for what is demanded of a manager. As he perceives it, the main challenge is connected to staff issues. If they need other types of knowledge there are internal education systems that become available with time. He does agree that a transition period, where the former manager works with the new manager, would be the best thing (U. Månsson, personal communication, 13 April 2010).

Swedbank also uses benchmarking on monthly basis. One of their techniques is that they each month, at meetings with the whole office, compare their K/I tal with other bank offices of the same size. This gives them indications on how well they are doing with some products and how they can improve on others (U. Månsson, personal communication, 13 April 2010). “If an office in a comparable city has better numbers on for example a certain ratio, then we need to figure out why we do not and what we need to do to reach their numbers” (J. Björkdahl, personal communication, 13 April 2010).

The internal educations usually become available through the annual performance review meetings where the competences of the managers are analyzed. If a need for further knowledge is encountered by either part Swedbank use courses (internal or external) or further training to solve that problem. These educations range from helping with practical experience, to receive licenses to simpler issues such as improving the knowledge of English (J. Björkdahl, T. Blomqvist, U. Månsson, personal communication, 13 April 2010; A. Swalander, personal communication, 14 April 2010).

Swedbank has also worked with coaching in a couple of different formats. They have had people who were selected as ambassadors within different areas of expertise that received special training within these areas and were the ones primarily responsible for these issues within the organization, beyond that they were also available to coach the managers regarding their area of expertise (T. Blomqvist, personal communication, 13 April 2010). They have also had cross sectional coaching where for example young female managers at Swedbank were given an external coach from the business world (A. Swalander, personal communication, 14 April 2010). Top management states that if someone’s results protrude they will be given the help needed to improve, for example through coaches (U. Månsson, personal communication, 13 April 2010).

5.3 Axfood

The last company in which we conducted interviews and surveys, is the Jönköping based Service and Support Center (SSC) department of Axfood.

5.3.1 Basic Information Use

The financial results of the company are communicated to the managers through the same manner as the rest of the employees of the company, via the intranet. The finan-
cial result is also communicated through quarterly reports which are the same which the public can receive (I. Jeppsson, personal communication, 20 April 2010).

The managers meet regularly during meetings once every – or at a minimum every second – week. In those meetings they discuss recent events and its implications on their work. During these meeting only the top manager and his four process managers (the middle managers) are present (I. Jeppsson, personal communication, 20 April 2010). It is also during these meetings that the financial results of the company are discussed, although the focus is on their own department and its budget (M. Eklund, personal communication, 21 April 2010). When the managers need financial information about their particular department, they go through the top manager if it is concerned with the budget and for efficiency or production related information they use SAP (M. Ebefors, personal communication, 9 April 2010). However most of the managers feel that they did not need much financial information for their daily work to function (M. Ebefors, personal communication, 9 April 2010; M. Stenvall, personal communication, 16 April 2010).

The SSC do use some performance measurement systems. These systems are broken down into separate parts for each of the different process at the SSC. The main measurement system used was the NKI (Nöjd Kedje Index), which is an index based on how satisfied the internal customers are with SSC’s services (I. Jeppsson, personal communication, 21 April 2010). Previously it was done once per year, but now they have these sessions only every other year. However, the process is still used and it illustrates the different processes and what they need to focus on (M. Eklund, personal communication, 21 April 2010).

There are two types of support systems for the employees in the form of guidelines and similar information. The first is the vast amount of guidelines for how the processes and the daily work of the employees at SSC should be performed (I. Jeppsson, personal communication, 20 April 2010). These are extensive and cover most areas of work at SSC. However, they are written by the process managers themselves, and thus they receive little new information from them (M. Ebefors, personal communication, 9 April 2010). The second type is more general information concerning tax issues and other important aspects that are not used every day; these are more useful for the process managers (I. Jeppsson, personal communication, 20 April 2010).

5.3.2 Communication Middle Managers and Top Management

The information distribution between the middle managers and the top manager at SSC follows two main paths: Formal meetings for the management team and informal communication. In the formal meetings for the management team they discuss the work of the different processes. These meetings are held every week or at least every 14 days (I. Jeppsson, personal communication, 20 April 2010). During these meetings they also discuss the current financial situation of SSC, which focuses mainly on the personal costs as that is the main cost driver at SSC (M. Eklund, personal communication, 21 April 2010).
The informal feedback, which is rather important at the SSC, happens since the managers are located close to each other and frequently and openly discuss recent events between each other (M. Ebefors, personal communication, 9 April 2010).

The process managers describe the dialog between him and the top manager as being very open and that they can discuss different situations. The top manager himself says that he tries to help the managers by allowing them to ventilate different problems that they have, this by being more of a discussion partner than by being a boss that tells them what to do. Even if the process managers lack clear stated goals, the top manager has a good understanding of what the process managers do in their daily work and is able to support them in their work (I. Jeppsson, personal communication, 20 April 2010).

According to the top manager, there are two different types of formal feedback techniques for the process managers; performance review sessions and individual development discussions. These sessions take place once a year and are constructed the same way for all employees at Axfood, although there is room for flexibility (I. Jeppsson, personal communication, 20 April 2010). The informal path is the feedback from colleges, mostly the other process managers and the top manager. This feedback occurs on a daily basis as they all work in close physical proximity (M. Ebefors, personal communication, 9 April 2010).

5.3.3 Techniques for Sharing Financial Information

The main technique for distributing financial information at Axfood is through the use of the intranet. Here the result for the whole company is presented on a quarterly basis, although it is published as internal report it does not contain much more information than the public reports which are presented for the stock exchange. This is mainly to avoid insider trading (M. Ebefors, personal communication, 9 April 2010).

The most focused on internal financial information measurement at the SSC is the budgets. This since the SSC is a cost center, which means that they are to support the other parts of SSC and do not really have any income of their own. Instead they receive an amount of money to finance their operations, the amount is dependent on how much they request in the budget. The top manager is responsible for the budget, which is constructed mostly on historical data as well as on predictions on special event for the coming year. For example, this year the SSC has been awarded extra funding because of the implementation of new financial software as well as changing location of the office (I. Jeppsson, personal communication, 9 April 2010). Although the budget affects the process managers, they do not have much control over it. They need to ask for further funding for their groups if they for example need to hire a new employee, which in the end is decided by the top manager (M. Stenvall, personal communication, 16 April 2010).

At SSC, they do not use many tools to measure efficiency, but they have three different measurement systems. The first is NKI which is central index where the different departments of Axfood answer how satisfied they are with the processes at SSC (M. Ebefors, personal communication, 9 April 2010). This was previously done every year, but now it is only done every second year as no major changes have been spotted in the
results. Although there are no direct consequences to the results of the index, it is used by the process managers to see where they need to focus their efforts to improve their groups (M. Eklund, personal communication, 21 April 2010).

The second tool they use to measure success at SSC is employee surveys. This is a survey done by the employees at SSC to measure how satisfied they are with their managers (M. Ebefors, personal communication, 9 April 2010).

The last tool the top manager uses – however sparsely – is performance measurements for different processing activities. He measures activities such as how many wrong orders are placed, and how much the different processes cost (I. Jeppsson, personal communication, 20 April 2010).

5.3.4 The Knowledge Process

There are no formalized training programs for managers; each unit is responsible for if and how managers are trained (M. Ebefors, personal communication, 9 April 2010). The middle managers interviewed had experience of similar positions before. They were not given any formal training for their new position at Axfood; they were immediately thrown into their new positions and had to figure out how to do the job by themselves as they started working (M. Eklund, personal communication, 21 April 2010; M. Stenvall, personal communication, 16 April 2010). However, within Axfood there is a department called *Axfood Akademin* that is responsible for all sorts of internal training and education. That department was for example used when the company switched accountings systems to SAP. Then the middle managers and top management at SSC were responsible for the content, but *Axfood Akademin* administrated the educational process. In this process the middle managers at SSC – whom are the ones that will be working most closely to the new system – was working for 17 months with developing the processes and the system that then was implemented in the organization. In this period they received intensive training, approximately a total of 2000 hours of classroom training and beyond that web based learning. This way of letting the middle managers learn the logic of the system and then adapt its design to fit the company made them experts on the system (I. Jeppsson, personal communication, 20 April 2010).

The middle managers are supposed to have performance review sessions annually, but the manager of customer invoices states that the managers do not have reviews that often (M. Eklund, personal communication, 21 April 2010). Top management does however claim that annual performance review sessions do take place (I. Jeppsson, personal communication, 20 April 2010).

SSC however has continues education, but this is more focused on the leadership part than in how to perform their processes and work with financial information. All the managers are sent on leadership training either internally at Axfood Akademin or externally. The need for more leadership training is decided during the individual development meetings, although it is mostly up to the process managers to request it (I. Jeppsson, personal communication, 20 April 2010).
When it comes to learning by doing at Axfood, the plan is to let new process managers work next to the old ones for half a year to learn how to perform their duties. This since they believe that a lot of the routines at SSC is something that cannot be taught but have to be done on site (I. Jeppsson, personal communication, 20 April 2010). Some of the process managers stated that they did not work together with anybody at all when they started. Instead they simply had to do their best and learn their job as they went along (M. Stenvall, personal communication, 16 April 2010).

At SSC they have previously worked with job rotation where people change tasks with each other (M. Eklund, personal communication, 21 April 2010). Currently they do not have any work rotation, but they plan to start with it again, when the routines for SAP have been established and people feel secure with their tasks (I. Jeppsson, personal communication, 20 April 2010).

Internally at SSC, they do not work with benchmarking, although they do use the NKI discussed previously to show strengths and weakness of the different departments. The reason that they are not using benchmarking is that there are no other groups which have similar tasks to compare with (M. Eklund, personal communication, 21 April 2010). The top manager has plans to establish relationships with other companies to use for benchmarking purposes involving the whole department. He has already started the discussion with one company and plans to have meetings with them so that the companies can learn from each other on how to run a SSC (I. Jeppsson, personal communication, 20 April 2010).

5.4 Questionnaire Results

In this part we will present the result from our survey. We will present the result through the mean of the three managers within each company, while the error bars show the distribution of the answers through one standard deviation.

**Question 1. Financial information is very important in your job.**

We can see that the managers at Swedbank clearly believed that financial information is very important in their job. The highest deviation was found at Axfood where, there was a high degree of disagreement. The interviews showed that some of the managers did not believe that they needed much financial information in their job. While a few managers stated that they used a lot of financial information on a daily basis.
Question 2. You are satisfied with the quantity and quality of information you receive from top management.
Here we can see that Swedbank, which was the company, which used the most financial information in their work, is also the company, which is the least satisfied with the information they receive. This could be the result of the higher importance given to the information at Swedbank compared to Sto and Axfod.

Question 3. You have access to the financial information you need from the internal financial software.
Here the results are quite similar, which is not very surprising since in the interviews all the middle managers stated that they had access to all the financial information they needed, and more.

Question 4. The company encourages sharing experiences, information and knowledge between managers and departments.
Once again the results are quite similar, although the deviation is larger within Axfod. This is explained because one manager has been situated in Stockholm for a longer period of time and has thus not been as integrated in the work at SSC. This manager therefore did not feel as integrated within the department as the other process managers.

Question 5. Your work is measured correctly with appropriate indicators.
Noteworthy, Axfod has the highest mean, while the managers stated that they did not have any direct goals or way through which they were measured. While Swedbank has clear goals and measurement system, this is likely explained by disagreement on what is measured at Swedbank. Lastly Sto scored the lowest while also lacking clear goals and measurement systems for the managers.
Question 6. The company has good appropriate systems for storage and reporting of financial information.

Similar to question 3, the similar response rate is likely due to the similar software used in the companies. While Swedbank uses many more techniques to communicate and store financial information than the other companies, which can explain the larger variation in answers.

Question 7. Your initial training gave you all the information and knowledge you needed to solve your assignments in an appropriate way.

Here we can see large variation between the managers in all companies. A similarity between the companies is that they all lacked good training for managers, while focusing mostly on training new employees on lower levels. The largest variation of answers was found at Sto, where some of the managers seem quite dissatisfied with their initial training as managers.

Question 8. The company has good routines and systems to develop your knowledge and understanding of financial information and the systems you use for financial information.

The largest deviations and lowest score here are found at Sto, where some of the managers were very dissatisfied with the routines for the financial software. One of the managers stated that no person within the company knew the whole system and no external consultants knew it either (J. Björk Dahl, personal communication, 2010-04-13).

Question 9. You can openly discuss and question financial questions, results and goals with your manager.

Here we can see that there are no major differences between the companies. This can be because most of the managers stated that they had a very open discussion with their manager.
Question 10. Your manager has a good understanding of the factors, which affect you goals and results.

Here the results were very similar for all the companies where all the managers gave their companies the highest score, except for one manager at Sto, hence the distribution for Sto.

From the questionnaire we can see that the middle managers at Swedbank were the ones who regarded financial information as most important in their job. We can also see that the managers were generally satisfied with the information they received. The problems observed were primarily in how the managers’ performance was measured as well as their satisfaction concerning their initial training as managers.
6 Analysis

In this chapter the empirical material will be analyzed and discussed using the perspectives presented in our Theoretical Framework. First we investigate how Data and Information are used and are present within the investigated companies. Second we analyze information management and how information is used and distributed within Sto Scandinavia, Swedbank and Axfood SSC. Finally we evaluate how information is transformed into knowledge using the Data, Information, Knowledge & Expertise model and the SECI model as our analytical tools.

This analytical discussion will give further insight in how the middle managers at the three companies receive and use financial information, what techniques that are present in the companies to distribute information and to help the middle managers understand financial information and finally how the middle managers attain the knowledge needed to work with and understand financial information.

6.1 Data and Information

In this part we will in accordance to 3.1 Data, Information, Knowledge and Expertise and figure 1, investigate how data and information is present within the organizations investigated.

6.1.1 Data

Liyanage et al. (2009) defines data as unprocessed numbers which are not presented in a meaningful context. This section of our analysis identifies how data, based on this definition, is communicated to the middle managers at the different companies investigated.

At Sto Scandinavia the primary way to receive data related to financial information is through their reporting systems, SAP and Business Warehouse. Through these systems there are vast amounts of available information. The managers receive a lot of different financial data on a daily basis, reaching from income, and cost of their operations. The different data by itself is only data, as it would not contribute much meaning to the managers.

Swedbank communicates data primarily via their intranet. Results of the different offices and their departments – such as data about income and costs – are also communicated through weekly meetings.

The primary source of data at Axfood is through the internal financial software, SAP, where the managers can extract primary data concerning most parts of their organization. One example is the extraction of how many orders have been processed. They also report some data to other departments, an example being that every Monday they report how many book keeping reports have been received.
Data is unprocessed numbers which are not presented in a meaningful context; this is present in all three organizations. Data is however not used to a great extent, which can be explained by the definition, of it as lacking of meaning and relevance (Bender & Fish 2000). It is clear that data is not an area of focus to any of the middle managers. It is available in all of the companies, but for it to be useful in any way it must be turned into information through the process of adding.

6.1.2 Information

According to Liyanage et al. (2009) Information is processed data changed from data to information though the process of adding, which is adding meaning, understanding, relevance and purpose according to Bender and Fish (2000). In this section we look at how data is changed to information through the process of adding and how information is communicated to the middle managers, from top management or through other techniques.

The primary mechanism for adding meaning, understanding, relevance and purpose to data (Bender & Fish 2000) at Sto Scandinavia is through informal techniques such as informal meetings and personal communication. The only more formalized technique is through the directorate group, but not all of the middle managers interviewed are a part of this group. At these different types of meetings data is presented in context and given purpose. For example, presentations are held where the data is presented in a context and explained in a way that allows those presenting it to add meaning, understanding, relevance and purpose to the data. So there are techniques present to change financial data into information, but when it comes to communication between top management and the middle managers there are no structured adding techniques used to change the data to information. The primary way for middle managers to attain information from top management is by requesting it. Further, our interviews gave us the impression that communication of that sort is rare. Beyond the interpersonally communicated information, processed data is available through reports created by the reporting systems. These reports present information in a context that makes the data relevant and easier to understand. There is also the performance measurement information, where data is presented in contexts such as inventory losses and logistic costs as a percentage of revenue. Here the data is presented in a context that makes it meaningful, and thus it is by the definition of Bender and Fish (2000) information.

At Swedbank there are many techniques used to add to the data and thus change it into information. Similar to Sto meetings is one technique used where data is presented in contexts that adds meaning, understanding, relevance and purpose and thus changing it into information. There are the monthly meetings (StorInfo) where all relevant financial information is broken down, discussed and analyzed thus adding value to the data. When analyzing communication between middle managers and top management there is the regular feedback sessions regarding the middle managers results where results are put into context, thus giving them relevance and purpose, and the causes of the results are discussed to increase the understanding. Further the middle managers are a part of top managements' feedback sessions, where the results of all middle
managers as well as the results of the department as a whole is discussed and put in context. A third technique for adding the data is the “kontorschefnätverk” meetings where middle managers from different regions meet to discuss, among other things, results and how results are reached. Hence, meaning is added to the result data through adding understanding of the causes for negative and positive results. All of these are data changed into information in accordance with theory (Bender and Fish 2000). All the middle managers at Swedbank agree that they receive a substantial amount of information – it has been processed and been given meaning – through their intranet, and they agree that they all receive the information they need for their tasks. However they state that the problem with having information available through the intranet is that the vast amounts of available information makes searching for it time consuming.

At Axfood SSC, data is changed to information primarily using two techniques: meetings and feedback sessions. In the weekly meetings the financial state of the company is discussed and data is presented in a context and is given meaning to it and increasing the understanding of it through discussion. The second technique is through informal feedback. The close physical proximity between all the different middle managers as well as to top management when they work allows them to directly discuss all and any data received. Axfood has little information available besides for that attained through communication, for example the performance measurements used (such as customer satisfaction) are not meaningful to the middle managers without processing it further and thus it is by definition (Bender and Fish 2000) only data.

6.1.3 Data and Information Discussion

There is one common denominator between all three organizations in this thesis when it comes to adding to the data and thus changing it into information in accordance to Bender and Fish’s model (2000); all three uses discussions to add meaning, understanding, relevance and purpose to data. These discussions are held in formal meetings, in feedback sessions or informally between middle managers. When it comes to information received from top management, there are clear differences. At Sto information from top management is rare and the middle managers rely more on informal communication with other middle managers or even subordinates. At Axfood there is data changed into information through adding, via communication with top management through informal discussion. The company that stands out here is Swedbank where top management is more proactive than in the other companies with discussing data and adding value to it. Top management leads the weekly meetings, there are regular feedback sessions discussing the results of middle managers and in general more reoccurring discussions between middle and top management to changing data into information. An interesting finding is that Swedbank – the firm along these three which uses the most internal financial information in their daily work – the middle managers are the ones that are the least satisfied with the information they receive according to question two in the questionnaire. Even if they – according to our analysis – receive the most information and receive that information in the most organized way, they are still not fully satisfied. We consider this a proof of how important the financial information is to them and claim that middle manager satisfaction with infor-
mation is more contingent on the need for information than it is on the techniques used to share information.

6.2 Information Management

To better understand how the companies investigated work with information management, we have investigated how information is used and distributed. We use Taylor's (1991) eight different classes of information as our primary analytical tool. In this section we categorize the information techniques used by the organization into Taylor's eight classes of information to examine how information requirements match information needs as emphasized by Detlor (2002). By dividing the information use and distribution into these eight classes we are able to critically scrutinize the information management techniques of the three organizations and better understand the actual information management practices used.

1. Enlightenment

Taylor (1991) defines enlightenment as the information used to develop a context or make sense of a situation.

The primary technique at Sto Scandinavia where information is used to create enlightenment is the directorate group meetings. Here different departments share their information regarding preceding periods and explains how these have affected the company and its results.

Swedbank works a lot with using information to create enlightenment. This is seen in their weekly meetings with all employees where results are put into context and everybody receives insight in the current situation. They also have other tools, such as the weekly television show, weekly reports and information on the intranet, which also put financial information in a context which allows for a better understanding of the current situation. Beyond that, the middle managers have regularly held feedback sessions where the many measurement systems and possible bad results are scrutinized and discussed in a constructive matter to prevent them from reoccurring.

At Axfood SSC, the managers have meetings every week, or every other week, where recent events and their implication on work and the results are discussed to create enlightenment. They also have formal and informal feedback techniques. In the formal feedback sessions the costs and the financial situation are reviewed and analyzed. In the informal feedback sessions the middle managers receive direct feedback on daily operations and decision from their superior and their colleagues to shed light on daily problems through discussion.

All three organizations have techniques for sharing enlightenment classed information. Thus all organizations in this thesis have information management techniques that help the middle managers better understand and make sense of situations related to financial information, for example the results. However, it should be mentioned that not all middle managers at Sto were a part of the directorate group and those excluded receive no enlightenment classed information unless they ask top management for it.
2. Problem Understanding

The problem understanding classed information is defined by Taylor (1991) as information used to develop a better comprehension of a particular problem.

When it comes to creating a better comprehension for a particular problem at Sto Scandinavia the primary forum used is to communicate within the group or with ones subordinates. The openness for communication is also a technique that allows open discussion in and between departments in order to create a better and stronger understanding. Further they have access to controllers who can communicate information that further explain a particular issue.

When it comes to understanding particular problems, Swedbank offers several tools as well. Just as in Sto they have access to controllers who can investigate a problem deeper and provide more information on for example the causes of poor results (A. Swalander, personal communication, 2010-04-14). Further, when a particular problem arises, at Swedbank such situation first leads to internal communication in the department affected and then to a meeting with top management to discuss the problem and its causes in search for solutions. In contrary to Sto, at Swedbank such meetings are held regularly and these discussions usually help creating a better understanding of the problem.

The primary technique for the sharing of problem understanding related information in Axfood is through the previously mentioned informal feedback that is a part of daily operations.

The one technique present in all three organizations that allows for sharing problem understanding classed information is open communication between colleagues or top management. We reason that communication is the best technique for receiving information that allows middle managers to better understand the problems related to financial information.

3. Instrumental

Taylor (1991) explains the instrumental class of information as information used in a way that allows the individual to know “what to do” and “how to do” something.

There are few tools present at Sto to help the middle managers understand what to do or how to do something. That is one of the issues where Sto Scandinavia has clear shortcomings. The only reoccurring technique that the middle managers use in order to understand what or how to do is by doing it and learning from their experience.

When it comes to instrumental information, we find similarities between Sto and Swedbank. There is not much information on ‘what to do’ and ‘how to do’ that is used by the middle managers. There is a lot of freedom in both organizations for how they go about their daily business. They develop their own way of doing things and are not working by centrally set standards of operation. Instead they work in a more goal oriented fashion, where how they reach their goals are not standardized. Arguably that kind of operations is the reason that both companies have a lack of structured training programs to teach them ‘how to do’ and ‘what to do’. However there is a difference, if
they at Swedbank need to know ‘how’ to do something, that information is available through the intranet. The problem is that there is so much information available through the intranet that it is hard to use.

At Axfood SSC we do find some communication of instrumental information, foremost through the formal meetings for the management team. At these meeting the managers discuss how to work with the different processes. Such information is also shared through the informal feedback where it for example is discussed how to solve problems or what to do about them. Arguably Axfood has a higher extent of instrumental information techniques due to the nature of their work as a service and support center focused on book-keeping which is processes that needs to be done in a certain way. Thus there are also vast amounts of guidelines and similar ‘how to do things’ related information for these processes.

Here we encounter large differences between the organizations investigated. The lack of instrumental information at Sto is also supported by question 8 of the questionnaire where the interviewed middle managers at Sto disagreed that the company “has good routines and systems to develop your knowledge and understanding of financial information and the systems you use for financial information”. That the intranet at Swedbank is not the optimal technique for sharing instrumental information is also supported by the results from the questionnaire. The availability of instrumental classed information is poor in Sto and the technique used at Swedbank could be improved.

4. Factual

The factual class of information is described by Taylor (1991) as information used to determine the facts and to describe reality.

There is an abundance of factual information at Sto, foremost available through the report generators such as SAP and Business Warehouse. There are always reports available and if the middle managers would need other reports they can always request them from the parent company. If they need help understanding the reports or the causes of them, the controllers at the company will give such information to them.

When it comes to factual information at Swedbank, the middle managers have access to all they need and more. This through the intranet, reports and meetings. There are also a lot of performance measurement system figures for all the middle managers that present their performance every week and that way presents them with a constantly updated perspective of how they are doing.

At Axfood, as with the other companies in this thesis, there is a lot of factual information available through their intranet, regular reports and internal systems.

All three organizations have high levels of availability of factual classed information. This is also supported by the high levels of agreement from all middle managers in question 3 of the questionnaire, “You have access to the financial information you need from the internal financial software”. There is no lack of factual information in any of the organizations.
5. Conformational

*Here we investigate the conformational class of information, defined by Taylor (1991) as information used to verify information.*

Confirmational information at Sto is foremost available through informal meetings. The openness and high levels of socialization makes confirmational information available through direct communication with those responsible for the areas of interest. Other confirmational information is available through the directorate meetings, for those included in the directorate group.

The best technique for confirmational information at Swedbank is the regular feedback sessions with top management. Here the results of the middle managers and their departments of responsibility are scrutinized and discussed. The weekly meetings also supplies the middle managers with confirmational information regarding how the office as a whole is performing, the TV shows and the intranet information confirm a lot of the financial information that is not connected to performance.

Axfod works with confirmational information techniques in a similar matter as Sto, the confirmational information is primarily shared through informal dialogue. But also through the regular and more formal meetings with the management team.

Once again we see the importance of attaining information through the technique of discussion. Information used to verify information is in all companies available through techniques that allow for discussion with either colleagues or top management.

6. Projective

*Taylor (1991) defines projective classed information as information used to predict how things are to become.*

When it comes to projective information at Sto there is very little of such information available to those excluded from the directorate group. It is primarily the directorate and the parent company that discuss projective information when it comes to financial data. They discuss such issues and then present budgets and other performance measurements figures to the middle managers. Thus the primary projective data available is that of budget and other goals set by top management and the parent company. However, the middle managers receive prognoses of changes in for example turnover that help them make decisions.

The situation at Swedbank is similar to that at Sto when it comes to projective information. The middle managers do not work to a high extent with projective information regarding financial information, it appears that such work is mostly done higher up in the hierarchy. Rather target performance levels are set centrally, looking foremost at the *K/I tal* for a longer period of time (usually 3-5 years). Then they use that information to achieve the set goal. The only projective information we encountered is the projection of the middle managers for how to reach these goals, e.g. by lowering personnel costs over the long run by implementing new routines. Projections and suggested actions are made by higher instances; therefore to work with the projective information is less important for the middle managers.
The middle managers at Axfood are, as the others, not working to a high extent with projective information. The focus is on current operations and at most to cutting costs in the long term, but we have not identified any projective information sharing techniques at Axfood.

It appears that projective classed information is not necessarily given to middle managers. The predictions of how things are to become (the projections) are made by top management. Middle managers in these organizations are then given budgets or other performance measurement goals based on top management's projections. Arguably information management techniques related to sharing projective information are not necessarily needed, if top management is making the projections for the company.

7. Motivational

Taylor (1991) describes motivational information as information used to attain personal involvement for a chosen course of action.

We have not found any techniques for sharing of motivational information to middle managers at Sto. There is no motivational feedback during feedback sessions, or in the sparsely held performance review sessions. The closest they get to motivational information is to receive no information, since that is how they know that they are performing in accordance to set goals.

One clear example of motivational information at Swedbank is the benchmarking procedures. In Swedbank they use benchmarking as an important tool that allows the results of different offices to be compared in order to motivate the managers to strive toward high results. They also uses benchmarking in so called network for managers where they are given the opportunity to discuss problems with other managers and also give and receive feedback on how to improve. As the private accounts managers put it when talking about benchmarking: “It is great! It motivates me!” (A. Swalander, personal communication, 14 April 2010). She claimed that to be compared to others with similar circumstances on a regular basis was motivating since it triggered her competitive side; she always wanted to be the best. Another example of how Swedbank works with motivational information is seen in how top management structures the weekly meetings, where he focuses on the positive things and those responsible for them. This to motivate the others to adapt a similar behavior. We also argue that the ‘complete transparency’ between top management and middle managers within the region is a case of motivational information. The fact that the middle managers receive the same information as top management and are included in the feedback sessions for the region have created synergetic effects where they are more motivated and personally involved in helping to create positive results. Perhaps the rigid control of many performance ratios is to be considered motivational information as well. The regular feedback on the many different ratios arguably motivates the middle managers to always perform their best. This is seen for example in how the middle managers, before feedback sessions, try to be well aware of any shortcoming and have solutions to the problem ready before the sessions.

Similar to Sto, our investigation of Axfood has not provided us with any clear techniques for sharing motivational information. Perhaps this is since the middle managers
at Axfood do not work towards many set goals, nor are their performance regularly evaluated. Since Axfood is a cost center, it does not work with goals in the same manner as the others and therefore it is hard to for example provide the middle managers with positive and motivational feedback on their results. The annual performance reviews are not a good provider of motivational information either, given the fact that the middle managers do not perceive it to be an annual session but more sparsely held. The only motivational technique encountered is the leadership training, since the middle managers found it motivational to be appointed to participate at it.

When it comes to information used to attain personal involvement for a chosen course of action (Taylor 1991) we only found information management techniques at Swedbank. The lack of such mechanisms at a cost center such as Axfood SSC could perhaps be anticipated since they do not have the same need for personal involvement beyond not exceeding their costs; the lack of it at Sto is more interesting. Arguably this is a sign of lack in communication between middle managers and top management.

8. Personal or Political

The personal and political class of information is defined by Taylor (1991) as information used to develop relationships, enhance status, reputation, and personal fulfillment.

We have only scratched the surface of the communication and information management at Sto, but through our interviews we have not detected any signs of information being used for political goals within the organization. There is however a lot of information being shared on a personal level, through the informal communication structure of the company. The relationships seem strong between the departments and the personal approach to information sharing seems to work well for them, in fact it is arguably the strongest part of the information sharing techniques at Sto.

As with Sto we have not encountered any examples of information being used for political gains at Swedbank, whereas information techniques used to develop personal relationships are many and strong. The best example of this is arguably how the Konsorschefsnätverk (the office manager’s network) which initially was a centrally organized phenomena, which became revived by the middle managers and those networks kept existing after the project ended through the personal relationships that had developed. Further, all middle managers interviewed agree that there is a culture within the organization that strongly encourages and allows the creation of personal relationships between colleagues.

We did not encounter any cases of political information sharing at Axfood either. Further, they had fewer personal information sharing techniques than the other companies investigated. The primary technique for personal information sharing is through the close proximity in which they work which allows for an open and informal sharing of information and problems.

In all organizations there are techniques present that allow high levels of information sharing on a personal basis. We reason that techniques that allow for relationships to grow are very positive for the information management within the organizations. As
seen in several of the preceding steps information shared through informal discussion (we reason that it is a necessity to develop relationships by sharing personal information for this to be possible) is a technique that allows for enlightenment, problem understanding, conformational and motivational classed information to be shared.

6.2.1 Information Management Discussion

When breaking down information into Taylor’s (1991) eight classes we find that the communication between middle managers and top management was most significant at Axfood SSC. Here the informal communication – due to close physical proximity – made top management involved in sharing information regarding many different classes of information. This technique for sharing information was the way that the majority of information classes were communicated at Axfood. At Swedbank communication between top management and middle managers was also present in many different information classes. The regular meetings lead by top management, feedback sessions and informal communication helped through high levels of transparency to communicate several different classes of information. At Sto communication between middle managers and top management was on minimal levels. Communication with top management held little importance for communicating any of the eight classes of information.

When looking at other financial information techniques we find that Swedbank has far more techniques for sharing all classes of information than Sto and Axfood. We also observe that Swedbank better utilizes their information management techniques. An example of that is seen in the annual performance review sessions that only are held annually without exceptions at Swedbank and further, they are the organization that acts the strongest on the results found in these performance review sessions (for example, by sending the middle managers on courses whenever the need is found or a course is requested). If we were to rank the three companies in accordance to the extent that they use information management techniques; Swedbank would be the leader, followed by Sto Scandinavia and with Axfood SSC as the company that uses information management techniques to the least extent. That Axfood uses other techniques to the least extent is logical given that they have a slightly higher use of communication between top manager and middle managers. However, the results from the questionnaires show that the middle managers at Swedbank despite our findings did not score higher than those in the other organizations when it comes to the satisfaction with levels of information available. Another interesting finding from the questionnaires is how the middle managers at Sto showed the largest differences of attitudes of all the organizations. Arguably this is due to the unstructured approach to information management at Sto. This lack of structure allows for larger differences in the learning outcomes compared to a more structured approach since it puts a higher emphasis on the individuals’ aptitude towards accumulating information.

6.3 Knowledge Management

Here we first investigate how information is transformed into knowledge and expertise in accordance to the previously used figure 1 in the theoretical framework. We have analyzed data and information and here we investigate the knowledge and expertise
sections (Bender and Fish 2000, Liyanage et al. 2009). Then we use the SECI process by Nonaka & Teece (2001) to evaluate how knowledge management techniques are present within the organization.

### 6.3.1 Knowledge and Expertise

Knowledge is authenticated information (Liyanage et al. 2009), which means information transformed into knowledge through personal application, values and beliefs (Bender & Fish 2000). Expertise is deep knowledge within a certain field enriched through extensive training and education (Liyanage et al. 2009, Bender & Fish 2000). In this section we analyze how information is transformed into knowledge and expertise. As well as what techniques the organizations use to increase the knowledge of their middle managers.

There are few formalized techniques for sharing knowledge within Sto Scandinavia. The reoccurring answer from the middle managers regarding how they obtained new knowledge was through learning-by-doing. Sto uses learning by doing as a tool for its newly acquired managers to teach themselves how to do their job. There is no formal approach for how to introduce and train a person that is new on a position. As stated by Becker (1964) learning by doing is a procedure where information is transformed to daily routine, which is closely related to Liyanage’s (2009) steps from information into knowledge and expertise through training and education. Through the learning by doing practises at Sto; information is transformed and enriched into knowledge. The policies of the organization do – at least to some extent – allow for high levels of socialization. The middle managers are encouraged to work with and learn from each other. In that way it is possible to obtain knowledge through shared experience. So based on these factors there is some evidence that supports the existence of an information culture that resembles the one Choo (2006) describes as one where sharing, proactiveness, transparency, and informality exists; is present at Sto. Of these four factors we find sharing at Sto, through for example that top management demand sharing of information between departments, there is also sharing of information between the middle managers at Sto Scandinavia and the middle and top managers at the parent company. That there is a proactiveness can be seen in for example the job rotation program, designed (among other reasons) with the intent to share the knowledge of the middle managers to be prepared for one day losing them. Transparency exists to some extent as a consequence of the sharing procedures. Transparency is the point of the four where Sto is the weakest. Perhaps due to the lack of communication flow between middle and top management. Those involved in the directorate group experience some levels of transparency into the greater organization, but since middle managers are excluded from the group we argue that the transparency levels are low. The final point, informality, most definitely exists at Sto. The distribution manager made the example of there not being a dress code to explain to us how informally they worked (J. Bäckström, personal communication, 12 April 2010). The informality is also seen in the lack of lines of communication and the constantly reoccurring informal meetings. These elements allow the middle managers to increase their knowledge, but they must be proactive to do so. The sharing of knowledge is clearly encouraged, both within units and between for example Sto Scandinavia and their parent company. Sto
works with job rotation (internally in Scandinavia, but also to some extent internationally), a technique that gives the middle managers experience, training and in a way education. Therefore the job rotation technique used at Sto fulfills all Bender and Fish’s (2000) requirements for creating expertise.

One example for how Swedbank transformed information into knowledge was seen during the financial crisis. At that point most of the employees at Swedbank received a lot of information about how to meet the customer and how to present the state of the industry at the time. This information was transformed into knowledge through intense discussion, both formal and informal, between the employees at the office. That way knowledge was formed by the personal application of each employee, information was thus transformed into knowledge through being authenticated (Liyanage et al. 2009) and by adding personal application, values and beliefs (Bender & Fish 2000). More systemized Swedbank uses learning by doing as a technique to transform information into knowledge within its middle managers. There are two different areas where they use learning by doing, the first is that employees are given the opportunity to reflect and use newly acquired knowledge in their daily work. This was a conscious strategy since top management believed that the employees need to practice after internal education to attain the know-how. This is relevant from a middle manager perspective since as a rule, middle managers are promoted from within. There was rarely any training for new middle managers, since they – through learning by doing practices – already knew all they need. The second area in which learning by doing was used is when someone is new to a position. This person was then expected to learn the different systems and programs by using it, and no formal education is given. Thus through experience and training they are to achieve expertise (Bender & Fish 2000).

As at Sto, we found few formalized techniques for sharing knowledge at Axfood besides learning by doing practices. At Axfood they use learning by doing in their introductory phase; were new process managers work next to the old one and get the chance to learn by observing and sort of trial and error. By this, they can personally apply the information and add values and beliefs such as Bender & Fish (2000) argues for which only could be done through training and education as contended by Liyanage et al. (2009). Thus the information they receive is transformed into knowledge in accordance to both theories. Another example of how Axfood has worked with creating knowledge, or even expertise, in their middle managers is seen when studying how the new reporting system was implemented. Before implementing the system the middle managers spent 17 months in training of SAP, and at the same time the middle managers constructed the new processes in the software that Axfood would use. Thus as defined by Liyanage et al. (2009) they acquired expertise in the form of deep knowledge within a certain field. They basically constructed how the processes should work in SAP from scratch and are thus very good at the system (I. Jeppsson, Personal Communication, 20 April 2010).

6.3.2 The SECI Process

The foundation of the SECI process is the idea that knowledge within an organization is created in the interaction of tacit knowledge (what we define as knowledge and expertise in the preceding sections) and explicit knowledge (what we define as data and in-
formation in the preceding sections). Here we use Nonaka and Teece’s (2001) SECI process to investigate how the knowledge is transferred to the middle managers of the three organizations.

1. Socialization – Tacit to Tacit

Looking at Sto Scandinavia using Gooderham’s (2008) perspective on socialization – that managers must create an environment that enable personal relations to develop – we can see that top management wants such an environment to exist and that techniques such as job rotation has been implemented to ensure it. Further the extent to which informal communication between departments is present and encouraged by top management, even demanded in some cases, is another example on the development of personal relationships. Perhaps that the top manager is so distanced from decisions concerning daily operations is a conscious technique he uses to enable personal relationships to develop. This has made the middle managers discuss their problems with their groups and colleagues to a higher extent, thus creating higher levels of socialization within the organization. That the structure of the middle managers training is based on themselves, on their own attaining the information and knowledge they need through others at the organization is another technique that forces them to socialization. Finally, all interviewed at Sto described the information sharing there as open and informal, which we define as a sign of high levels of socialization.

At Swedbank we reason that the strongest sign of high levels of socialization is found in the high levels of transparency that is argued for by Choo et al. (2006). The middle and top managers at Swedbank describe the information culture to be one of extreme openness and complete transparency (T. Blomqvist, personal communication, 13 April 2010). Using Nonaka and Teece’s (2001) definition of shared experiences, we claim that the openness and transparency of information between top management and middle managers at Swedbank that is a result of how closely they work together is a sign of very high levels of socialization. Looking at socialization beyond the region, the high levels were once again clear. This is also seen in the existence of kontor­schefts­nätverket, another technique at Swedbank for creating shared experience. That this network was able to reoccur after it was no longer organized centrally, we claim is a sign of a strong organizational culture when it comes to sharing information. From the questionnaire we also find an indicator of an open environment, question 9 almost receives the maximum score on an open environment from Swedbank employees.

At Axfood we also reason that signs of high socialization are presents. Similar to Sto, Axfood has also been trying to work with job rotation, although this has been delayed during the recent changes in working environment and SAP implementation. Previously the work rotation has been both within teams and departments, but now it is mostly within the teams. To further improve the personal relationships, Axfood has been working with team building in different events from small events for each team to larger events for everyone at SSC. Another way they have worked with improving the relationships is through the open and informal leadership style which is implemented at SSC, where the distance between the top manager and the others. Lastly, SSC has been working with informal information exchange which is a sign of high socialization. We find sharing, transparency and informality within Axfood SSC, which are the factors
that Choo (2006) defines as important for socialization. Further, we find the shared experiences which Nonaka and Teece (2001) maintain are what create socialization. The employees of Axfood also indicated that there was an open environment within the company in the questionnaire when they fully agreed to the statement that they can “openly discuss and question financial questions, results and goals”.

2. Externalization – Tacit to Explicit

At Sto this is seen in how they work with sending middle managers to the parent company to observe their practices, discuss how they operate and why and at least in one case even working there for a while. That way even the complex knowledge and practices at the parent company become available for the middle managers at Sto Scandinavia. But as stated by Nonaka and Teece (2001), this must be an iterative process, since first a hunch is created and only with repetition will it become knowledge. We argue that for Sto’s externalization practices to be fully successful in communicating knowledge there is a need for increased continuity.

At Swedbank externalization techniques can be found foremost when looking at kontorschefsnätverket. Through this forum the middle managers can learn from the best practices of other colleagues. The middle managers use this network, among other things, to understand how others can perform better. Such issues are discussed and learning outcomes are turned into practice. Here we find the iterative externalization process missing at Sto. Another example of externalization at Swedbank is top management’s technique for the weekly meetings to focus on those who have performed exceptionally well and letting them share how such results was achieved. How the private account manager received a coach from the business world for a year is another example of an opportunity to study someone with knowledge the other part does not have. Further, this project lasted a long time, making the iteration process possible that is demanded for the knowledge to be fully shared (Nonaka & Teece 2001).

There is no clear use of externalization at Axfood. They have previously worked with job rotation, but at the moment we cannot find any externalization practices.

3. Combination – Explicit to Explicit

At Sto Scandinavia there is a large amount of information available through the reporting systems beyond that which is directly relevant to the middle managers; however our analysis cannot see that such information is useful to the middle managers. Nonaka and Teece (2001) state that the breakdown of concepts must be operationally useful for the organization. Since our analysis of Sto does not find that these concepts are operationally useful, we claim that there is no combination techniques used at Sto.

At Swedbank there are a lot of combination practices to be found through foremost their intranet. Through the intranet the middle managers have access to manuals covering all areas of the company; however, it is not fully utilized since the middle managers find it to contain too much information to be able to process (A. Swalanders, personal communication, 14 April 2010). Perhaps the weekly TV show is a better tool for combination since it is a breakdown of recent information into simplified data and the middle managers did find the TV shows informative (T. Blomqvist, personal communi-
cation, 13 April 2010; A. Swalander, personal communication, 14 April 2010). Another technique for combination is the different regular meetings at Swedbank where results are broken down and analyzed. An even more significant technique for sharing information beyond that which is directly relevant for the middle managers, is the top managers feedback sessions at which the middle managers are invited. Here we clearly find the ‘high levels of transparency, allowing more parts of an organization access to information that could be useful to them even if not directly relevant’ that Nonaka and Teece (2001) discuss.

At Axfood the best case of combination is the different process manuals where all the processes at SSC are discussed in detail. This however is not much help for the process managers as they are the ones who write the manuals. Thus the operationally usefulness is highly questionable from the middle managers perspective. Our analysis therefore has not found clear combination techniques used at Axfood.

4. Internalization – Explicit to Tacit

At Sto Scandinavia we found some examples of internalization techniques, first in the production manager who was internally recruited, second in the job rotation program. Our analysis shows that there are techniques present to internalize knowledge into reflective action (Nonaka & Teece, 2001).

Swedbank shows very high levels of internalization techniques. Internal recruiting is an important part of their recruitment process and the presence of internalized knowledge is clear when glancing at how the middle managers receive little or no training when being promoted, since they have most of the experiences needed from working their way up to that position. The regular meetings with all employees, the high levels of transparency within the organization and many more techniques previously described for sharing information all contribute to ensuring high levels of internalized knowledge in the middle managers when internally recruited.

At Axfood SSC we could not find any internalization techniques currently at use.

6.3.3 Knowledge Management Discussion

When applying the last two steps of the data, information, knowledge and expertise model (Bender and Fish 2000) in our analysis of the three organizations we found a lack of intentional techniques at Sto but despite that there are high levels of knowledge transformation. Through techniques such as learning by doing, job rotation and high levels of socialization Sto is successful in managing knowledge in accordance to Bender and Fish’s framework. In fact, using that framework Sto Scandinavia is successfully using knowledge management to leverage their financial communication internally.

Using the same model for analysis, the difference is that Swedbank was using the techniques more intentionally, but the ranges of knowledge creating techniques are narrower. At Swedbank we found learning by doing as the primary technique for transforming information into knowledge and formal and informal discussion as the second technique present.
Axfood has the least amount of knowledge creating techniques when analyzing using the Bender and Fish (2000) framework, the only technique present is learning by doing. The way that learning by doing practices was used is however impressive when looking at the example of when they implemented a new reporting system, SAP. The implementation and the learning by doing practices used there is a clear example of not only implementing knowledge, but also expertise within the middle managers. Bender and Fish’s (2000) claim that expertise is deep knowledge within a certain field acquired through extensive training and education, the 17 months of training that the middle managers went through must be combined as extensive.

When applying the knowledge management practice, which is, the SECI process of Nonaka and Teece (2001) to our empirical material we found that all three organizations have high levels of socialization through transparency with insight in other departments and through a climate that encourages open sharing of information. There are larger differences when it comes to externalization techniques. At Sto we once again find knowledge techniques that are unintentionally implemented, at Swedbank we see techniques that are deliberately implemented and at Axfood there is a lack of techniques. The only organization that we can conclude is using combination techniques at a satisfactory level is Swedbank. The same holds true for internalization techniques, according to our analysis.

Comparing the two theories for knowledge creation we see that the high levels of knowledge transformation found at Sto, using Bender and Fish’s (2000) theory, is not created by having appropriate techniques, but rather through the lack of them. The lack of techniques forces the middle managers to attain knowledge through learning by doing and socialization in a way that matches that theory well. However, when using Nonaka and Teece’s (2001) theory, the lack of initiated techniques becomes clearer. The deliberately employed techniques of Swedbank reveal that their knowledge management practices create a stronger foundation for leveraging of knowledge for understanding of financial information and for how to work with financial information in the long term.

The low levels of knowledge management techniques found at Axfood is arguably related to the lesser need of a cost center to have that general knowledge of how to work with financial information. At Sto and Swedbank there is a high need of a broader knowledge base in order to understand all the different financial information they receive, and to create understanding of how to improve it. However, when it comes to knowledge that they actually need, such as regarding reporting systems, Axfood shows more than sufficient work with ensuring that the needed knowledge is present.
7 Conclusions, Discussion & Further Research

In this final chapter we conclude this thesis with four conclusions. The first three conclusions are directly related to our three-fold purpose, and the fourth conclusion is on our general impression of the use of information and knowledge management techniques encountered in this thesis. We then discuss our results and their credibility, and at last we end this thesis by pointing out two suggestions for further research.

7.1 Conclusions

Conclusion 1: Developed techniques for communication between middle management and top management are important for information management.

At Sto Scandinavia we found communication between middle managers and top management to be at a minimal level. This affected the information received by middle managers in a negative way. In Axfod and Swedbank communication with top management (formally in meetings and informally through daily communication) was the main source for receiving information and transforming information to knowledge. Further, using Taylor’s (1991) eight classes of information we found that the lack of communication with top management clearly affected the middle managers negatively. We found that it was foremost the motivational and enlightenment classed information that was affected when communication between top and middle management was at low levels. When there was no communication with top management the result was that these types of information were not distributed to the middle managers at all.

Conclusion 2: Communication made possible through high levels of socialization is one of the most important techniques for sharing information as well as for creating the knowledge needed to work with and understand that information.

Knowledge management theories focus on socialization as a key to sharing knowledge, and when we analyzed information management using Taylor’s (1991) eight classes of information, we found that most of the different classes of information could be shared through communication. When we analyzed how data is transformed to information we also found communication (formally in meetings or informally through conversation) to be the primary technique used. We draw the conclusion that the most important technique for distributing information to middle managers and for creating knowledge that helps middle managers work with and understand that information is communication.

Conclusion 3: There are two knowledge management techniques that this thesis point out as the most important for leveraging the financial communication internally and helping the middle managers to work with and understand financial information: socialization and learning by doing.

We have found these two to be important for all the organizations in order to work with and understand financial information. Learning by doing is the technique that taught all the middle managers how to work with and use the financial information.
Socialization is the technique that has affected their ability to attain new financial information the most, to transform information into knowledge and to communicate broad variety of different classes of financial information internally. Further, the most important technique for sharing information – communication – is only possible if there are high levels of socialization.

**Conclusion 4: The company in this thesis with the most developed techniques for information management is Swedbank.**

Swedbank presents a powerful arsenal of techniques used to communicate and share information as well as to create new knowledge and understanding within the organization.

- We found high levels of communication between top management and the middle managers.
- They were proactive in discussing data and adding value to it (Bender & Fish, 2000).
- They used a wider selection of techniques to communicate the different classes of information (Taylor, 1991) compared to Sto and Axfod.
- They were the only organization in this thesis who worked with knowledge management techniques to a satisfactory extent from the perspective of the SECI model (Nonaka & Teece, 2001).

Swedbank is the company with the longest history of the ones investigated, founded in 1820, and has arguably had the most time to develop these techniques. Further, appropriate techniques for information and knowledge management are needed for an organization to be able to exist for almost 200 years in a competitive environment.

### 7.2 Concluding Discussion

There are two issues that need to be addressed when concluding this thesis. The first issue is that of choice of theories. Both information management and knowledge management are relatively new fields of research, therefore the theories in the field are still developing and there are still many different views regarding the validity of however it is actually possible to manage or create knowledge. We have taken the stance that it is possible, and rest this thesis on the work of those who try to find the techniques and methods that create knowledge.

The second issue that needs to be addressed is choice of companies. Our purpose with this thesis was to investigate how information and knowledge was managed in practice; therefore we have used three very different organizations to try to attain such a broad picture as possible. However, the diversity of the organizations prevents us from drawing any substantial conclusions regarding the differences in information and management practices between the organizations. When we state that Swedbank is the organization with the most developed techniques for information management, which could be contingent on a higher need for information and knowledge management techniques within that industry.
This thesis only scratches the surface of the fields of information and knowledge management. These are complex fields where a lot more research needs to be done. However we believe that this thesis will make a contribution to the field by shedding some light on how information and knowledge is managed in practice.

7.3 Suggestions for Further Research

Here we make two suggestions for further research within the fields of Information and Knowledge Management. Both suggestions are related to further researching the practical issues of information and knowledge management to strengthen the connection between theory and practice.

- Are there differences in the need for information and knowledge management in different industries?

This thesis found Swedbank as the organization with the most developed information management techniques, but that is compared to other organizations in very different industries. It would be interesting to for example compare Swedbank to other banks when it comes to information and knowledge management practices in order to conclude whether the practices of Swedbank in such a comparison would stand as strong as compared to organizations in other industries.

By comparing the practical use of Information Management and Knowledge Management between different industries, one could perhaps find that some industries have a higher need for, and are more dependent on, these techniques in order to be competitive. In fact, the theory that managing information is increasingly important for companies in order to achieve a competitive advantage could be dependent on the type of industry.

- Is open communication and high levels of socialization typical information management techniques in Swedish organizations?

We have found many similarities in the techniques used at the different companies, similarities such as open communication and high levels of socialization in combination with low levels of politically used information. These similarities could in further studies be investigated whether they are typical for information management within Swedish organizations.
List of References


List of References


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List of References


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Appendix 1 – Interview Questions
The part in bold is the actual question, the bullet points are prompts that could be used to help develop the answers.

Till Mellan Chefer

Allmänna Frågor

Meddelas företagets resultat till dig?
- Hur får du denna information?
- Diskuteras resultaten djupare?

Vilka typer av finansiella data påverkar ditt dagliga arbete?
- Var / Hur tar emot dessa uppgifter?
- Hur använder du den i ditt dagliga arbete?

Vilka typer av finansiell information rapporterar du?
- Hur / Var rapporterar du dessa uppgifter?
- I vilket format anmäler du det? Hur anmäler du det?
- Vilken typ av feedback får du?

Känner du att du får all finansiell information du behöver?
- Om inte, vilka andra typer av information skulle du vilja ha?
- Varför tror du att du inte får sådan information? Är det företagets policy?
- Får du för mycket information? Är den relevant?
- Är den information du får behandlas och lättbegriplig eller är det bara rådata?
- Är informationen presenterad i ett sammanhang?

Kommunikation från överordnad till mellanchefer

är du nöjd med mängden av finansiell information som du får från din chef?
- Varför?
- Varför inte?

Hur fungerar informations flödet mellan dig och din närmsta chef?
- Uppmuntrar han frågor och diskussion?
- Har ni regelbundna möten?
- Känner du att han förser sig med den finansiella information du behöver?

Känner du att din närmsta chef har en bra förståelse för vad som driver dina resultat/mål?
- Känner du att du får konstruktiv feedback på dina finansiella resultat? D.v.s. feedback som hjälper dig att förstå resultaten och förbättra tillkortakommanden.
- Kan han vägleda dig och öka din förståelse för vad som driver reslutaten?
Finns det andra inom företaget som hjälper dig och kan vägleda dig med finansiella beslut?

Hur ser dialogen ut mellan dig och din överordnade gällande dina resultat/kostnader samt hans resultat/kostnader?
- Ger han dig god insyn i hur det går för dig och er avdelning/företagsdivision?
- Skapar han förståelse för varför det går bra/dåligt?
- Hjälper han till att definiera vad som driver kostnaderna/resultaten?

Tekniker för Informations Delning

Hur bedöms ditt arbete?
- Vilka siffror används för att mäta dina resultat?
- Vilka åtgärder används om du inte når dina resultat?

Vilka sorters finansiella mål / budget mål arbetar du mot?
- Hur sätts dessa mål/budget siffror?
- Sätts de individuellt eller baserat på system/mallar?
- Sätts dem genom diskussion eller sätts de för dig?

Använder ni nyckeltal?
- Vilka sorters nyckeltal?
- Hur sätts dessa nyckeltal?
- Sätts de individuellt eller baserat på system/mallar?
- Sätts dem genom diskussion eller sätts de åt dig?

Använder du finansiell information för att fatta beslut?
- Vilken sorts finansiell information använder du för vilka beslut?
- Hur får du tillgång till den informationen?
- Hur presenteras den informationen?

Hur förvaras gammal finansiell information?
- Har ni databaser ni kan använda för att granska historisk data, trendutvecklingar etc.?

Hur lärde du dig först hur du skulle arbeta med finansiell information, företaget system och så vidare?
- När du först började arbeta på företaget hur lärde de upp dig?
- Hur lång var din träning/innarbetning/traineeprogram?
- Hur stora delar av företaget fick du insyn av? Fick du lära dig t.ex. hur ekonomi avdelningen arbetar och hur den finansiella information du rapporterar hanteras av dem?

Vad gör företaget för att öka din kunskap?
Hålls interna eller externa utbildningar?
Får ni t.ex. utbildningar i nya system eller andra tekniker som kan hjälpa Er att arbeta med, förstå och/eller utveckla er förståelse för finansiell information?
Använder företaget coaches eller liknande för att hjälpa Er att förbättras?

Hur ser företaget på learning-by-doing och benchmarking?
T.ex. för att nå era mål, jämförs ni internt med andra med bättre resultat för att hjälpa er bli bättre?
Ges ni möjligheter att studera andra inom företaget för att bli bättre inom vissa områden?

Hur ser företaget / din överordnade på intern informationsdelning?
Uppmuntras intern informations delning, genom t.ex. möten kollegor emellan?
Kan du diskutera dina resultat och budget frågor med dina kollegor?
Anser du att Ert företag har en kultur som uppmuntrar Er att dela kunskap och diskutera era problem öppet?

Hur får du överblick över din resultat och dina kostnader?
Vilka system finns?
Hur fungerar de?

Finns det handböcker/manualer eller liknande för att hjälpa dig med att arbeta med målsättningar, tolka data/information, förbättra resultat, lägga budgetar etc.

To Middle Managers

General Questions
How is the company’s result communicated to you?
How do you receive this information?
Is the result discussed in depth?
What types of financial information affects your daily work?
Where/How do you receive this information?
How do you use this information in your work?
What financial information do you report?
How/where do you report this information?
In what format do you report is?
What type of feedback do you receive?
Appendix

Do you believe that you receive enough financial information?
- If not, what more types of information would you like?
- Why do you believe that you do not receive this information? Is it the company’s policy?
- Do you receive too much information? Is it relevant?
- Is the information you receive in a context and easy to understand? Or is it only raw data?

Communication from top to middle manager
Are you satisfied with the financial information you receive from your manager?
- Why? Why not?

How does the information flow between you and your manager work?
- Does he encourage questions and discussion?
- Do you have frequent meetings?
- Do you believe that he gives you enough financial information?

Does your manager have a good understanding of what affects your goals and result?
- Do you receive constructive feedback on your financial results?
- Can he help you guide you and increase your understanding of what affects your goals and results?
- Are there other people at the company that can help and guide you with your goals and financial results?

What does the dialog between you and your manager look like concerning your results and costs and his results and costs?
- Does he give you a good understanding of how the department is performing?
- Does he create an understanding on why the results are good or bad?
- Does he help to define what the cost/result drivers are?

Techniques for information sharing
How is your performance measured?
- What key figures are used to measure your results?
- What happens if you do not reach your results?

What financial goals/budget goals do you have?
- How are these goals set?
- Are they set individually or based on systems/formal guidelines?
- Are they set through discussion or are they handed to you?

Do you use key performance indicators?
- What sorts of indicators are used?
Appendix

- How are they set?
- Are they set or based on systems/formal guidelines?
- Are they set through discussion or are they handed to you?

**Do you use financial information to make decisions?**

- What sorts of financial information do you use? And for what decisions?
- How do you access this information?
- How is it presented?

**How is old financial information stored?**

- Do you have databases which can be used to construct historical trends?

**How did you learn how to work with the financial information at your company?**

- Did you have any training when you first started at the company?
- How long was your training?
- How large part of the company did get an insight in? Did you learn how the financial department works with financial information and how the information you report to them is handled?

**What does the company do to increase your knowledge?**

- Do you have internal or external education?
- Do you have education in new systems or other techniques that can increase your efficiency or in another way improve how you work with financial information?
- Does the company use coaches to help you improve?

**What is the company view on learning-by-doing and benchmarking?**

- E.g. to reach your goals, are you compared internally to improve your results?
- Are you given the possibility to study how others work at the company to improve your department?

**How is information sharing view by the company and you manager?**

- Are you encouraged to share information internally?
- Can you discuss your results with coworkers?
- Do you believe that the company has a culture of encouraging information sharing?

**How do you get the larger picture of your results and goals?**

- What systems are there?
- How do they work?

**Are there any guidelines or similar to help you in your work of creating goals/interpret data or other?**
Till Överordnade Chefer

Allmänna Frågor

Hur Meddela du företagets resultat till dina mellan chefer?
- Diskuteras resultaten djupare?

Vilka typer av finansiella data påverkar dina mellan chefers arbete?
- Var / Hur tar de emot dessa uppgifter?

Vilka typer av finansiell information rapporterar dina mellan chefer till dig?
- Hur / Var rapporterar de dessa uppgifter?
- I vilket format anmäler de det?
- Vilken typ av feedback får de?

Hur bedöms dina mellan chefers arbete?
- Vilka siffror används för att mäta deras resultat?
- Vilka åtgärder använder du om de inte når dina resultat?

Vilka sorters finansiella mål / budget mål arbetar dina mellanchefer mot?
- Hur sätts dessa mål/budget siffror?
- Sätts de individuellt eller baserat på system/mallar?
- Sätts dem genom diskussion eller sätts av dig?

- Använder ni nyckeltal?
  - Vilka sorters nyckeltal?
  - Hur sätts dessa nyckeltal?
  - Sätts de individuellt eller baserat på system/mallar?
  - Sätts dem genom diskussion eller sätts de av dig?

Används finansiell information för att mäta huruvida sådana beslut varit lyckade?
- Hur mäts det i så fall?
- Hur/Var presenteras denna information?

Finansiell Informations Hantering & Utbildning

Hur arbetar du med att se till att dina mellan chefer får all finansiell information de behöver?
- Varför arbetar du så? Är det företagets policy?
- Sällar du den finansiella information du får innan du vidarebefordrar den?
- Bearbetar du finansiell information innan du skickar den vidare? Presenterar den i sammanhang etc.

Hur förvaras gammal finansiell information?
Appendix

- Har ni databaser ni kan använda för att granska historisk data, trendutvecklingar etc.?

Hur lär företaget upp sina mellanchefer gällande hantering av finansiell information, läggande av budgetar, arbeta med nyckeltal etc.

- Hur lång tid är de i tränings/innarbetsning/traineeprogram?
- Hur stora delar av företaget får de insyn i under den perioden? Får de t.ex. arbeta på ekonomi avdelningen för att få djupare förståelse för hur företaget arbetar med finansiell information?

Hur ser du på intern informationsdelning?

- Uppmuntras intern informationsdelning, genom t.ex. möten kollegor emellan?
- Anser du att Ert företag har en kultur som uppmuntrar Er att dela kunskap och diskutera era problem öppet?

Vad gör företaget för att öka sina mellanchefers kunskap?

- Hålls interna eller externa utbildningar?
- Ges utbildningar i nya system eller andra tekniker som kan hjälpa Er att arbeta med, förstå och/eller utveckla er förståelse för finansiell information?
- Använder företaget coaches eller liknande för att utveckla mellanchefer?

Kommunikation från överordnad till mellanchefer

Hur fungerar informationsflödet mellan dig och dina mellanchefer?

- Uppmuntrar du frågor och diskussion?
- Har ni regelbundna möten?
- Arbetar du aktivt med att förse dina mellanchefer med den finansiella information de behöver?

Har du en bra förståelse för vad som driver dina mellanchefers reslutat/mål?

- Ger du konstruktiv feedback på mellanchefernas finansiella resultat? D.v.s. feedback som hjälper dem att förstå resultaten och förbättra tillkortakommanden. – Hur?
- Ger du vägledning för att öka mellanchefernas förståelse för vad som driver deras resulutat?
- Finns det resurser inom företaget som kan hjälpa mellanchefer med finansiella beslut?
- Finns det handböcker/manualer eller liknande för att hjälpa mellancheferna med att arbeta med målsättningar, tolka data/information, förbättra resultat, lägga budgetar etc.
Appendix

To the top managers

General Questions

How do you communicate the company’s result to you middle managers?

- Is the result discussed in depth?

What types of financial information affects you middle managers work?

- Where/how do they receive this information?

What types of financial information do your middle managers communicate to you?

- How/where do they report this information?
- In what format do they report it?
- What type of feedback do they receive?

How do you measure the performance of your middle managers?

- What indicators are used to measure their results?
- What do you do if they do not reach their goals?

What types of goals and budgets are you middle managers working towards?

- How are these set?
- Are they set though discussion or based on guidelines?
- Are they set through discussion or do you set them?

Do you use key performance indicators?

- What types of indicators?
- How are they set?
- Are they set though discussion or based on guidelines?
- Are they set through discussion or do you set them?

Is financial information used to measure if decisions have been made correctly?

- How are they measured?
- How/where is this information presented?

Financial information handling and education

How do you do so that your middle managers receive the financial information they need?

- Why do you work like that? Is it a company policy?
- Do you go through the information before you communicate what is relevant?
- Do you work with the information before communicating it? E.g. setting it in your context?

How is old financial information stored?

- Do you have databases so that your managers can create historical trends etc?
Appendix

How did the company trainee the middle managers for their position? In regards to financial information, budgets etc.

- How long was their introduction/training?
- How large parts of the company did they get an insight into? Did they receive information about how the financial department works with the information that they report?

What is your view on information sharing?

- Is information sharing between coworkers encouraged?
- Does the company have a culture which encourages information sharing and discussion of problems?

What does the company do to educate the middle managers?

- Do you have internal or external training?
- Do you have education in new systems or techniques that can improve their efficiency?
- Does the company use coaches to help the middle managers improve?

Communication between top and middle managers

How does the information flow between you and you middle managers work?

- Do you encourage questions and discussions?
- Do you have frequent meetings?
- Do you actively work with giving the middle managers the financial information they need?

Do you have a good understanding of what affects you middle managers goals/results?

- Do you give constructive feedback to you middle managers on their results? How?
- Do you guide you middle managers in what affects their results?
- Are their resources what can help the middle managers in their financial decisions? What?
- Do you have any guidelines or similar that can help you middle managers in their work with setting goals/ interpret data etc.
**Appendix 2 – Questionnaires**

**Enkät Undersökning**

Jag är:  
Man  
Kvinna

Ålder (år):  
<20 20-29 30-39 40-49 50-59 60+

Tid på företaget (år):  
<2 2-4 4-8 8-20 20+

Företag: _____________________________________________________________________

**Hur väl anser du att följande påståenden stämmer mot din bild av företaget och hur information används?**

Skala: (9) Helt korrekt (1) Helt felaktigt

1. Finansiell information är en mycket viktig del av ditt arbete.

   9 8 7 6 5 4 3 2 1

2. Du är tillfredsställd med mängden och kvalitén av finansiell information du får från din överordnade.

   9 8 7 6 5 4 3 2 1

3. Du har tillgång till all den finansiella information du behöver via företagets rapporterings system.

   9 8 7 6 5 4 3 2 1

4. Företaget uppmuntrar när man delar med sig av erfarenheter, information och kunskap mellan olika chefer och avdelningar.

   9 8 7 6 5 4 3 2 1

5. Ditt arbete mäts på ett korrekt sätt och med passande mål/nyckeltal.

   9 8 7 6 5 4 3 2 1

6. Företaget har bra och passande system för rapportering och lagring av finansiell information.

   9 8 7 6 5 4 3 2 1

7. Din inarbetning på företaget gav dig all information och kunskap du behövde för att kunna utföra ditt arbete på ett passande sätt.

   9 8 7 6 5 4 3 2 1

8. Företaget har bra rutiner och system för att utveckla din kunskap och förståelse för finansiell information och de av de system ni använder för finansiell information.

   9 8 7 6 5 4 3 2 1


   9 8 7 6 5 4 3 2 1

10. Din överordnade har en bra förståelse för de faktorer som driver/påverkar dina resultat/mål.

    9 8 7 6 5 4 3 2 1
Appendix

Questionnaire

I am:                                  Man                                                            Woman

Age (years):                          <20   20-29  30-39  40-49  50-59  60>
Time at the company (years):          <2    2-4    4-8    8-20   20>

Company: _____________________________  __________________________________________

How well does the following statements match your view of the practices at your company?
Skala: (9) Helt korrekt (1) Helt felaktigt

1. Financial information is very important in your job.
   9 8 7 6 5 4 3 2 1

2. You are satisfied with the quantity and quality of information you receive from you manager.
   9 8 7 6 5 4 3 2 1

3. You have access to the financial information you need from the internal financial software.
   9 8 7 6 5 4 3 2 1

4. The company encourages sharing experiences, information and knowledge between managers and departments.
   9 8 7 6 5 4 3 2 1

5. Your work is measured correctly with appropriate indicators.
   9 8 7 6 5 4 3 2 1

6. The company has good appropriate systems for storage and reporting of financial information.
   9 8 7 6 5 4 3 2 1

7. Your initial training gave you all the information and knowledge you needed to solve you assignments in an appropriate way.
   9 8 7 6 5 4 3 2 1

8. The company has good routines and systems to develop your knowledge and understanding of financial information and the systems you use for financial information.
   9 8 7 6 5 4 3 2 1

9. You can openly discuss and question financial questions, results and goals with you manager.
   9 8 7 6 5 4 3 2 1

10. Your manager has a good understanding of the factors, which affect you goals and results.
   9 8 7 6 5 4 3 2 1