

Department of Statistics



Stockholms

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No. 2010:1

Some Methodological Probelems Associated with Consumer Satisfaction Surveys: A Case Study among Swedish Organizations

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Abstract

This master thesis deals with common methodological problems regarding customer satisfaction surveys. The use of such surveys is widely spread in society and a large amount of different approaches are implemented. Most companies and organizations choose high customer satisfaction as a major goal in their business plans and strategies. In order to make sound decisions and develop strategies, which really improve customer satisfaction solid customer satisfaction data is necessary to obtain. Then how do the organizations obtain such data, and how should they do it? In this thesis we try to highlight common problems associated with the customer satisfaction data collection and present some suggested methods to deal with them. To show examples of how the customer satisfaction data is obtained in society, we have conducted a number of case studies among some well-known organizations in Sweden. Our findings show that our case studies implement very different methods and that most of them struggle with some common problems. One distinct focus in this thesis is the problem of how the customer satisfaction is conceptualized in the surveys. Our case studies show that not much effort is put on formulating the survey concepts. Little effort is also put on formulating the questions and to make sure they cover the customer satisfaction concept.

In the case studies we have encountered too long and detailed questionnaires with overlapping and poorly defined questions which might induce high nonresponse. High nonresponse is a common problem in customer satisfaction data, but many organizations put little effort into trying to improve the response rate. In some cases the nonresponse is ignored, which makes it very problematic to do statistical inference. Other problems that make statistical inference improper are the use of non-random sampling methods and poorly constructed frames. In our case studies we have also seen that the survey results are not used to the extent possible. The customer satisfaction surveys do not seem to be part of a bigger picture; the results are not used to make real changes in the organization. Nevertheless, the surveys are done quite frequently and the response burden is in some cases high. It seems that the measuring mostly is done routinely and not as a step to improve the customer satisfaction rate. If no improvements are made between the surveys, result changes only reflect the sampling variance. This generates unnecessary response burden and might increase the nonresponse even more in the future. In order to use the customer satisfaction survey results in an ongoing improvement process it is, however, important that the results are produced regularly in a systematic way. Our case studies show that during recent years many of our cases have changed their methods and not necessarily into better ones. This makes it really difficult for the organizations to produce results that can be used for comparisons over time and to establish continuing improvement processes in the organizations based on the customer satisfaction data.

Acknowledgment

We want to thank our supervisor, Professor Lars Lyberg, who has guided us and kept us on the right track. We would also like to thank the representatives from the organizations and companies, who willingly agreed to be essential parts of this thesis and generously shared their experiences with us.

This thesis has been written in full cooperation between the two authors. We take individual responsibility for certain parts of the thesis. The author Anna Björkesjö takes main responsibility for chapter 2.1-2.2, chapter 3.1-3.5 and chapter 5.3.1-5.3.4. The author Karin Lindgren takes the main responsibility for chapter 2.3-2.5, chapter 3.6-3.10, chapter 4 and chapter 5.3.5-5.3.8. We take equal responsibility for all the remaining parts of the thesis.

Table of contents

1.	Introduction	7
	1.1 Purpose	7
	1.2 Methodology	7
	1.3 Limitations	8
	1.4 Outline	8
2.	Customer Satisfaction	9
	2.1 The Concepts	9
	2.1.1 The Concept of Satisfaction	9
	2.1.2 The Concept of Customer Satisfaction	9
	2.2 The Purpose of Customer Satisfaction Surveys	10
	2.3 How to Measure Customer Satisfaction	12
	2.4 Examples of Customer Satisfaction Surveys	14
	2.5 The role of Customer Satisfaction in Business Improvement	15
3.	Methodological Problems with Customer Satisfaction Surveys	20
	3.1 An Overview	20
	3.2 Conceptualizing	22
	3.3 Target Population and Frame Construction	25
	3.4 Sampling	26
	3.5 Questionnaire Design	28
	3.5.1 Question Design	31
	3.5.2 Answering Scales	33
	3.5.3 Acquiescence Problems in Customer Satisfaction Surveys	38
	3.5.4 Testing the Questionnaire	40
	3.5.5 Multinational Surveys and the Translation Process	41

	3.6 Data Collection	42
	3.6.1 Data Collection Mode	43
	3.6.2 Nonresponse	46
	3.7 Data Processing	47
	3.8 Data Estimation and Analysis	48
	3.9 Presentation and Uses of the Results	50
	3.10 Quality Evaluation	53
4	. Benchmarking Indexes	55
	4.1 American Customer Satisfaction Index (ACSI)	55
	4.2 Svenskt kvalitetsindex (Swedish Quality Index)	57
5	. The Use of Customer Satisfaction Surveys in Selected Swedish Organizations	60
	5.1 The Choice of Organizations	60
	5.2 Questions and the Interview Process	60
	5.3 Case Study Results	61
	5.3.1 Statistics Sweden	61
	5.3.2. A Swedish University	65
	5.3.3. The Swedish Tax Agency	67
	5.3.4. An International Hotel Chain	72
	5.3.5. Public Transportation	74
	5.3.6. A Car Manufacturing Company	76
	5.3.7 HSB Östergötland	78
	5.3.8 Tandläkarhuset Älmhult	80
6	. Towards an Improved Customer Satisfaction Survey Design and Implementation Process	81
	6.1 Summary of Results	81
	6.1.1 Literature	81
	6.1.2 Case Studies	84
	6.2 ISO Guidelines	88

6.3 Discussion and Conclusions	90
6.4 Some Modest Suggestions	95

1. Introduction

1.1 Purpose

The main purpose of this master thesis is to study some specific issues of customer satisfaction surveys. The thesis is dealing with the methods widely used today, by corporations, statistical agencies and survey organizations. Many approaches to measuring and monitoring the satisfaction of the costumers and users of a company or organization are used around the world. Some approaches are more solid than others. In this thesis we discuss well-known methods that hopefully measure customer satisfaction in a reliable way. Our case studies show how the measurements of customer satisfaction are done in some Swedish companies and organizations today. Our purpose is to compare these case studies with existing theoretical methods and to highlight common flaws and problems. To further highlight different types of customer satisfaction studies, we will present two benchmarking indexes, the American Customer Satisfaction Index and Svenskt Kvalitetsindex, that do customer satisfaction surveys for all sectors in society. The main focus of our methodology study is on the data collection stages of the cases rather than on the analysis part. The reason for this focus is that the accuracy of the data is a cornerstone of the overall quality of the results.

Another purpose of this thesis is to look at some quality models and determine in what way they highlight customer satisfaction measurements. Many companies today try to improve the quality of their products and services and use different systematic quality management models to achieve that. Customer focus is supposed to be a large part of these models and to be able to use customer satisfaction measurement in a quality management process the data must be reliable. In this thesis we will investigate to what extent the quality models provide advice on how to implement the customer satisfaction measurements.

1.2 Methodology

The literature studies in this thesis consist of both commercial "how-to-do books" about customer satisfaction with tangible tips and pieces of advice as well as more theoretical articles regarding specific topics in survey methodology. The literature consists of old well-known publications as well as the newest literature on the subject. We have exemplified suggestions and pitfalls in the theoretical background with real survey questions. Some of them were originally in Swedish and we have translated them into English with the intention to keep the language as close as possible to the initial wording. Our main method regarding the case studies is in-depth interviewing with a few corporations, statistical organizations and government agencies. The interviews concern their methods of performing customer satisfaction surveys, the use of the results, and how they view the value of the surveys. The choice of organizations is partly based on their reputation of prioritizing customer satisfaction issues. The cases reflect different levels of advanced methods to measure customer

satisfaction. We provide examples of the survey questions used by our cases and these questions have also been translated to English.

We have chosen the most famous business excellence models; The European Foundation for Quality Management model, the Malcolm Baldrige Criteria for Performance Excellence Framework and the International Organization for Standardization when we have studied quality management systems.

1.3 Limitations

We have limited this thesis to the data collection process of the customer satisfaction surveys and to how the results are presented and used. The analysis methods are overviewed briefly. The case studies are limited to Swedish organizations with headquarters in the Stockholm area. The measurements of customer satisfaction have mainly concerned service satisfaction rather than the satisfaction of a product or good. We have mainly concentrated on surveys regarding private customers and not on business-to-business surveys.

1.4 Outline

The thesis begins with a broad theoretical background. In the first stage we explain the meaning of customer satisfaction, the purpose of doing customer satisfaction surveys and the use of the results. In the beginning of chapter 2 we discuss the terms satisfaction and customer satisfaction. What do they really mean? We also discuss the purpose of monitoring customer satisfaction and how it might be measured. In the second chapter we also review common business excellence models and their point of view regarding customer focus.

The third chapter starts with a short overview of methodological problems associated with customer satisfaction surveys. A thorough review of detailed issues of surveys in general and customer satisfaction surveys in particular are presented in the following parts of chapter 3. The issues concern conceptualization, frame problems, sampling, questionnaires, data collection, data processing, analysis, presentation, uses and quality evaluation and other aspects of survey design. In chapter 4, two well-known customer satisfaction benchmarking indexes are presented.

The fifth chapter starts with a more detailed presentation of how we chose our interview cases and how our case study was implemented. The results of the interviews form a central part in chapter 5 and the cases are dealt with one by one.

The thesis is wrapped up in chapter 6 with a summary of both the literature and our case study results. In chapter 6 we also present some International Standards Organization (ISO) guidelines regarding how to measure and monitor customer satisfaction. The thesis and chapter concludes with our discussion of the results and our opinions on theory and practice when it comes to customer satisfaction surveys with some modest suggestion.

2. Customer Satisfaction

2.1 The Concepts

2.1.1 The Concept of Satisfaction

There are many different meanings of the word satisfaction. The most famous English dictionaries provide some fairly similar meanings. One is fulfillment of a need, a wish or a demand. Another meaning is the good and pleasant feeling that a person gets when he or she has gotten something or when something happens that the person wanted to have or to happen. Satisfaction can also be a feeling a person has when a problem is solved in a way the person considers acceptable. Common synonyms to satisfaction are; happiness, contentment, gratification and glee. From this the conclusion can be drawn that satisfaction can be a very pleasant feeling as well as just a feeling of simple contentment.

Oliver (1997) has compiled a number of studies regarding the emotions linked to the word satisfaction and categorized them. The emotions linked to dissatisfaction are also categorized. Oliver states that the results for the word satisfaction are quite clear. Three meanings emerged. The two most frequent are contentment or happiness and pleasure. One less common meaning is delight or elation. The meanings of dissatisfaction are harder to pinpoint, according to Oliver. The most common meaning includes negative modes such as sadness, depression and misery. Other meanings include anger, annoyance and frustration. The conclusion of this compilation is that satisfaction as well as dissatisfaction means different things in different contexts and populations. According to Oliver it is also important to remember that different persons react to the same situation differently, depending on temperament and other factors. Even the same person can react differently due to his or her mood in the given moment. A person's reaction to a product changes over time, when a product is recently acquired the satisfaction often is higher because of a greater interest in the product. The meaning of the product to a customer life is also a part of the person's satisfaction.

2.1.2 The Concept of Customer Satisfaction

Customer satisfaction is a vague concept that is not explicitly measurable because of the different meanings of satisfaction to different people. The concept of customer satisfaction can be defined in many ways. One widely accepted suggestion is by Oliver (1997):

"Satisfaction is the consumer's fulfillment response. It is a judgment that a product or service feature, or the product of service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment"

Satisfaction with a product/service is a construct that requires experience and use of the product or service according to Nagel and Cilliers (1990). Oliver (1997) also states that a number of product and service experiences sum up to the satisfaction of the customer. Another definition, provided by Nagel and Cilliers is that customer satisfaction is an outcome of purchase and use, in relation to the expected outcome by the buyer. The customer weights

the reward against the costs and experiences satisfaction if the rewards fulfill the excepted outcome for the given cost. This definition focuses on the customer. A simple conclusion of customer satisfaction is that if the customer gets what he or she expects for a given price he or she should be satisfied. If the expectations are unfulfilled the customer will be dissatisfied. The European Public Administration Network (EUPAN) has developed a primer on Customer Satisfaction Management in the public sector. EUPAN (2008) agrees that the concept of customer satisfaction is hard to define. The concept is not static, the levels of satisfaction and the reasons for changes alter all the time. Preferences and context have a high influence. The level of satisfaction is complex and is a mixture of experiences; prior, during and after the use of the product or service. The reasons for satisfaction levels can be hard to define and express for the customers, in many cases abstract and intangible factors have a large impact. It is sometimes easier to express the reasons for dissatisfaction than for satisfaction, according to EUPAN.

The concept of satisfaction is as stated linked to the concept of dissatisfaction. Mittal, Ross and Baldasare (1998) state that satisfaction of a service or good often is thought of as a linear concept. If an attribute increases in a positive way the satisfaction of that attribute should increase also. This is however not certain. Firstly, if the satisfaction increases due to positive changes the increase will be less prominent after some point. Continuous improvements may not have the same impact on satisfaction after a while. Secondly, the dissatisfaction increases more rapidly after a negative change or experience compared to the increase of satisfaction for an equivalent positive change. To keep the customer satisfaction rate up it can be better to avoid mistakes than to make improvements, it all depends on how satisfaction is conceptualized by the organization, whether the goal is to avoid dissatisfied customers or to keep all customers extremely satisfied.

Nagel and Cilliers (1990) highlight that the definition by Oliver on the previous page distinguishes between consumer and customer. In general terms the word customer indicates a paying client. A consumer is a user, who uses the good or service. Cassel (2006) states that most companies only have paying customers but in some cases other users must also be taken into consideration. The users of all free governmental services (paid by taxes) are one example and users of free products/services (paid by advertisement) from certain companies are another. One example is free newspapers, such as Metro, that are distributed in many countries. For some companies it is quite easy to keep a register of paying customers. The users are generally harder to list.

2.2 The Purpose of Customer Satisfaction Surveys

For a long time it has been recognized that the success of a company is based on satisfied customers. Nagel and Cilliers (1990) refer to an article by Levitt, in Harvard Business Review 1960, that expressed the importance for business people to understand that an industry is a customer-satisfying process and not a goods producing process. A business should begin with the customers and their needs. Hill, Roche and Allen (2007) state that customer satisfaction has been a key objective in business since the 1980s. In recent years a large industry has

developed for conducting and measuring customer satisfaction. Many definitions and concepts have been developed to describe it and the terminology is very diverse.

Fornell (1992) states that the business strategies of a company consist of offensive and defensive strategies. The offensive strategies are used to get new customers and the defensive strategies are used to keep the existing customers. The defensive strategies can be divided into two categories, building barriers and increasing customer satisfaction. The barriers can, e.g., be bonus systems or transition costs, anything that makes it more inconvenient for the customer to change service provider. According to Fornell, building barriers has two flaws. The first is that it can create difficulties obtaining new customers. The second flaw is that competing companies can give the customers better benefits and then the company can lose many customers at once. Fornell states that increasing customer satisfaction is better than building barriers since it makes the customers more loyal. A company with satisfied customers can handle new competitors better. According to Peterson and Wilson (1992) customer satisfaction is a cornerstone in the business plans and strategies of a company and many companies reflect the objective of high customer satisfaction in their mission statements. Peterson and Wilson also argue that customer satisfaction can be the primary obligation of a company and that all the efforts in a company ultimately should lead to satisfying the customers. Customer satisfaction measurements are one of the most powerful ways to monitor and improve the satisfaction of customers, according to Peterson and Wilson. If a high satisfaction rate is one of the objectives in an organization's business strategy, accurate data on the customer satisfaction is necessary.

A reason for organizations to continually monitor their customer is that today's market provides a range of products and services, according to the CFI group (1996). Many companies all over the world offer the same products and services. The customers are more flexible than before and choose the company that can provide them with the product and service of their choice for the moment. This leads to businesses having to compete on other things than just unique products. The goal with customer satisfaction, according to the CFI group, is to maximize the company's long term profit. When the customers have a choice, they choose the company that can meet their desires regardless of their previous choices. An ideal firm invests its resources in continually improving the quality aspects and processes that are most important to keep the customers satisfied. The companies can, according to Hayes (2008), focus their quality improvement efforts on customer-related issues. One way to stay on top of today's market is to adapt to the customers' needs and wants. To do this the companies have to find a way to accurately measure the customers' attitudes. This is where customer satisfaction surveys come in.

Hill, Roche and Allen (2007) suggest that measuring customer satisfaction is beneficial for the managing of the company for several reasons. The measurements are indicators of how the customers will behave in the future and how the revenue will change accordingly. The measurements are, if done correctly, a very useful tool to find out what the company needs to improve to get its customers satisfied. Finding areas of improvements are the main purpose of the surveys. Satisfied customers are generally cheaper to handle than dissatisfied customers.

Dissatisfied customers complain and must be accommodated by personnel. They are basically more time-consuming which increases the costs for the company. According to Hill and Alexander (2000) the average company loses 10 to 30 per cent of their customers each year. They often do not know which customers they have lost and why. Many companies try to compensate the losses by winning new customers but this can be very costly. Research has shown that it is much more profitable to keep an existing customer than trying to win a new one. Customer satisfaction surveys can provide information on how to keep the existing customers and on what causes customer decay. One explanation for customer decay is the customer's dissatisfaction. Hill and Alexander suggest that the dissatisfaction is caused by a service gap. The service provided by the company does not meet up to the customers' expectations. According to Nagel and Cilliers (1990) many other gaps occur in the sales process. One gap lies between what the management thinks the customers expect and what the customers actually expect. Another gap is the one between the goals of the management and the performance of the company. These gaps and misunderstandings can lead to dissatisfaction and misdirected improvements.

The EUPAN (2008) primer suggests that public organizations also can gain a lot from monitoring the satisfaction of citizens. During recent years several countries in the EU have begun to put their citizens at the centre. Measuring the satisfaction in a quantitative way is only one part in monitoring the satisfaction of the citizens to see if the government provides suitable services and to see if they provide them in the right way.

Dillman, Smyth and Christian (2009) point out that each year most people are asked to respond to surveys about services, products or other things provided by a company or an institution. The surveys cover an almost endless range of topics, from the design of a website to the service provided during a stay at a hotel. Some surveys concentrate on the use of a service or a product and some focus on the feature of the product or the customer experience. Many different methodologies are used and this leads to much diversity in the outcome of the surveys. Some provide good and reliable data and some do not. Hill, Roche and Allen (2007) point out that the surveys sometimes can be unwelcome in peoples' lives due to stress or that they feel intruded. If the survey is too intrusive or unprofessionally designed the satisfaction of the participants a better view of the company. The design and timing of the survey are therefore very important.

2.3 How to Measure Customer Satisfaction

Unfortunately, the field of customer satisfaction measurements is plagued by many poorly designed surveys. Many market research agencies sell complete packages of customer satisfaction measurements which are used by different companies without critical examination. The companies often trust the agencies and cannot put in necessary demands since they lack the needed expertise. The organizations that choose to do the surveys themselves also tend to implement shaky surveys due to the lack of statistical competence. Another issue in the customer satisfaction survey field is the true scope of the surveys and the

intentions of the companies. Some companies fall into the temptation of producing high results rather than accurate results. The results might be used as advertisement or as benchmarking where high results are beneficial. Different designs of a survey can induce different results and the choice of design can therefore be a bit of an ethical dilemma for the companies. The willingness to get better results might be unconscious. Dillman, Smyth and Christian (2009) suggest that there might be a problem when people who have a high interest in the results of the surveys also are highly involved in the designs. In customer satisfaction surveys this can be hard to avoid. Dillman et al. also state that when the object becomes to get a high rating rather than to improve the quality of service the entire measurement process loses credibility.

The basis of a usable customer satisfaction strategy is reliable quantitative measurements of customer satisfaction. The information derived from the measurements must be actionable. This suggests that the measurements must be valid and reliable and reflect the true picture. It also implies that the information must be in a format that is understood by those who have to act upon it. All this is based on a carefully and well-developed measurement instrument, where the customer satisfaction concept is clearly defined. Hill, Roche and Allen (2007) underline the importance of well-known scientific methods. Many customer satisfaction measurements are done with inappropriate methodology and make common mistakes such as asking the wrong questions or asking too many questions. Hill et al. mention the problems with conducting the surveys without the proper knowledge. Many companies do not see the benefit in recruiting experts and try to do the surveys themselves. This often leads to biases and that the measurements do not fit the intended purposes. The customer satisfaction surveys can, in those cases, not be used for proper improvements in the organization. The improvements get misguided.

In EUPAN (2008) it is noted that it is not practical to measure the customer satisfaction level at one time point only. To use the measurements in an improvement process it is important to conduct systematic surveys. If a large change in the organization is about to be made a baseline measurement is recommended. The satisfaction level should be measured before and after the change to see if the change really led to an improvement. Quantitative measurements of customer satisfaction are not the only way to go. When it comes to unsatisfied customers in-depth interviews such as focus groups and customer panels can be beneficial. Another way to measure the quality of a service is so-called mystery shoppers. Mystery-shopping is when the service is controlled by persons who act as ordinary customers on behalf of the company. To assess the satisfaction other indicators are also available. Indirect measurements such as sales numbers, profits and number of complaints are often used as complimentary measurements to the surveys, according to Peterson and Wilson (1992).

2.4 Examples of Customer Satisfaction Surveys

A customer satisfaction survey can be done in many different ways. One simple and very common case is the voluntary surveys that are done in hotels, shopping malls and airports et cetera with self-selected samples. Self-selected samples are not statistically valid because the sampling is not based on probability mechanisms. Quota sampled surveys are another approach commonly used. A quota sample can be done in a store or in a mall or maybe in the subway. The questionnaires are distributed until a specified quota is filled. If one person refuses to participate another person is asked instead. This procedure is not statistically valid either. Another customer satisfaction survey type that is common is a service quality survey conducted over the telephone. A sample of customers are selected and called. This can be done after their use of a service or purchase of a good and where the organization has access to the telephone number of the customer. A call-back after the use of a customer service is a common example of this type of survey. In those cases a sample of customers is often asked to participate during the initial use of the customer service and then called back. The questions regard the use of the customer service per se. The web pop-up survey is often used to monitor customers' attitudes towards a specified web page. The frame is only the users of the web page and a sample of these gets the pop-up. The same person can get the pop-up several times. This is an uncontrolled survey mode because there is limited knowledge about who is answering and who is not answering the survey.

Intercept surveys are common when a conventional sampling frame does not exist. It is a version of systematic sampling, for example when every *n*th paying customer in a store is asked to participate in a survey. If the selection process is done strictly without any influence by the distributor on who is chosen the sample can be generalized to the entire frame population. Often the rigor is hard to maintain since friendly people are easier to ask and the logistical problems can sometimes be overwhelming if many people enter the store at the same time. The responses can be positively biased if friendlier people are approached more often than less friendly-looking people. Some organizations ask every customer to participate in a survey after they purchased a service or a good. Sometimes these surveys are limited to customers that have spent more than a certain amount of money. In cases like this development of customer satisfaction can be monitored. A drawback is that regular customers can get tired of participating in continuing surveys. A participation limit for each customer can therefore be used. More extensive surveys are used by larger companies and organizations. A more or less valid customer frame is used to select a statistical sample. The sampled customers are reached by mail, email or telephone depending on the information in the frame and cost constraints. The results might be analyzed with a somewhat sophisticated method. If the sample is drawn correctly the results can be generalized to the whole customer population.

Except for these surveys implemented by the organizations themselves there also exists external organizations that measure the satisfaction among customers to a number of organizations. In the U.S., the American Customer Satisfaction Index (ACSI) is an example. In Sweden the Swedish Quality Index (SKI) is a counterpart. The methods used by these

indexes have been developed during a long time and they are similar in many ways. A more extensive presentation of ACSI and SKI is given in the chapter 4 of this thesis.

2.5 The role of Customer Satisfaction in Business Improvement

Customer satisfaction is as mentioned earlier a very important part of the quality improvement process of an organization. The concept of standardized quality improvement has evolved during the latter part of the 20th century. There are different definitions of the word quality. One definition is "fitness for use" by Juran and Gryna (1980). In the case of quality improvement for the customer this implies that good quality means that a product or service has the features that meet the customer needs, according to Rao Tummala and Tang (1996). Another similar definition is one by Montgomery (2005); "Quality is the extent to which products meet the requirements of people who use them". "Quality of conformance" by Juran and Gryna (1980) is another approach to quality. It refers to the degree of which a product conforms to its intended use. In this context these three quality definitions point at the same use of the word quality. Good quality is when the product or service meets the customers' demands because the product's purpose is to fill a need of the customer.

Quality management systems are ways for organizations to lead and control activities that address quality and development issues. Quality management systems broadly consist of the processes and the planning that are implemented to reach the quality goals of the organization and to improve the products and services to meet the customer needs. Quality improvement is one important part of quality management. Quality improvement is best envisioned as a process, and the methodology known as Plan-Do-Check-Act (PDCA) by Deming (1986), can be applied. The improvement process begins with *Plan*; define the objectives and processes that are needed to meet the results that the customers and organization require. The next step is Do; implement these processes and objectives. The third step, Check, is monitoring the processes to check if they meet the objectives and established demands. Act is the last step and indicates the need to take the necessary actions to continuously improve the processes and performances. An extension of the PDCA-method to improve the capability of an organization is Six Sigma. The goal of Six Sigma is to minimize the number of defects in the products or services and to achieve less variation in the processes linked to the modern definition of quality where small variation indicates good quality. The method indicates that the variation in the manufacturing or service processes shall be kept within a very short interval and thereby minimizing flaws and waste. The basic tool for quality improvement that is linked to Six Sigma is DMAIC, which consists of the five steps Define, Measure, Analyze, Improve and Control. DMAIC can be used to evaluate the processes and is basically an extension of PDCA. Customer Satisfaction surveys are a part of the Check and Measure parts of the quality improvement processes.

In both Europe and in the U.S. well-known strategic quality management models have been developed to increase quality awareness and competiveness. The prevailing quality model in Europe is called the European Foundation for Quality Management (EFQM) and the main model in the U.S. is the Malcolm Baldrige Quality Model. The International Organization for

Standardization (ISO) has developed several quality management systems. These three models contain a number of main criteria with a number of subcriteria. The models are shortly reviewed in the following parts with special weight on the customer satisfaction criteria.

The European Foundation for Quality Management, EFQM, is a nonprofit membership organization that helps its members to improve their quality strategies, according to SIQ (2009a). The members are companies and organizations across Europe. One tool that EFQM uses is its quality model, the EFQM Excellence Model. The model is a framework for companies that wish to improve their performances. The EFQM Excellence model is the most used framework in Europe and is the foundation of many quality awards across Europe. The model can be used for assessment and management and can provide companies with information about how well they are performing and about what to improve. One of the fundamental concepts of excellence according to EFQM is to create value for customers. EFQM (2010) states that excellent organizations know that customers are their most prominent reason for their existence. It is important for the organization to understand and create value for all the different customer segments. In practice, excellent organizations monitor and review the experiences and perceptions of their customers and strive to create and add value for them, according to EFQM. The organization and the employees must have the necessary tools and information to maximize the value. It is beneficial to involve the customers in the development of new products and services. The EFQM-model 2010 is based on nine criteria, five Enablers criteria that are about what the companies do and how they do it and four Results criteria that cover what the company achieves, seen in figure 1. Results are caused by Enablers and Enablers are improved using feedback from Results in the EFQMmodel 2010.



Figure 1. The EFQM Excellence Model 2010. (EFQM 2010)

The nine criteria are *Leadership; People; Strategy; Partnership and Resources; Processes, Products and Service; People Results; Customer Results; Society Results* and Key Results. The Enablers criteria state that an organization is well-organized with a management that can inspire to and evoke change when needed. The organization engages its co-workers and makes use of their full potential. The strategy of the organization induces processes and

objectives according to the capabilities of the organization and with its stakeholders' interests in focus. EFQM states that an excellent organization manages external partnership and internal resources in order to create and sustain effective processes and support policies and strategies. Both current and future needs should be considered in the planning process. The Enabler criterion that speaks the most of the role of the customer in the organization is *Processes, Products & Services.* The criterion states that an organization should design, improve and manage the processes in order to completely satisfy customer and other stakeholders and increase value for them. The criterion consists of five sub criteria and one of these criteria is to manage and enhance customer relations by building a dialog and continually monitor the perceptions and expectations of the customers. A trust between the organization and the customers is important to establish and maintain.

The Results criteria speak of the importance of measuring the perceptions of the co-workers, customers and society regarding the organization and its performance. Indicators of performance and outcome should be agreed on in order to overview how the strategies have worked. Aside from People Results, Customer Results and Society Results other Key Results are also important in the EFQM Excellence Model 2010. Key Results are both financial and nonfinancial and can be used at indicators on how well the implemented strategies have fallen out. The Result criterion that speaks the most of customer focus is of course Customer Results. The Customer Results are according to EFQM (2010) measured by customer perceptions and internal performance indicators such as delivery time and customer service. The customer perceptions can be measured by customer surveys, focus groups and complaint rate according to EFQM. EFQM states that it is important for the organization to understand the underlying mechanisms of observed trends. The customer results can be segmented to understand the satisfaction of different customer groups. The implemented strategies should be evaluated according to performance indicators based on the opinions of the customers. It is important to reach and maintain high customer results during a longer time-period, according to EFQM.

Malcolm Baldrige National Quality Award is a U.S. quality award which was instituted 1987 and has had a significant impact on quality development in American industries. The purpose of the Quality Award is to highlight good examples so that its experience can be spread to multiple companies, according to the funders. The award is based on the Baldrige criteria for Performance Excellence Framework, often called the Malcolm Baldrige model. According to the Baldrige National Quality Program (2009), the Malcolm Baldrige model consists of seven main criteria, namely *Leadership; Strategic Planning; Customer Focus; Measurement, Analysis, and Knowledge Management; Workforce Focus; Process Management* and *Results,* seen in figure 2.



Figure 2. The Malcolm Baldrige Model. (Baldrige National Quality Program, 2009)

The criteria speak of that senior leaders should guide and sustain the organization and of the organization fulfills its responsibilities in the legal and ethical area. The organization should plan its actions and strategies and study how these objectives are chosen and applied and how the strategies fall out. The organization should make use of its knowledge assets and information technology. To improve its performance the organization should make use of reviews. The organization should focus on and involve its co-workers and customers in strategies and objectives of the organization. It should use the co-workers and encourage them to bring their best performance to enhance the organization's success. The work systems and key processes should be designed to deliver customer value and organizational success. The criterion that speaks the most of the role of the customers in the model is Customer Focus. The category looks into how the organization involves its customers to achieve long-term success. It also examines how the customers' points of view are used to indentify improvement in the organization and its services. The Results category stands for almost half of the model and examines the performance and improvement by the organization in the key outcomes. It studies the customer-focus outcomes, financial outcomes, leader outcomes, market outcomes and process effectiveness outcomes et cetera. The key outcomes are studied in relation to other organizations and competitors.

The focus on customer requirements and feedback from customers are, as stated above, covered in the third criterion, *Customer Focus*. The criterion has a part called *The Voice of the Customers* which deals with how the customers are listened to and how the company uses the information gathered from the customers. Measurements of customer satisfaction and dissatisfaction are covered in this part and how the companies use this knowledge. The model suggests that to determine customer satisfaction; surveys, complaint records, customer referral records, et cetera, can be used. The other subcriterion of Costumer Focus is *Customer engagement* which speaks of how to engage with the customers and how to build a customer focused culture in the organization.

The International Organization for Standardization (ISO) is a worldwide association of national standardization authorities. A company can be ISO-certified according to the standard. It is not ISO that certifies but it provides the standards and the guidelines for the

certifying-process according to ISO (2009a). There are more than 18 000 international ISO standards developed for various areas in society according to ISO (2009a). The ISO 9000 family of standards addresses quality management systems. It is one of ISO's best known standards and ISO 9001:2000 is used by many organizations all over the world. The ISO 9000 series states the principles and definitions for quality management systems and the ISO 9001 series state the requirements, according to ISO (2009b). The newest principles and definitions are found in ISO 9000:2005 and the newest requirements are found in ISO 9001:2008. ISO 9001:2008 is a standard that provides a set of requirements for a quality management system and can be generalized to all kinds of companies. The ISO 9001:2008 standard provides a tested framework for a systematic approach for managing an organization's processes so that they consistently provide products that satisfy customer expectations. Eight principles for quality management are formulated in ISO 9000:2005, according to ISO (2009c). The requirements in ISO 9001:2008 are based on these principles. These principles can be used by the management to enhance the performance of the company. The principles are *Customer Focus*; *Leadership*;, *Involvement of People*; *Process Approach*; System Approach to Management; Continual Improvement; Factual Approach to Decision Making and Mutually Beneficial Supplier Relationships.

The principle regarding customer relation is *Customer Focus*. The principle states that a company depends on its customers and should therefore understand the clients' present and future needs. The organization should meet customer requirements and outperform the customer's expectations. This principle typically leads the company to do research about customer needs and communicating them through the organization. Measurements of customer satisfaction are needed and the company should act on the results. Many other actions to concentrate on customer focus are also important according to the principle.

The requirements in ISO 9001:2008 are linked to customers in many ways. ISO 9001:2008 states that top management shall ensure that the requirements of the customers are established and that the requirements are met to raise customer satisfaction. The importance of determining the customer requirements regarding the product is emphasized. It is also important to establish ways to effectively communicate product information, customer feedback and other important communications between the customers and the company. ISO 9001:2008 also states that one of the indicators of the performance of an organization is measured by the perceptions of the customer satisfaction surveys and user opinion surveys. ISO does not give any guidelines on how to determine customer requirements was, however, published during the time we wrote this thesis and will be referred in the last chapter. The standard is called Quality management - Customer satisfaction - guidelines for monitoring and measuring (ISO 10004:2010). It should be noted that ISO also has developed a standard on how to deal with customer complaints (ISO 10002:2004).

The three models, EFQM, Malcolm Baldrige and ISO 9001 all include similar concepts as seen above. All the models claim that the customer satisfaction aspect is a very important part of all of them and is explicitly mentioned in the criterion *Customer Results* in the EFQMmodel, Customer Focus in Malcolm Baldrige and Customer Focus in ISO 9001. However, when the EFQM model 2010 is used for the assessment of the EFQM excellence Award Customer Results correspond to only 15 per cent of the points. 75 per cent of these are the customer perception, i.e., 112.5 points. In the Enabler Processes, Products and Services customer relations is one of five subcriteria. Processes, Products and Services is worth totally 100 points in the EFQM model. In the Malcolm Baldrige National Quality Award, Customer Focus stands for 85 of the total 1000 points. The Voice of the Customer stands for 45 of these 85 points. The other 40 points is the Customer Engagement. In the Results criterion, which takes up 450 points of 1000, a subcriterion is Customer Focused Outcomes. The subcriterion stands for 70 points and rewards the level of customer satisfaction and dissatisfaction. The models are supposed to revolve around the organization's ability to meet customer needs and customer demands. To do this the organization needs accurate data about what the customers want. Reliable measurements are an important tool in this process but the models unfortunately do not provide standardized ways of measuring customer satisfaction. The demand for accurate data does not seem to be high in models, which can be a problem. The data collection methods are not rewarded in the models, the existence of customer satisfaction data is enough to score high points.

3. Methodological Problems with Customer Satisfaction Surveys

3.1 An Overview

The field of customer satisfaction surveys is associated with many challenges and problems. Many of these will be covered in this chapter and we will try to sort out the problems and present different views. In today's market a variety of methods are used, both by the organizations themselves and by hired external research agencies. Some of them are reliable and good but many of them are very questionable. One issue is the lack of knowledge on how to conduct a survey and many ad hoc methods are therefore in play. When hiring an external agency the organization sometimes loses insight in what is really going on. An organization that does not possess the required knowledge in the survey field cannot put demands on a hired agency which opens up for agencies that use questionable or too simple methods. Often the organizations buy standard survey packages which leave little room for individual adaption and critical review. However, when the organization does not possess the required knowledge or the time to conduct its own survey, it can be beneficial to hire a good external agency. This alternative also avoids the possible bias that might be created when an organization surveys its own customers.

As seen in chapter 2, the concept of customer satisfaction can be tricky to pin point. Satisfaction can be experienced differently by different persons and different aspects are

important. The expectations of the customer are a large part of how the satisfaction level works. It is important to know that the concept is very complex when conducting the survey and to really think about what one wants to measure. Often the conceptualizing part is skipped in customer satisfaction surveys and the survey process starts with the question writing. This is negative since it might create a gap between the survey results and the intended use of them. The scope of the survey is important and especially in customer satisfaction surveys the results must be actionable. They are supposed to be a part of a large improvement and quality model, as we discussed in chapter 2.5. In order to get actionable results most organizations want a measure of what aspects of a service or purchase matter most to the satisfaction or dissatisfaction levels. In order to get such a measure different approaches are available. One alternative is to ask the customers to rate the importance of each aspect and a measure of overall satisfaction is studied. The overall measure can be a composition of different questions or one separate question. All this things must be considered before starting up the study.

One really big problem when conducting a customer satisfaction survey is to define the population of interest. We have previously discussed the difference between customers, consumers and users and the organization must decide on which of these to study. Another classification is regular customers, occasional customers and possible customers. Which to study is up to the organization and it might be very hard to define the elements in the population. The important thing is to at least know about the different customer categories. When the elements have been defined another problem is to find a way to contact them. Some organizations have registers of their customers which are easy to use and continuously updated but others are not so lucky. In many customer satisfaction survey no registers at all exists, as mentioned in chapter 2.4.

When the concept and scope of the survey as well as the population are clearly defined the questionnaire must be developed. When developing the measurement tool two things can be considered. First, does it measure the intended concept and secondly can the customers answer it? Aspects that are important to the organization might not be important to the customers. The customers can have a hard time answering detailed questions about a service or product because they might not have considered those aspects. They have to come up with an answer on the spot which may lead to acquiescence and satisficing behavior, further discussed in chapter 3.5.3. When formulating a questionnaire one must consider if the information is retrievable for the respondents. Since customer satisfaction surveys mostly measure attitudes, answering scales are often used in the questionnaire. A variety of answering scales exists and one important thing is to remember that they can produce different results and that some scales might bias the results.

In order to get an actionable results that can be generalized to the whole population of interest, the sampling method is very important. If the results should be used for statistical inference, a valid sampling method must be chosen. A problem in customer satisfaction surveys is that it is hard to conduct a random sampling process. This is due to the fact that the customers can be

hard to locate and some sort of screening process must be used. Another explanation is that the nonresponse often is high and has to be dealt with. Many customer satisfaction surveys use quota sampling where it is easy to substitute sampled persons that refuse to participate. This method opens up for invalid samples that are not suited for inference. Another issue which makes it hard to make inference is that the response rates often are very low in customer satisfaction surveys. The low response rate can be a result of lack of interest from the customers and that the market is fed up with these types of surveys.

As for the analyses used in customer satisfaction surveys they are also very diverse. One problem is when the analysis is much more complex than what the data quality allows. The data might not hold for inference and the sample might not be representative to a larger population but this is neglected in the analysis and the presentation part of the customer satisfaction survey. The major point in conducting customer satisfaction surveys is to use the results in the organizations. When a lot of time and effort have been put down into a survey, it would be a waste not to use it. A problem is that organizations might conduct these types of surveys by routine and not as a part of a larger picture. The results are presented at a few meetings but no real actions are taken and the organization does not work with the results effectively. All of these topics and many others are dealt with in the following parts.

3.2 Conceptualizing

According to Peterson and Wilson (1992) most satisfaction surveys have one thing in common. They all produce results that are negatively skewed with more satisfied than dissatisfied responses, illustrated in figure 3. When planning and conceptualizing a customer satisfaction survey this phenomenon should be kept in mind. Peterson and Wilson (1992) also state that the mode often is the most positive response alternative. Then why is the satisfaction distribution often skewed to the left? Are the customers really that satisfied or is the distribution dependent on measurement methodologies that systematically bias the answers? Peterson and Wilson (1992) present possible explanations to the skewness of the satisfaction distribution. One explanation is quite understandable; most people are satisfied with choices they have made for themselves and services and purchases are often self-selected. If they did not think that they would be satisfied they would not have made the purchase and often the outcome is as expected. Another explanation is that the psychological construct of satisfaction is skewed, meaning that people generally are more satisfied than dissatisfied. A third explanation that Peterson and Wilson suggest is that the research methodologies and the interview mode create the positive bias.



Figure 3. Conceptual distribution of satisfaction measurement. (Peterson and Wilson, 1992)

Thomas and Sturgis (not dated) state that in practice at least 75 per cent of the respondents in general answer that they are fairly or very satisfied when asked about overall satisfaction. In those surveys the same respondents often have stated a level of dissatisfaction on specific areas that does not correspond to their ratings of overall satisfaction. Thomas and Sturgis state that an explanation can be that the respondents might mean that they redeem the quality "acceptable under the circumstances" when they state that they are satisfied with the quality. To solve this problem Thomas and Sturgis suggest that the attention should be focused on the dissatisfied side of the scale and try to make the proportion of dissatisfied customers smaller. Thomas and Sturgis also suggest that the concept of satisfaction might be replaced by the concept of excellence. The skewness of the satisfaction distribution can be different in different groups. Thomas and Sturgis say that this might be because some groups have lower expectations and are easier to please and therefore are more satisfied. One implication of the different expectations is that the group structure in the population might influence the results.

To meaningfully do a customer satisfaction survey it is important to know exactly what the company wants to accomplish. As mentioned above, customers might interpret the word satisfactory as acceptable but the organization interprets it as good or excellent. When the objectives of the survey are constructed the many interpretations of the word satisfaction should be considered and also that customer satisfaction is a complex concept. When the objectives are decided the first step is to translate these goals and concepts into the research objectives or in other words operationalize the purpose of the survey. Hox (1997) states that specifying the research objectives correctly reduce the specification error and improves the validity of the survey. The specification error is a measurement error which occurs when the survey and survey questions do not measure the intended concept. In survey methodology much effort is laid on formulating the questions. But as stated above before the question wording can begin much work must go into deciding on the concepts that the researchers want to measure and how to cover them explicitly. The concepts have to be named and described by their attributes and purposes. The concept-formatting involves defining the concept and its meaning in much detail. The researchers then must find empirical measurements that fit the concepts. It is only after that the variables can be defined and the question-formatting stage can begin. If there is a misfit between the concept and the survey questions the relevance will be off and a specification error has occurred, according to Hox. Common in customer satisfaction research is that the concept is developed according to the company's view rather than the customers' view. Hill, Roche and Allen (2007) state that to be able to use the results

23(96)

to improve the satisfaction, the customer point of view must be the one determining the concept. One common mistake is to ask the wrong questions and thereby covering the wrong concept.

The first step in the conceptualization is for the organization to decide the purpose of the survey. Is it exploring or testing theories or is it getting material to decide on policies? What does the company want to accomplish? No matter what, the purpose has to translate into concepts. The initial concepts are often theoretical and diffuse. The challenge is to gradually make them less abstract and more defined. What do the concepts mean exactly and how can they be measured? The process from concept to question construct can, according to Hox (1997), be seen as a translation from theoretical concepts into suitable observable variables. The researchers have to operationalize the concepts. The important thing is to think trough what to measure and use both theoretical and empirical analysis as parts of the conceptualization and the operationalization.

Hill, Roche and Allen (2007) suggest a concrete approach to conceptualizing and they believe that exploratory research can be used to decide what the customer satisfaction concept and questionnaire should cover. They argue that it is important to see customer satisfaction through "the lens of the customer" and not from the company's perspective. In exploratory research in-depth interviews with a variety of customers can be used. The interview questions should be indirect and make the customer speak broadly about the subject. Focus groups with approximately eight persons in each can also be used for the exploratory research. Common for each method is that the customers get to rate the importance of the subject discussed after the interview. This provides an indication on what subject should be covered in the questionnaire. Hill et al. argue that the questionnaire derived from exploratory research can be used for a few years at a time. The exploratory research does not have to be repeated every time but maybe every three years. The customer requirements change over time and new matters get important to the customers. If the exploratory research shows that the questions need to be changed, Hill et al. do not believe that the comparison of the survey results over time is disrupted. They believe that the same concept is being covered if the exploratory research is successful and done in a consistent way each time.

Nagel and Cilliers (1990) suggest an eight-step approach to developing a reliable measurement instrument to cover the satisfaction concept. The first step is to specify the domain of the concept. Definitions of what the concept includes and excludes must be carefully specified. This is done by research of relevant literature and previous studies and also by contact with experts in the given area. The second step is to generate an item pool. The items must capture all dimensions of the concept. The items are developed by the use of focus groups of customers, sales personnel and other people involved in the customer satisfaction process. The items must later be edited and further specified. Each item can only refer to one dimension and the wording must be precise. The third step is an initial data collection. The items are used on a sample of customers that is representative for the whole target population. Their input of the items and how the customer satisfaction depends on each item is used in further development of the items. The fourth step is to purify the items. A

selection of the items is made and the items are chosen based on their significance to the concept. Item analysis is used to determine which items are irrelevant in representing the concept. In the fifth step the selection of items is tested on a new sample of customers. The sample evaluates the importance of each item to the concept. The item pool is analyzed again in the sixth step in a similar way as in step 4. The seventh step consists of the final purification of the items. The purpose, according to Nagel and Cilliers, is to secure the validity and reliability of the survey. Factor analysis is performed to confirm the selected items' significance to the concept of customer satisfaction. The eighth and final step consists of developing norms on how to analyze and interpret the results. The exploratory research model and the eight-step model are two of a number of approaches towards conceptualizing the customer satisfaction.

Fornell (1992) suggests that customer satisfaction could be defined by a function of three indicators. The three indicators come from different sources and they are general satisfaction, confirmation of expectations and the distance from the customer's hypothetical ideal product or service. Today many customer satisfaction surveys use these three indicators to measure overall customer satisfaction. Some also involve customer loyalty and to which extent the customer is willing to recommend the company or organization. Thomas and Sturgis (not dated) state that overall questions often are hard to act on for managers and decision makers. These questions do not give any guidelines on what to improve. The overall question must therefore be combined with specific questions that give actionable results. A problem occurs when the rating of the overall questions overshadows the more actionable results in the use of the survey results. Many organizations tend to focus on the overall score rather than really investigate what needs to be improved.

3.3 Target Population and Frame Construction

In all surveys one must decide and define which objects are to be studied. The first step is to define the target population. It is often difficult for companies and organizations to define and map its customer base, which makes it difficult to define the target population. The organization must also consider the difference between customers and users, regular customers, occasional customers and possible customers. In some cases a company wants a picture of the satisfaction of all regular or occasional customers but sometimes it can be more relevant to only study a subgroup of customers, e.g., big spenders, according to Hayes (2008). The goal is to survey the target population but this is almost impossible in many cases, especially in customer satisfaction surveys. To monitor a group of objects a frame of these must exist or be created. The frame population limits the opportunities on which objects that can be monitored. Many kinds of businesses do not have an actual record of its customers, e.g., stores and restaurants. In many cases they can only survey those customers they can reach in some way. The companies that do have actual records of their customers often do not put down a lot of effort in keeping them up-to-date, which is a problem when constructing a frame. Coverage problems occur when the frame does not correspond one-to-one with the target population. Three kinds of coverage issues can occur, according to Biemer and Lyberg (2003). The first is undercoverage, when the frame does not cover the whole target population. This is the major coverage problem in customer satisfaction surveys. The frame is often very different from the target population and the entire customer base. An element is out of scope when it is in the frame population but is not supposed to be in the target population. In customer satisfaction surveys an example of this can be when every *n*th visitor in a store is observed, when the target really was to only observe paying customers. Overcoverage occurs when the frame population has two or more units that correspond to the same element in the target population. To create a better frame two or more frames are sometimes combined to better cover a target population. The combination demands a link in both frames that corresponds to the same variable for each individual, e.g., social security number or organization number. In the new frame duplicated units can be a problem and these must be eliminated. A customer satisfaction survey example is when the customer record from a reward program and the record of online customers are combined. The risk of duplicates is high but the customers buying over the counter are still not covered. The links between records are often weak when it comes to customer registers and the frame construction can be very complex.

3.4 Sampling

One important purpose of a customer satisfaction survey is to get a relevant result that can be generalized to the whole customer base or a subgroup of customers. In order to use the results in the quality improvement process in a sound way the results must give a proper picture of the total customer satisfaction. To survey a sample of customers and use statistical inference to be able to estimate the satisfaction of the whole target population demand an accurate probability sampling method. The good sampling frame is the first important step towards a valid sample. A poor frame does not give each individual in the target population a selection probability above zero. Lin and Jones (1997) state that often in customer satisfaction surveys an uncontrolled sampling method is used which leads to a non-measurable sample, not suitable for statistical inference. Examples of uncontrolled sampling methods are when store staff selects the samples and self-selected sampling of hotel guests.

Another question is how large the sample should be. The sample must be large enough to be used in statistical inference. But the sample should not be too large, and the sample size must reflect a balance between accuracy, costs and response burden. Hill, Roche and Allen (2007) state that a minimum of 200 responses from customers must be collected and that there must be at least 50 respondents in each subgroup. If a company has less than 200 customers they suggest that a census is appropriate. The accuracy always improves with a larger sample. Dillman, Smyth and Christian (2009) state that the new technology conveys a possibility to reach many people, often, at a low cost. A possible consequence of this is that a company sends the survey to everybody in their customer frame and surveys them frequently which leads to overburdening of the respondents. The overburdening often leads to nonresponse. An example of overburdening is when a company consistently asks each buyer to complete a questionnaire after each purchase. Frequent buyers tires from this repetitiveness. To minimize the nonresponse it is recommended to sample the customers and to survey them quite rarely. A longer time between surveys provides an opportunity to develop the questionnaires and to

analyze the data more thoroughly. More time and resources can be spent on follow-ups of nonrespondents. It is important that the nonresponse is not biased. The respondents should cover all types of customers to be representative.

In those cases when the frame is not an actual record, for example of the customers in a store, an intercept survey can be conducted. Dillman, Smyth and Christian (2009) state that in an intercept survey every *n*th customer or visitor is surveyed during a time period. It is important that the sample is randomized and not based on judgmental approaches. If the staff gets to choose the respondents they are likely to ask the more friendly customers to answer the questionnaires. This creates a positive bias. Even if the sample is done systematically the impact of the staff can influence the result. If in-person appeals are used the staff are more likely to spend more time persuading a friendly customer than a less friendly customer. The friendly customer thereby gets more instructions and is more likely to answer the questionnaire. Furthermore, when the sample is selected by the employees, and the questionnaire is a part of their own evaluations, the staff is also more likely to choose friendly customers to get a higher score. The alternative in these cases is to hire an impartial company to do the selection and distribution parts of the survey.

When a solid frame exists with good contact data for all units in the sample the base for a good randomized sample process is present. A major goal of the selection process is to ensure the sample is representative of the larger population of clients. One way to select the sample from the frame is simple random sampling. All individuals in the frame have the same probability of being selected. If the response rates are decent and the nonresponse is completely missing at random the results can be generalized to the whole population. Another more effective and more common approach to random sampling is systematic sampling. Every *n*th customer is chosen from the frame. Intercept sampling is a variant of systematic sampling, e.g., when every *n*th paying customer in a store is asked to participate in a survey, and is very common in customer satisfaction surveys. If the frame is completely randomized the results from the systematic sample can be calculated in the same way as in the simple random sample approach. Vavra (1997) states that stratified random sampling can be used when a company wants to assure that subgroups of customers are included in the sample. Stratified sampling is very common in customer satisfaction research. The strata can be chosen based on a variable that correlates with the variable of interest. The stratification can for example be done on amount of money spent or loyalty. Gender and age are also common stratification variables. In each stratum a random sample is drawn, but different strata have different selection probabilities. Stratified sampling is needed when a special subgroup is being studied and it is important that the sample in that subgroup is large enough. When the differences between strata are large the precision can be raised by stratified sampling. In the analysis the inclusion probabilities must be accounted for and the known probabilities must be larger than zero. When a company can localize different customer groups that are suspected to be very similar, it can be enough to monitor only one or a few of these groups. This scenario is suitable in cluster sampling and the clusters are these naturally created groups. The diversity in one group must be similar to the diversity in the other groups. The clusters in customer satisfaction surveys can for example be different stores according to Hayes (2008). One store can be selected as representative for all stores in a chain because the clienteles are considered homogenous. Cluster sampling is however not common in customer satisfaction surveys due to the fact that the purpose is to compare different stores against each other.

The quota sampling is a common but controversial way of sampling. It is sometimes viewed as nonrandom and not statistically valid. The sample is based on quotas to be filled. When a pre-specified number of people with a specific property have been surveyed, that quota is filled. If a person does not have the sought property he or she is not a part of the population and is therefore not surveyed. In this approach substitution is often used. If a person is unavailable or refuses to participate another person is surveyed instead. The substitution can create sampling errors because some of the refusals can be linked to the satisfaction rate. An example is if dissatisfied customers refuse to participate and are substituted, the satisfaction scores will be higher than if they had participated. There are a number of other sampling methods that are not statistically valid. In these cases the sample cannot be generalized to the whole population. Judgmental sampling is according to Vavra (1997) one of these method. The sampling is based on the judgments of the person conducting the sample procedure. It can, however, create valuable input on a specific issue and be a starting point for a larger survey, according to Vavra. The sampling methods in the customer satisfaction survey field are typically not very sophisticated. Possible explanations can be that the companies do not possess the acquired knowledge or that they are not willing to spend the time and money to do a correct sample. The frames are often difficult to work with and it is hard to draw a representative sample. Another explanation is that the companies are more interested in getting a high response rate rather than doing the sample with a statistically valid method.

3.5 Questionnaire Design

The quality of the customer satisfaction survey very much relies on the questionnaire design and the questions' ability to measure the items they are supposed to measure. As mentioned in previous chapters the survey concept must be very well defined. The next step is to construct questions that cover the concept and solely measures that concept. Three important things to consider in questionnaire design are the questions, the layout and the answer categories.

In many customer satisfaction surveys one or a few overall satisfaction questions are asked in the questionnaire, often in the end. The three mentioned questions, by Fornell (1992), about overall satisfaction, expectations and ideal supplier are one example. These questions are often used to calculate an overall customer satisfaction index. The other questions often deal with different question areas, such as client treatment and service level, and subindexes can be calculated for each area. The questions are typically answered on a scale. The variation of scale types seems endless and will be treated later in chapter 3.5.2. The customers are often asked to consider a number of statements regarding the organization and there are often questions regarding loyalty and willingness to recommend the organization. Vavra (1997) states that since the customer satisfaction measurement is a part of a larger quality process the most important objective should be to pinpoint the greatest dissatisfaction among the

customer. Where are the largest areas of improvement? The company also wants to see where the largest satisfaction improvement can be made to the lowest cost. Therefore it is important to establish which areas are the most important for customer satisfaction and where the company has gotten a low score. To establish the dependence between subareas and overall satisfaction rate different methods can be used. One way is to ask the respondents about both their level of satisfaction and their expected satisfaction with a specific area. The area with the biggest gap between the two is the most important to improve. The method does not say anything about how important the areas are to overall satisfaction unless some sort of effect estimates are derived. Another approach is to ask how important the customer grades the specific area to his or her satisfaction. In this thesis this is called the importance question. When compiling the different areas or questions to an overall result the subareas are weighted according to the corresponding answers on the importance questions. According to Hill, Roche and Allen (2007) when using such a method it is better to put the importance questions separately from the satisfaction questions. Otherwise the questions influence each other. The most common approach is, however, to put them together with the satisfaction questions, as seen in figure 4. When asking for the importance, the respondents in customer satisfaction surveys have a tendency to overrate the importance of each area. Hill et al. states that this can be avoided by using a 10-point scale and by looking at the relative stated importance.

and IMPORT	ANCE	using th	ne mark	s from 10) to 6, wl	here 10) indicat	es			
nsatisfied".		ũ									
IMPORTANCE						SATISFACTION					
6	7	8	9	10	6	7	8	9	1		
e 10	and IMPORT. nsatisfied". 6	and IMPORTANCE of insatisfied".	and IMPORTANCE using the nsatisfied".	and IMPORTANCE using the mark nsatisfied". IMPORTANCE 6 7 8 9	and IMPORTANCE using the marks from 10 nsatisfied". IMPORTANCE 6 7 8 9 10	and IMPORTANCE using the marks from 10 to 6, where the marks from	and IMPORTANCE using the marks from 10 to 6, where 10 nsatisfied". IMPORTANCE SAT 6 7 8 9 10 6 7 6 7 8 9 10 6 7	and IMPORTANCE using the marks from 10 to 6, where 10 indicat nsatisfied". IMPORTANCE SATISFACT 6 7 8 9 10 6 7 8	and IMPORTANCE using the marks from 10 to 6, where 10 indicates nsatisfied". IMPORTANCE SATISFACTION 6 7 8 9 10 6 7 8 9 10 6 7 8 9 10 6 7 8 9		

Figure 4. In this example the respondent is asked to rate the importance of each area. An unconventional scale from 6 to 10 is used for both the satisfaction and the importance.

Another option is not to ask for the importance but to model it based on the correlation between each question and the overall satisfaction. Hill, Roche and Allen (2007) state that when using this method it is important that all the questions are measured on the same scale. They further state that this method gives the impact of each question to the overall satisfaction score and not the importance. The impact is more sensitive to current changes and the importance is a more stable measure of actual importance. The topic of importance relative to importance rate is further discussed in chapter 3.8.

A compelling questionnaire can make the survey more interesting to a responding customer and increase the response rate. To make the questionnaire compelling to the respondents, the layout must be considered. Hill, Roche and Allen (2007) recommend that the questionnaire is easy to read and not too compact. Figure 5 is an example of a very compact and unclear question layout. Different data collection modes have different layout options. The response rate can be raised if the questionnaire looks professional. If the survey or the invitation letter is done by mail, the logo of the company, doing the customer satisfaction survey, can be printed on the envelope to give a more official feeling. A carefully worded invitation letter can raise the response rate. It is also recommended to thoroughly tell the respondents how important their input is and to properly thank them for their participation.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
It improved morale.	1	2	3	4	5
It improved productivity.	1	2	3	4	5
It raised awareness about the need for physical activity.	1	2	3	4	5
It increased social support for physical activity.	1	2	3	4	5
It increased energy.	1	2	3	4	5
It increased ability to handle everyday stress more effectively.	1	2	3	4	5
It decreased depression.	1	2	3	4	5
It decreased irritability.	1	2	3	4	5
It improved working relationships with peers.	1	2	3	4	5
It increased concentration.	1	2	3	4	5
It took up too much work time.	1	2	3	4	5

Figure 5. This question matrix originates from a questionnaire regarding a training program and is very compact. It is hard to tell which line corresponds to which question. A respondent might get discouraged when trying to answer these questions.

To maintain the interest of a respondent throughout an interview, it is best to keep the questionnaire as short as possible. Hill et al. state that customer satisfaction questionnaires often are developed from the company's point of view but it is better to develop it from a customer point of view to keep the interest and understanding of the respondent. Vavra (1997) suggests a time limit of 30-45 minutes in face-to-face interviewing and 20 minutes in telephone interviewing. It is harder to give a limit in self-administered questionnaires but the number of pages should be kept to a minimum. Hill, Roche and Allen (2007) suggest that an interview or questionnaire generally should not take more than 10 minutes to finish. They also suggest that at most 50 questions can be answered in 10 minutes, if the questions are consistently designed. The views differ quite a lot in time. The explanation can be that during the ten-years time period between 1997 and 2007 the respondents have become less patient and more time sensitive.

The order of the questions in a questionnaire can influence the answers and the response rate. According to Peterson and Wilson (1992) little research has been done regarding question order in satisfaction surveys. An experiment conducted by Peterson and Wilson showed that when a respondent is asked an overall satisfaction question prior to a specific satisfaction question the results in the second question were more positive in comparison to the answers by respondent who only got the specific satisfaction question. The explanation can be that the specific item is considered better in comparison with the overall picture. Krosnick and Presser (2009) present some advice regarding question order. The initial questions should be closely linked to the survey topic as it has been presented to the respondent. This creates trust and gets the respondent motivated. The initial questions should also be fairly easy for the **30(96)** respondent to answer and engage the respondent. The respondent interest in customer satisfaction surveys is very varying. Some companies provide services that are very important to the customers and the customers are therefore very interested in answering questions about the company and its services. Examples of this are expensive purchases as cars. Other companies have a harder time to create an interest in the good or service. The retail industry is an example. Krosnick and Presser also suggest that questions on the same topic should be grouped together. The questions regarding the same topic should be ordered from general questions to specific questions. Sensitive questions should be placed at the end of the questionnaire. It is more likely that the respondent finalizes the survey if the sensitive questions come at the end since the respondent already have put in an effort in answering the earlier questions. However, in most customer satisfaction surveys sensitive questions are rare.

3.5.1 Question Design

According to Fowler and Cosenza (2008) the ultimate goal of question design is to formulate reliable questions so that they are interpreted in the same way by different people and at different time points. The questions must also be neutral and not bias the responses in any way. There are lots of general hints regarding question design. One way to make the questions consistently understood is not to use technical terms, unfamiliar wording or slang. A pitfall in especially customer satisfaction measurements is the use of business terms in the questions. Another important consideration is to specify the question in time and space. The reference period should be very specific. Asking more than one question in the same question, so called double-barreled questions, should also be avoided. An example is provided in figure 6. In the case of double-barreled questions the respondent decides which question to answer and the results are not interpretable. In the design phase the researcher perhaps thinks that the doublebarreled feature actually clarifies the question but to the respondent the double-wording can mean two different things. Other things that should be avoided in question writing are negations, redundant words and unclear wordings. A question should be short, precise and well defined. It is also important to avoid leading questions. Peterson and Wilson (1992) have studied the impact of positively worded questions as How satisfied are you with ...? against the counterpart How dissatisfied are you with ...? The results showed that the difference in answer distributions is statistically significant and that answers to the first question were more positive. The dissatisfied-question still produced the skewed answer distribution mentioned in chapter 3.2. Since most customer satisfaction surveys use positively worded questions, positive bias must be considered.

How does the:	Very Good	Quite Good	Not so Good	Bad	Not taken a position	Does not apply
Cleaning of the courtyard/neighborhood work?						

Figure 6. This is an example of a question from a tenant satisfaction survey. The example above shows a doublebarreled question. The courtyard and the neighborhood can be two very different things and the responsibility of the maintenance often lies with two different authorities. The question is neither defined in time nor in space.

The questions are often balanced between what the researcher wants to know and what the respondents actually can answer. The information respondents are asked to provide must be retrievable for the respondent. The questions must therefore be constructed in a way that they both cover the survey objectives and are answerable for the customers. Customer satisfaction surveys often ask detailed questions about diverse subjects regarding the company. Many people do not have any formulated attitudes on all these subjects and are not especially interested in the survey topic. Many respondents therefore make up an attitude at the moment but might feel differently after some reflection. Many different aspects of the company might be considered and the recollection of these aspects can sometimes take a long time for the respondent. Details regarding the company do not always stay in the memory of the respondents. The retrieval process can take some time and those details are therefore not considered when answering the questionnaire. To avoid the time-consuming recollection process some people might give in to satisficing behavior, according to Krosnick and Presser (2009). Satisficing is when the respondent does not put in a best effort when answering the questionnaire and instead selects an easy answer to get out of the answering process. Satisficing is a very common problem in customer satisfaction surveys since they often ask too detailed questions that the respondents do not have any interest in. One way to avoid these problems is to keep the questionnaire as short as possible and to not ask any unnecessary or too detailed questions.

When the question is worded, the appropriate response alternatives must be considered. The response categories must fit the question. The respondent must be able to answer the question with an alternative that fits his or her opinion. A general tip by Krosnick and Presser (2009) in formulating the answers is that they must be mutually exclusive and exhaustive. The order of the response alternatives can influence the respondent. If many alternatives are offered the respondent often chooses an alternative on the top of the list if the alternatives are visually presented e.g., on a paper or in a web questionnaire. This is called the primacy effect. This is caused by so called weak-satisficing; the respondent chooses the first alternative that fairly fits because he or she does not put in the effort of reading the whole list. In a telephone interview one of the latter alternatives are often chosen because of the respondents' recall abilities, due to the so-called recency effect. The respondent can have difficulties remembering all the alternatives and chooses one at the end of the list that fairly fits. This can be beneficial to remember when working with customer satisfaction surveys since most of these surveys often are done by mail, web or telephone. The different effects are especially a

problem when a mixed-mode approach is used or when the mode is changed between timepoints.

Due to the analysis process, closed-ended questions are the most common ones in survey research. Krosnick and Presser (2009) points out that in some instances open-ended questions can be preferable. Closed-ended questions have specified answering categories and in openended questions the respondents have to formulate an answer by themselves. It is important to remember that open-ended and closed-ended questions can give different results to the same question. When asking about quantities and frequencies open-ended questions increase the accuracy. When using open-ended questions a massive coding effort must be spent before the analysis phase. In customer satisfaction surveys this effort is seldom put in and the ease of the closed-ended questions is the main reason for their popularity. Open-ended questions sometimes gives a higher rate of Don't know answers due to the burden of making up an answer. Open-ended questions can be beneficial when the question concerns a sensitive topic, according to Krosnick and Presser. In some cases a few open-ended questions can add richness to the survey because it gives the respondents an opportunity to express themselves in a way that closed-ended questions cannot. In customer satisfaction surveys valuable input and complaints are often collected through open-ended questions. A broader perspective is gained if the respondents get the opportunity to express themselves freely.

3.5.2 Answering Scales

In customer satisfaction surveys rating scales are often used. A problem that Cassel (2006) brings up is that different people interpret scales differently and that comparisons can be unstable. It can also be hard for a person to translate an opinion to a specific rating on a scale. There are a lot of different types of rating scales. A number of decisions must therefore be made on how the scale should be designed. Different scales produce different kinds of data. According to Hill, Roche and Allen (2007), verbal scales without numerical points, as seen in figure 7, produce nonparametric, ordinal data which are not suitable for more advanced statistical analysis. When using a numeric scale the data is turned into interval data and a more advanced computational method can be used. Verbal scales often produce higher ratings than numerical scales. The numerical scales can be fully labeled or polar-point-labeled which can produce different answering effects.

a. Attitude of sta	ff			
Excellent	Good	ОК	Poor	Bad

Figure 7. This is an example of a verbal answering scale. It can also be considered as unbalanced since OK is the middle alternative.

Krosnick and Fabrigar (1997) have compiled some different research on which type of scale is the more reliable and how many scale points that should be included. They present two basic types of scales, the bipolar scale and the unipolar scale. The bipolar scale ranges from negative to positive and is fitted for attitude measurements such as satisfaction. The unipolar scale shows varying levels of a variable and has a zero point in one end. This scale can be used for ratings of the importance of an attitude and has no natural mid-point. Krosnick and Fabrigar have studied many different experiments regarding how many points a scale should have when considering the reliability and the validity of the data. They argue that a reliable question should give consistent answers when asking the same person a question several times. The validity of a question refers to its capability to measure what was intended. The reliability and the validity are very equally important when constructing a question and its answering scale. Krosnick and Fabrigar conclude that between five and seven points are the most favorable. The meaning of a scale is more precise if it is short but a longer scale can gather more information on the differences between people's attitudes and is more finegrained. Some may argue that more scale points reduces the skewness of the satisfaction distribution since it can be a result from the ceiling effect. The ceiling effect indicates that a positive person chooses the highest alternative on a short scale even though he or she is not completely satisfied. An example of the ceiling effect is when on a 10-point scale the respondent might choose 9 but on a 5-point scale he or she might chose 5. Peterson and Wilson (1992) state, however, that studies have shown that the skewness remains when using longer scales. Moreover, in a very long scale e.g. from 0 to 100 it is hard for the respondent to understand what a specific point means. Therefore it is better to choose a moderate scale length. Krosnick and Fabrigar state that the choice between a 5-point scale and a 7-point scale depends on how precise the respondents can calibrate their opinions. In a 5-point scale a person can be slightly positive or negative or substantially positive or negative. In a 7-point scale there is room for a finer calibration. In most customer satisfaction questions the respondents cannot calibrate their attitudes to a very high extent. A commonly used scale in customer satisfaction surveys is the 5-point dissatisfied-satisfied continuum. Haves (2008) states that 5 points gives the highest reliability and that more points decreases the reliability. Fowler and Cosenza (2008) suggests that when using a rating scale, an increase in scale points to at least 7 improves the quality of the measurement. On the other hand they also state that fewer categories are easier for the respondents to use. Hill, Roche and Allen (2007) argue that shorter scales often produce higher ratings than longer scales. When using a telephone mode of collecting the data fewer categories are preferred. If a numerical scale is used the scale can have more points. However, there is evidence that respondents give a more consistent and reliable rating when using a verbal scale with all categories labeled compared with numerical scales or polar-point-labeled scales.

In telephone interviewing fully labeled scales are unpractical. Polar-point-labeled numerical scales are often used. These types of scales often range from one to ten or zero to ten, depending on if a midpoint is included or not. Hill, Brierly and MacDougall (1999) state that 10-point numerical scales are the most convenient in customer satisfaction measurements. They claim that such scales are easy for everybody to understand and they are also suitable for easy analysis.

Should the scale include a neutral mid-point? In a polar-point labeled scale using 5 or 7 points a mid-point is included. When a mid-point is excluded the respondent is forced to take a

position on the question at hand. If the respondent really does not have an attitude this can create "false" data. On the other hand, if a mid-point is included there is a risk of satisficing by the respondent. Krosnick and Presser (2009) state that experimental results are mixed but if the researcher truly believes that the respondent can be neutral on a question this option must be included. If a neutral alternative is excluded the respondent is forced to choose another option or skip the question which creates poor data. Most customer satisfaction scales include a neutral mid-point. According to Hill, Roche and Allen (2007) respondents do not consider the mid-point if the scale has 7 points or more, as seen in figure 8.

How do you feel about the treatment when you report an error?											
Compl dissati	etely sfied							Completely satisfied	Don't know/ Not applicable		
\square_1	\square_2	\square_3	\Box_4	\square_5	\square_6	\Box_7	□8	□ ₉			

Figure 8. In the example above a quite uncommon scale with nine points is shown. This scale provides a neutral mid-point (5) but for a respondent the mid-point can be hard to spot.

The labeling of the scales can interfere with the information gathered. Polar-point verbal labeled scales can induce more responses in the middle categories. Krosnick and Fabrigar (1997) state that fully labeled scales are more reliable and valid than partially labeled scales. Numbered scales can be used if they also are verbally labeled. The labeling should also be practical which leads to the conclusion that too many points cannot be used if they are fully labeled. Numbers alone should not be used because of the confusion the numbers can cause. A scale from -5 to 5 does not necessarily have the same meaning for the respondent as a scale from 0 to 10 even if the researchers claim that they do. Different results can also be obtained if the scale begins with 0 or 1. Krosnick and Fabrigar suggest that verbal labels should have precise meanings and be interpreted as if there are equal intervals between them. It is best to use thoroughly tested scales with good psychometric properties. Experiments have shown that respondents often are more satisfied with verbally labeled scale scale points.

There is also the question about the use of *No opinion* response alternatives, in figure 9 represented by the *No experience* alternative. Krosnick and Presser (2009) state that if there is a chance that some of the respondents really do not have an opinion or are not concerned by the question a *No opinion* or *Does not apply* alternative should be used. There is however a risk of satisficing, e.g., that people chooses this alternative out of laziness even if they do have an opinion. Therefore, a *No opinion* alternative should be avoided if possible according to Krosnick and Presser (2009) but others believe that a no opinion always should be provided.

Do not agree at a	Co	ompletely agree	No experience				
1	2	3	4	5	6	7	0
The drivers of this route are nice and service-minded. \Box							

Figure 9. In this question, originating from a bus company, a 7-point scale has been used. The question is both positively worded and double-barreled. The answering scale contains a midpoint and a no-opinion alternative.

Dillman, Smyth and Christian (2009) provide a general rule to make the scale balanced with as many positive as negative categories, as seen in figure 10. Unfortunately many customer satisfaction questionnaires use unbalanced scales, an example is provided in figure 11. If there are more positive than negative alternatives the results get positively biased. The answer categories must also be consistent. When using numeric scales it is also very important to label the scale to know which end is the most positive and which is most negative. Polar-point-labeled scales are commonly used but the results can be hard to interpret. On the other hand fully labeled scales are shown to produce more extreme positive results. Dillman et al. (2009) offers no explicit advice on which of these two to use, but stress that the results must be easily interpreted. Customer satisfaction is very sensitive to scale choices and it is therefore important that the researchers carefully report the design and possible design effects when presenting the results.



Figure 10. In this question from a survey regarding a ferry boat company, a five-point scale is showed. It is fully verbally labeled. The scale is balanced and the question is neutrally worded.
ox.			
	Very Satisfied	5	
	Fairly Satisfied	4	
	Satisfied	3	
	Dissatisfied	2	
	Very Dissatisfied	1	
	Not Applicable	NA	
			Coorto
How satisfied	were you with		Box
110W Satisfied			
Overall how a	atisfied were you with ser	vice we provide	45
Overall, now s	alished were you with ser	vice we provide	ur

Figure 11. In this figure the respondents are asked to answer each question with a number from a score key. The problem is that the scale is unbalanced and comes with a questionable order. The scale indicates that fairly satisfied is better than satisfied and satisfied represents the middle alternative. There are more positive than negative scale points. A few other questions were also included before the overall question but only one of them fitted with the "How satisfied were you with" headline.

The scale designs in the customer satisfaction measurement world are very diverse. All the above mentioned scales are used to some extent and there are also a few more variants. One such scale type is an alphanumeric point scale, e.g., ranging from A to E. That scale is hard to interpret and the respondent must be told what end is more positive and what is more negative. The intervals between the letters are very diffuse and leave much room for the respondents to interpret the points themselves. Some customer satisfaction surveys use graphical figures as scales. One example is facial expressions portraying varying moods, as seen in figure 12. This type of scale also leaves much room for interpretation by the respondent. They are also difficult to analyze and to compile into understandable and presentable results. Dillman, Smyth and Christian (2009) state that the reason to use this kind of scale is to make the questionnaire funnier and more interesting and thereby increase the response rate. Dillman et al. point out, however, that little research has been done to study if the response rates actually have increased with these types of scales.

Figure 12. In this question facial expressions are used. The meanings of the expressions are however explained which makes them easier to interpret to the respondent. In the questionnaire the explanations of the facial expressions are included only once but the respondent is asked to use this picture multiple times. The middle alternative "satisfactory" does not fit as a neutral middle alternative but the facial expression does.

A special type of scale common in attitude research is the Likert scale. The Likert scale consists of a number of statements that the respondent is asked to consider. The statements are often positively worded, e.g., *The service of company X was good...Agree-Disagree*. The positively worded questions almost always create positive bias in satisfaction measurements according to Hill, Brierly and MacDougall (2003). The effect is even stronger in importance questions, e.g., *It is important with good service...Agree-Disagree*. Hill et al. advise not to use Likert scales in customer satisfaction measurements due to the high level of bias. If the positively and negatively worded statements are mixed the bias can be reduced but in most customer satisfaction surveys only positively worded statements are used since the companies do not want to portray themselves in a poor light.

3.5.3 Acquiescence Problems in Customer Satisfaction Surveys

A special issue that must be considered in creating a customer satisfaction questionnaire is acquiescence. The term acquiescence in surveys means that the respondents unintentionally answer a question untruthfully. According to Krosnick (1991) researchers have long recognized that true/false, yes/no and agree/disagree questions can be subject to acquiescence bias. These types of questions are common in customer satisfaction measurements. O'Muircheartaigh, Krosnick and Helic (2000) state that the term acquiescence is mostly used when the respondent has an unproportionally high agreement rate. Acquiescence is also called "yea-saying".

Knowles and Nathan (1997) suggest that a sign of acquiescence is when a respondent answers a questionnaire inconsistently. If the respondent, e.g., first states the he or she is physically inactive in one question and then in another question reports that he or she practices sports three times a week the information is not interpretable.

The reasons for acquiescence have been studied by many researchers in the psychology and survey research fields and they have presented many different theories. The reason why people tend to be positive and give affirmative answers to a question can be related to politeness and social norms, according to O'Muircheartaigh, Krosnick and Helic (2000). Most people want to cooperate and do not cause any trouble. "Agreeability" is a large part of many people's personalities and disagreeing is often linked to conflict and something many people want to avoid. There are of course exceptions to this rule. In this sense acquiescence represents a personality trait. Complicated questions can also be a possible explanation for acquiescence. One example is the overall question, used by many customer satisfaction surveys. Thomas and Sturgis (not dated) suggest that the overall question can be very complicated to answer. It is hard for the respondents to know what to include in, e.g., overall service received and to weight the different factors of their satisfaction against each other. In order to avoid this cognitive process some people might settle for a polite answer, e.g., *fairly satisfied*.

Krosnick (1991) says that some people constantly manifest this agreeing behavior regardless of the content of the question. According to Krosnick and Presser (2009), in agree/disagree statements it is easy for the respondent to agree to a number of generally worded statements even if they really are contradictory. In customer satisfaction surveys positively worded statements about the company in question is often used, exemplified in figure 13.

	Strongly						Strongly
	disagree						agree
Company A has modern looking equipment	1	2	3	4	5	6	7

Figure 13. The figure shows a positively worded statements with an agree-disagree answering scale with seven points.

Another reason for acquiescence presented by Krosnick and Presser (2009) is that the respondent wants to agree with the interviewer and thinks that the interviewer knows the "right" answer. It is common when the respondent does not have much knowledge of the question topic or does not know the answer. In customer satisfaction measurements the interest by the respondent in the subject is sometimes low which can trigger acquiescence behavior. Many respondents do not have any formulated attitude to all the details regarding a service or product. They make up an opinion as they go and to just agree is an easy way out. Acquiescence can also come into play if the respondent is exhausted from a long and complicated questionnaire. Acquiescence can also be triggered by a questionnaire that is distributed by an authority because that implies high status and credibility and then the respondent wants to agree with the questions.

Weak satisficing can be another possible explanation to acquiescence according to O'Muircheartaigh, Krosnick and Helic (2000). When persons are asked a question they tend to first recollect the positive aspects of the subject. The term satisficing means that the respondents then do not put in the effort to recollect the negative aspects and weigh the different aspects against each other and give an objective answer. This can be a problem in customer satisfaction surveys since positive and negative experiences have a high impact on

the satisfaction of a service or product. Weak satisficing occurs more often when the respondent is poorly motivated or is not used to critical thinking.

O'Muircheartaigh, Krosnick and Helic (2000) have studied the impact of middle alternatives on acquiescence. The use of middle alternatives in rating scales in customer satisfaction surveys is debated. Many surveys use middle alternatives. O'Muircheartaigh et al. found no evidence that this either reduced or enhanced the bias caused by acquiescence. Many studies show that different groups have different propensities to manifest acquiescence. The groups with greater tendency are less educated people, older people and female respondents. Bachman and O'Malley (1984) have shown that different cultural groups often show different levels of acquiescence. Krosnick (1991) claims that it is mostly lower-status groups that have a tendency to present acquiescence. A possible explanation can be that the interviewers often are middle class with a higher education than the respondent if he or she belongs to a lowerstatus group.

How can acquiescence be reduced? A lot of researchers have studied this and the best recommendation, according to Biemer and Lyberg (2003), is to formulate neutral questions with no positive or negative wording or statements. Acquiescence caused by the impact of the interviewer can be reduced by modes of self-interviewing. In customer satisfaction surveys self-interviewing is the major mode used today. Krosnick and Presser (2009) claim that since acquiescence is often caused by yes/no- and agree/disagree format questions it is better to avoid these types of questions and instead use rating scales. When a person is presented with a statement, he or she must place their opinions on a scale and then interpret whether they are positive or negative. If they are asked directly about their attitudes on a scale the last step is unnecessary. Agree/Disagree questions with only two answer alternatives are not common in customer satisfaction surveys but the use of ratings on an agree/disagree scale are more common. Hill, Roche and Allen (2007) suggest that the use of Likert scales or other positively worded statements highly increase the acquiescence bias. One way to reduce the acquiescence would be to mix positively and negatively worded statements but this is seldom done in customer satisfaction surveys since organizations are reluctant to use negative statements. It is therefore better not to use Likert scales and to use neutral worded questions instead.

3.5.4 Testing the Questionnaire

As in any survey pretesting of the questionnaire is a very strong tool for evaluation of the customer satisfaction measurement. It is a way to establish if the questions are understood as intended. Vavra (1997) states that pretesting is not used as often as it should be in customer satisfaction areas. No matter how experienced a person is in question writing the outcome is never perfect from the beginning. An expert's point of view differs a lot from the respondents' interpretations of a question. Campanelli (2008) suggests four steps for a thorough testing of a questionnaire. The first step is to do informal testing by reading the question out aloud and to see if the researcher herself understands and can answer the question as intended. The second step is to do an expert review or a systematic review by

following some sort of reliable checklist. The third step suggested by Campanelli, is to do indepth interviewing with persons or focus groups that have answered the questionnaire. Cognitive interviewing can give knowledge about how the respondents reasoned before answering every question and how they came up with the answers. The fourth step is to do a field study among the intended respondents. The field study tests the questionnaire according to the actual field conditions. Most surveys do not have the resources and time to do this kind of extensive testing. Campanelli stresses that any form of question testing is better than no testing at all. Informal testing can be followed by expert review or focus groups or something similar and then by field testing. A problem in customer satisfaction surveys is that the companies seldom have knowledge about good questionnaire design and that they do not understand the complexity and the need for pretesting. Often an external market research agency is used to develop the measurement instruments and the company trusts that this firm possesses the required knowledge.

Vavra (1997) suggests a number of different ways to review the interview process in customer satisfaction measurements. One way is to use customers that know that they are participating in a pretest. After each question the respondent is asked some questions on how he or she perceived the question. Another type of pretest is to use customers that do not know that they are taking part in a pretest, a field test. The third type of pretesting is to let the interviewers comment on the questionnaire after doing some interviews. Vavra states that ideally the pretesting should go as far as testing the analytical plan with some collected data before implementing the whole survey. The pretesting can look into different problems on the question level and the questionnaire level. On the question level the testing can reveal problems with the response categories. A skewed distribution can indicate that the answer scale is too short. It is important to consider that many satisfaction distributions are skewed as mentioned in chapter 3.2, though. Pretesting can also reveal that the questions are not interpreted as intended and that the question wording is confusing or too complicated. Pretesting can reveal issues about the task difficulty. Do the respondents have the right information to answer the questions or are the questions asking for irretrievable information? At the questionnaire level pretesting can reveal problems with the flow of the questionnaire. The questions and the answer categories should be consistently worded. The bias created by the order of the questions can also be revealed. Pretesting can reveal if the questionnaire is too long and that the respondents have a hard time to keep up their interest throughout the questionnaire. If the respondent loses interest he or she is more vulnerable to satisficing or acquiescence behavior.

3.5.5 Multinational Surveys and the Translation Process

Special caution must be taken when the same survey is done in different countries and among different cultures. In multinational companies this is very common. One approach is that an initial questionnaire is developed by the international headquarter and then distributed in the countries where the company is located. Many different aspects should be considered when this procedure is implemented. Harkness (2008) stresses that the translation process is very important. If the translation is done poorly the comparability between countries can be lost.

The intended concept related to the questions can also be lost and the questions might measure something else than intended. Different approaches exist to solve these problems. Harkness presents two main strategies. The first is to ask different questions in different countries or cultures. Each questionnaire is developed in each country and the questionnaire does not have to be translated. For the surveys to be comparable the questionnaires must be functionally equivalent, i.e., measure the same concept but with different questions. This can however be complicated and the degree of equivalence across populations can be hard to demonstrate. The other approach is to ask the same question in all countries. A main questionnaire can be developed first and then translated or the same questionnaire can be developed simultaneously in all languages. A drawback of this approach is that the questions get less specific for each country or culture. The questions can get culturally biased since different cultures have different attitudes toward the same concept. Harkness also stresses that some questions or wordings can be sensitive in some cultures but not in others. Response alternatives and answer scales can also be differently interpreted in different cultures. Since a centrally developed questionnaire is common practice in customer satisfaction measurements the translation process must be stressed. Harkness suggests some current best practices. The translation process should be conducted by a team to avoid personal influences. The translators should participate in the review of the translation. It is of course beneficial to use professional translators and that they translate from a secondary language to their primary language. The translators should be well informed about the objective and concept of the survey. Back-translation is a common practice but is flawed and not recommended by Harkness, who instead recommends team translation.

3.6 Data Collection

Before conducting the expensive data collection, a good idea suggested by EUPAN (2008) is to do an inventory of the information that the organization already has, such as administrative registers or data collected earlier for another purpose. Minimizing the number of questions asked in a questionnaire is also a way to minimize the response burden.

Dillman, Smyth and Christian (2009) bring up another issue in customer satisfaction surveys and that is *when* to survey the customers. If the service or the purchase is an experience that the customers often have it is harder for them to remember it. An example is restaurant visits where the survey must be conducted close to the experience. In other cases, as for an example a car purchase, the customer needs time to assess the product and the survey must be conducted after a period of time has passed. Hence, the timing of the survey is very important and so is the reference period of the questions. The timing of a survey also has other effects on the results. If customers are asked about their satisfaction with a purchase after only a short time, they are often more satisfied than after some time has passed. According to Peterson and Wilson (1992) the satisfaction level deteriorates over time. The reasons for the decrease in satisfaction are not clear. Some suggestions are that the customers had time to evaluate the product more or that bad experiences tend not to be forgotten. When annual measurements are done a good guideline is to do them at the same time each year to avoid seasonal variation. To ensure a high response rate it is beneficial to do anonymous customer satisfaction surveys. The respondent should be told of the confidentiality early in the questionnaire. Hill, Roche and Allen (2007) suggest that the respondents at the end of the questionnaire can be asked if they really want to be anonymous. Perhaps the respondents feel that the answers really were not so sensitive and are willing to share them openly.

3.6.1 Data Collection Mode

The choice of data collection mode is above all decided by costs. Most companies do not want to spend a large amount of money on customer satisfaction measurements. Because of this the most common way of doing customer satisfaction surveys is to do it by paper or over the internet. The companies with a larger budget sometimes do the surveys by telephone. Face-toface interviewing or some type of mixed mode approach is less common because of the higher costs. Dillman, Smyth and Christian (2009) point out that since so many companies want to measure customer satisfaction preferably in the cheapest and most effective way, many of these companies have adopted newer technologies such as the web. One pitfall is that many companies that have been using paper surveys directly translate the paper survey design to the web without any adoption to the change of mode. Changes in mode should be made with care, so that they do not influence the trends over time. A simple mode change does not provide any assessment of the impact of the change. The measurement errors are different for different modes so the questionnaire must be adopted in a mode change. Three types of web surveys can be used in customer satisfaction surveys. The most commonly used one is when a paperor e-mail invitation is sent to a respondent. He or she is asked to participate in a survey by logging onto a web page. Another type of web survey is when a survey pops up while a person is visiting a web page. This method can be used to continuously monitor the satisfaction of the users of the web page. The target population is restricted to the visitors of the web page. This population is probably not representative to all customers. Hill, Brierly and MacDougall (2003) state that one large draw-back of the web mode is that it is unsupervised. The same person can answer the questionnaire several times. The mode is beneficial for companies that provide a large part of its services online. The third type is when a survey is attached in an e-mail. This approach is very seldom used.

There are many advantages and disadvantages with web surveys, according to Couper (2008). Some of the advantages are that they are cheap and fast. When the programming and proper software are in place the marginal cost for each respondent is very low and the data is gathered in a database right away. Other advantages are that feedback can be given to the respondents immediately if their answers are inconsistent. Logical tests can be used to avoid inconsistencies and partial nonresponse. The programming can enable many different tools e.g., automatic filters that directly steer the respondents to the right question after a screening question. A web survey also gives the respondents the option to answer the questionnaire whenever they want. It is also less intrusive than telephone interviews and do not give any interviewer bias. Visual tools can easily be used to clarify the questions. There are, however, a lot of disadvantages with web surveys. A low response rate is often obtained. Some respondents do not have the suitable software to open and view the survey as it was intended

by the designer. Some computers have virus control that disables the links or e-mails and some respondents have blocked certain types of web pages. Databases that are used as frames for the sampling rarely cover e-mail addresses in a satisfying way. E-mail addresses are often poorly up-dated and out-of-date. Some companies that are mostly active on the internet have satisfying e-mail address registers, though. Another drawback with customer satisfaction surveys by e-mail is that some people do not have e-mail addresses or use them very irregularly. Another risk is that e-mail invitations can be caught in spam-filters or are filtered out by persons that receive a lot of e-mails every day. Web surveys also have a slightly poor reputation which can lower the response rate. That is a problem since customer satisfaction surveys already have a low response rate to begin with.

Paper questionnaires have traditionally been very common in customer satisfaction measurements. This is due to the low costs in comparison to telephone interviewing. Both web surveys and paper surveys are self-administered and these modes are seen as the most anonymous data collection alternatives. They are also less intrusive than telephone interviewing which can be beneficial in customer satisfaction surveys. Intrusiveness by a company might lead to a worsened reputation among its customers. Data bases are often more complete when it comes to mail addresses and this can give a higher response rate. Some senior citizens and others without computer access are more easily reached by mail questionnaires. Paper questionnaires can also be distributed personally when a concrete register does not exist. In some cases this is the only way to reach the customers. Dillman, Dolsen and Machlis (1995) point out the problem to get a high response rate when the sampling is not done from an existing frame, because there is no contact information on the respondents. There are ways to create a list of the sample with accompanying contact details during the sample process. If the address of the sample is collected follow-ups can be used to raise the response rate. Dillman et al. conducted such an experiment regarding surveys among the visitors to National Parks in the U.S. The frames are complicated to establish and the sampling procedure was therefore complicated.

A problem when doing customer satisfaction surveys by mail is that the mode demands a very long field-period. Mail surveys are an uncontrolled mode which can lead to a low response rate, since people often forget or neglect to respond, according to Hill, Brierly and MacDougall (2003). Important or engaging topics often generate a higher response rate. Unfortunately the interest in customer satisfaction surveys can be quite low. The researchers lose control over who is answering the questionnaire; it can be passed on to a co-worker or family member and then answered and sent in. In customer satisfaction surveys this can be quite a big problem since the customers often are other companies, so-called business-to-business surveys. The surveys should be answered by the person in the company that has the most extensive experience of the organization the survey is about. That is not the case in reality. Some large companies have designated employees responsible for filling in forms. In customer satisfaction measurements this is a problem since the customer in the experienced sense seldom is that very employee.

Telephone interviews are the fastest way to collect data. The risk of misunderstandings can be minimized due to the interviewer's ability to explain and help the respondent. Some of the disadvantages are that the interviewer can influence the respondent. The questionnaire must be fairly short and straight-forward to keep the interest of the respondent. In order to minimize the interviewer effect and to motivate the respondents, skilled and educated interviewers are needed according to Hill, Brierly and MacDougall (2003). Some companies use external companies for the data collection process and trust that these companies have the knowledge required. This might not always be the case, though. The questions in a telephone interview cannot be too long and complicated due to recall abilities of the respondent. It can be hard to reach the sample and many call-backs are necessary to receive a decent response rate. When using telephone interviewing in customer satisfaction surveys the opportunity to substitute the persons that do not respond with a new sampled person exists. Since the nonresponse often is not random this creates bias. Persons that tend to be at home get overrepresented in the sample. This approach is not statistically valid, according to Vavra (1997).

Hill, Brierly and MacDougall (2003) pinpoint that the choice of collection mode is very dependent on the situation. Cost is the biggest factor. Personal interviewing is too expensive for most organizations. Paper, mail or web questionnaires are by far the cheapest data collection modes. The difference between paper and mail surveys is the distribution process. Telephone interviewing is beneficial when the sample is not too large because it brings with it a more controlled situation and provides data of higher quality. The choice between paper, mail and web often depends on the frame. In a restaurant or store the only option is often a paper questionnaire which is distributed on site. Since the information contained on the frame often determines how the customers can be contacted one specific mode is often implied. A way to avoid this is to use a mixed-mode approach but this often increases the costs. The customer can be contacted or invited in one way and surveyed in another. One example is when a mail invitation is sent out where the respondent can answer the questionnaire on a web page. In this case e-mail addresses are unnecessary. Another approach is when a customer is called and asked about his or her e-mail address for a forthcoming survey. The approach where the customer is invited via one mode and answers the survey through another is fairly unproblematic. The problems appear when different modes are used for the data collection itself but this is rare when it comes to customer satisfaction surveys. The main reason for a mixed-mode approach is to increase the response rate at the lowest cost possible. De Leeuw (2008) suggests not to use a mix of different modes in the data collection because it creates measurement bias due to different mode effects. Sometimes follow-ups are in a different mode than the original survey. If the follow-ups are only a reminder this causes no problems. If the follow-ups contain the questions, this can create the same measurement bias as described. If a mail questionnaire is to be followed-up by a telephone interview the number of response alternatives must be limited already in the original questionnaire. When different modes are used for invitations, screening and reminders and not for the data collection itself, many advantages exist.

3.6.2 Nonresponse

Customer satisfaction surveys are unfortunately associated with high unit nonresponse. Some of the reasons are that there are too many surveys circling around and that people get tired of them. In some cases they are viewed as advertisement by the customers. Many companies do the surveys to show that they care but without really using the results. The massive survey burden might decrease the interest in all customer satisfaction surveys. When the nonresponse is high and correlated with the survey topic the sample is no longer representative for the whole population. A low response rate undermines the validity and generalizability of the results if the nonresponse is suspected to be nonrandom. Lin and Jones (1997) suggest two ways to deal with high nonresponse. The first is to try and raise the response rate and the other way is to compensate for the nonresponse by imputation or calibration. Imputation and calibration are fairly uncommon in customer satisfaction measurements. The nonrespondents can roughly be divided into two groups, the nonresponse can tell a lot about the reasons for nonresponse and which groups of the sample that have a low response rate.

According to Biemer and Lyberg (2003), one way to prevent refusal nonresponse is to use a good introduction or advance letter. The letter should be personalized and stress the importance of the answer from the specific respondent. The confidentiality of the survey should be underlined. The letter should be concrete and easily understood. If the survey is done by mail mode, a postage paid reply envelope should be included in the introduction letter. The timing of the survey is also important to avoid nonresponse. When people feel disturbed they are less likely to participate. Some companies sample a number of people that use their customer service for the purpose of doing a customer satisfaction survey. In those cases the sample of customers are often asked if they are willing to participate in the survey before they have experienced the service. This can be very disturbing to the customer since they might be waiting for help with an important or urgent issue. An example is when a person is calling the bank service to block his or her credit card. A long waiting time combined with a survey request can be very frustrating in that case.

According to Dillman, Smyth and Christian (2009) follow-ups are a powerful way to improve the response rate. It is important that the follow-ups are worded carefully and that they stress the importance of the answer. One way to do this is to explain in the reminder that it is important to collect information from all types of respondents. Personalized follow-ups with the respondent's name are preferred. Follow-ups can be challenging in the cases where the company do not have contact information on the customers, for example when the questionnaires are distributed manually in a store. In these cases in-person appeals can be used when the questionnaire is distributed to encourage the respondents. This can even create a social obligation to participate in the survey. In-person appeals also give an opportunity to collect the contact information of the sample. It is also possible to ask a few key questions at the first contact. The answers can be used for the study itself or for the nonresponse analysis. Dillman, Dolsen and Machlis (1995) showed that a longer personal contact with the respondents created a much higher response rate in the National Park survey experiment, mentioned in chapter 3.6.1. A relatively long conversation was held with each sampled object where the importance of their response was stressed and that their response was representative of many others. The sample members were asked to send in the questionnaire by mail and were sent a post-card as a combined thank you-letter and follow-up. The response rate increased drastically and Dillman et al. reasoned that the causes were partially an effect of the personal contact and that the request was memorable since it took a long time to administer. The addresses of the sample members were collected and follow-ups were sent out which also contributed to the increase of the response rate.

The response rate can be increased by the use of incentives but in some cases they can increase the measurement error. Dillman, Smyth and Christian (2009) argue that if the incentive is a product from the company conducting the survey, for example a discount on a hotel stay, the satisfied customers are more interested in getting the discount. This increases the responses from the satisfied customers but not the dissatisfied. It is therefore better to provide an incentive not related to the services of company in question. Another part of this problem is that the incentive is given after the completion of the survey. A better way is to give the incentive to every sampled person at the invitation to the survey. Many studies have shown that a promised incentive does not raise the response rate. In some cases it can even lower the response rate since it turns the participation into an economic exchange instead of a social obligation. Hill, Roche and Allen (2007) believe that incentives sometimes make the customers feel that the survey is less serious and professional which can lower the response rate. Hill et al. do not believe that incentives are a cost-effective way of raising the response rates.

3.7 Data Processing

The data analysis is much dependent on the type of data collected. The analysis plan should be established early in the survey planning process. The first step after the data collection is to scan and code the data properly. This stage is exposed to various types of errors, e.g., coding errors and other processing errors. If the questionnaire has open-ended questions the answers can be grouped into categories. When the scanning process is done the approach on nonresponse adjustment must be decided. The nonresponse can consist of item nonresponse and unit nonresponse. Three alternatives are suggested by Vavra (1997). The easiest way is to ignore the nonresponse and estimate the parameters based on the collected data. The sample size used in the calculation is then most often the number of collected units. Another approach is to do some sort of imputation. This is mostly used to deal with item nonresponse. The imputation can be done with neutral values, e.g., means or with some kind of estimation, e.g., regression estimates for a particular unit. An approach to unit nonresponse is calibration. The weights are recalibrated with respect to some background variables, e.g., gender or age. If a group is overrepresented in the collected sample its weight is decreased. Advanced methods as imputation and calibration are presumably not very common in customer satisfaction surveys since these methods take too much time and are costly. Allen and Rao (2000) argue that imputation should not be done if the item nonresponse is above 50 per cent. Imputation with neutral values, e.g., substitution means tend to decrease variance and decrease the intercorrelation in the dataset. The original structure of the data set can be lost with such a procedure. Another imputation method, based on the covariation among variables, better approximate the distribution of each variable according to Allen and Rao (2000).

During the data processing the distribution of each variable can be studied using simple graphs. Some analysis techniques used in customer satisfaction research assume normality but as stated the satisfaction distributions are often skewed. Allen and Rao (2000) mention that transformation techniques can be used to normalize the data and they believe that this could be beneficial to applied customer satisfaction research. It is however quite rare.

3.8 Data Estimation and Analysis

When a satisfying data set is accomplished basic data analysis can be done to get an overall picture of the results. The data analysis can be of three kinds, univariate, bivariate and multivariate analysis, according to Hill, Roche and Allen (2007). In the univariate data analysis one variable is analyzed at a time. One common way is to summarize the number of top scores of each question, e.g., look at the proportion of answers corresponding to satisfied alternatives. The proportion variance can be used to test the difference between proportions of scores. The mean score of each question can also be interesting to study. This measure takes into account all of the responses and the previous one mostly focuses on the top scores. Mean, mode and median can be calculated on each question with accompanying variances. The estimation process must take into account the sampling process and the data level. Ordinal data, collected with verbal scales, is often presented with modes and proportions. A more advanced statistical analysis is according to Hill et al., not possible with that kind of data. To convert the ordinal scales into interval data is not statistically valid because the intervals between the points are unclear.

As stated in previous chapters the importance of each question or factor can be a good measure of what to improve. The importance can either be measured or derived. Allen and Rao (2000) suggest that stated importance is very uncommon today and one major cornerstone of customer satisfaction analysis is the derived importance models and this is where the bivariate and the multivariate analysis are needed. The derived importance models estimated the dependence between one area or question and the overall satisfaction measure. Hill, Roche and Allen (2007) use the term importance for measured importance and impact for derived importance. Impact can be calculated in different ways, e.g., by bivariate correlation between each question and the overall satisfaction or multiple correlation between all questions and the overall satisfaction. Hill, Roche and Allen (2007) believe that when using one overall question the bivariate correlation is the best measure of how each question affects the satisfaction. Allen and Rao (2000) argue that bivariate data analysis is inadequate for this purpose. One argument for that is that the bivariate data analysis ignores the collinearity between different predictor variables.

Allen and Rao (2000) have divided the multivariate analysis techniques into three kinds; dependence models, interdependence models and hybrid models. One common dependence model is the multiple regression analysis to establish the key drivers to the overall

satisfaction. The outcome variable is presumed to depend on a number of predictors. The key drivers can be interpreted as the derived importance of each question. Allen and Rao (2000) state that the derived importance should only be used to allocate marginal resources and not to reallocate resources. Reallocations will only lead to new key drivers since some areas will deteriorate. One drawback with multiple regression is that the importance of each key area cannot be stated in absolute terms. The analysis cannot tell that one area or question is twice as important as another, only that it is more important than another question.

In more advanced customer satisfaction measurements a number of questions are sometimes set out to measure one latent variable or attribute, e.g., the customer satisfaction with the timeliness. The variable estimation is done by an aggregation of these questions. Factor analysis is one of the interdependence models and a way to find the underlying dimensions or variables in all the questions. Interdependence models are used to group the variables into conceptually distinct areas. In factor analysis the underlying dimensions are not known and a study of the correlation of the measured variables gives some information on which variables share an underlying dimension or factor. In this way the measured variables can be reduced to a smaller number of variables that explains the relationship between the measured variables. In exploratory factor analysis the number of factors is unknown initially and so is which variable that loads on which factor. There are many different kinds of factor analysis but, according to Hayes (2008), the results are often similar regarding the method. To extract the underlying factors, methods to calculate the least number of common factors that can explain the correlation between the observed variables are used. Some methods that can be used are the least-square method, the principal method and the maximum likelihood. A more recent form of factor analysis was developed in 1989 and is called confirmatory factor analysis. Vavra (1997) describes confirmatory factor analysis as a hypothesis initially being created, regarding the underlying structure of how the variables and the factor relate, based on a background theory. The confirmatory factor analysis can test if the collected data support the hypothesis. Allen and Rao (2000) believe that confirmatory factor analysis is used too seldom in customer satisfaction research but that it can be quite beneficial.

Related to the confirmatory factor analysis is the Structural Equation Modeling (SEM) which is an example of a hybrid model. According to Vavra, the similarity is that an initial model about the structure of the relationship between the variables and the satisfaction ratings exists. The model can be tested by the collected data. Allen and Rao suggest that structural equation models have two parts, one measurement model and one structural model. The measurement model represents the confirmatory factor analysis part and is a model of the latent variables. The structural model specifies dependences between the latent factors. The fit of the model to the collected data is assessed with chi-squared tests. According to Allen and Rao, in SEM analysis the factors are believed to influence the manifest variables and not the opposite, i.e., the measured variables depend on the factors. The objective in customer satisfaction research is often to tell how the manifest variables influence the factors, and therefore another method is needed. The alternative, according to Allen and Rao, is a variation of traditional SEM analysis, called Latent variable path modeling with partial least squares (also called SEM with PLS). This method permits a different relation between the manifest variables and the factors and makes the model usable as a way to predict the outcome. SEM with PLS is very popular among customer satisfaction researchers.

Many customer satisfaction professionals use an index of satisfaction. Vavra (1997) argue that it is not really an ordinary index consisting of a quota, but more a composite measure of satisfaction. The index is a kind of aggregation of the attributes asked about in the questionnaire. The aggregation can be based on all the questions in an equal fashion or some questions with higher importance can weigh more than others. For each latent variable an index can be calculated in this way. The overall satisfaction can be calculated by an aggregation of the subindexes. The weight in the final index for each subindex or attribute can be calculated in different ways, by simple means or with some more sophisticated method mentioned above, e.g. factor analysis or multiple regression. Many other methods are also available but not very common in customer satisfaction research.

Hill, Roche and Allen (2007) suggest that the best way to compute a customer satisfaction index is to not have an overall satisfaction question in the end but to ask the customer about the importance of each question. The index is computed by weighting each question by its importance for each customer and aggregates the results to one satisfaction measurement for each customer. The index is then an aggregation of the satisfaction score for all respondents. The weighting can also be derived from issues of interest from the management but this measure does not provide much information on customer requirements. When asking about the importance of each area the variation of the answers is also interesting. The variation of importance can provide input on different customer segments and if the importance differs between them. Certain targeted actions can then be put in on specific customer segments. Since the index itself seldom is the most important output of the survey, Hill, Roche and Allen (2007) suggest it can be beneficial to calculate both impact and importance to gain the highest knowledge on what areas really matter to the customers.

3.9 Presentation and Uses of the Results

An important issue is the presentation of the data. Poorly presented data can ruin a perfectly implemented survey. The data must be presented in an understandable format for the people that will use it. The implementation of the survey must also be presented and explained. Hayes (2008) suggests that the presentations benefit from being short and concise. Summaries with means and standard deviations are a good base. If subareas are used, summary scores for each area provide a general measurement of that area. If an importance estimation is linked to a satisfaction estimation the results can be presented in a chart with importance on one axis and performance (satisfaction score) on the other. The result is sometimes called a priority matrix and gives a clear picture of what areas need to be improved. An example of a priority matrix is seen in figure 14. The subareas that have a low level of satisfaction and a high importance are those that should be prioritized, according to Vavra (1997). The borderline between high and low scores can be determined by the organization and depends on what its objectives are. If the importance estimates are solid an improvement of the areas that are

situated in the left upper quadrant should increase the overall satisfaction the most. This is, however, highly dependent on how the importance rates have been measured or derived. It is also important to remember not to concentrate too much on the factors in the priority quadrant and forget about the other areas.



Figure 14. An example of the quadrants in a priority matrix.

The information derived from customer satisfaction surveys can be used in many ways. Peterson and Wilson (1992) suggest that it is used to assess the work effort of the employees, to update the sales processes and to evaluate competing companies. If the numbers are good they can also be used in advertisement. One of the great pitfalls in customer satisfaction measurements according to Vavra (1997) is that the results are communicated poorly to personnel that have the opportunity to improve the operations. A customer satisfaction survey that has measured the satisfaction and the requirements of the customers exactly and does not have any problems with measurement errors and validity still is useless if the results are not communicated in a useful way. The results must be communicated in a way that is user-friendly. There is unfortunately not much research done in the area of how to communicate the customer satisfaction results graphically.

The most effective way to use the survey results to enhance customer satisfaction and thereby revenue is to focus on the most serious gaps between the services provided and customers' requirements of these services, according to Hill, Roche and Allen (2007). The results are only usable if they are a part of a feedback loop to the organization and the employees that deal with the customers. There is no point in measuring customer satisfaction and dissatisfaction if the results are not implemented in the organization. Hill, Brierly and MacDougall (2003) point out that a solid feedback loop to the employees communicates a message that customer satisfaction is important to the organization. The results of a customer satisfaction study are taken more seriously if they are communicated personally in workshops and similar events. All employees that play a role in the customer satisfaction process should be involved in the feedback process. A pitfall can be that the results are only communicate with the customers.

When communicating the results of a study it is important that the measurements are understandable. The employees are better motivated if they feel that the results are reliable and that the measurements are solid. The information benefits from being short and to the point. The survey design does not have to be repeated too often but Hill et al. (2007) suggest that it should be at least on an annual basis. Comparisons with previous results can be used to make the developments clear to the co-workers.

Another use of customer satisfaction data that Hill, Brierly and MacDougall (2003) suggest is the feedback to the customers. If the customers that participated in the survey were told that they should be notified of the results, the results must of course be sent to them. If not, the dissatisfaction with the organization can increase. If the customer satisfaction results have led to an improvement in some area it is beneficial to tell the customers of the improvements. Otherwise it can take a long time for the customer to notice the improvement. After all it is the perceived satisfaction of the customers that impacts the profit. The communication of the results to the customers tells them that their opinions are taken seriously. If the customers notice a large improvement within one area, their whole satisfaction level often increases. This is called "the halo effect" by Hill et al. (2003). Hill, Roche and Allen (2007) suggest that the purpose of the survey, the implementation of the survey, the results and the planned actions should be communicated to all customers. They believe that providing feedback from customer satisfaction.

Comparisons with other companies are also a possible use of customer satisfaction measurements. This is however only possible if the measurements are done in the same way with the same methodology. The comparisons can give input on areas that the company needs to improve. One positive aspect of using an external market research agency is the opportunity to benchmark the results with the other companies that the agency has surveyed. The measurements speak of every company's ability to meet their own customers' requirements. Hill, Brierly and MacDougall (2003) point out that it is not necessary to limit the comparisons to the own industry because best practice models and approaches can often be found in other industries. To compare the organizations' results to companies in the same industry can however be beneficial to see what level of satisfaction that is reasonable for that customer base. In some industries the overall satisfaction can be lower or higher than in others. The satisfaction development in a company is another interesting measurement, especially if changes have been made due to satisfaction scores. This requires that the same methodology has been used during a long time period. Peterson and Wilson (1992) point out that because of the skewness of satisfaction measurements presenting only a high score is uninteresting, since most satisfaction ratings show high values. The results are only interesting in comparison with other measurements of the same product or service in comparison with other companies through benchmarking.

If the scores obtained in the customer satisfaction surveys are high, especially in comparison with other competing companies, or if an improvement has taken place, the results are often used as advertisements. A pitfall is when the company is content with relatively high ratings

and therefore does nothing to improve the quality of its services or goods. Another risk is when a company is more interested in getting a high score for PR reasons than to actually measure the satisfaction situation among its customers. According to Dillman, Smyth and Christian (2009) the purpose of a survey should be to monitor the performance of the company and its services. In some cases the companies are more interested in just getting a high score and if they for that reason try to encourage or persuade the respondents to answer in a positive way the whole measurement process becomes invalid. A problem that is especially associated with customer satisfaction studies is that the companies often do their own surveys and therefore biases the results. The risk for conscious or subconscious positive influence on the results is large.

Often in customer satisfaction measurements the focus lies on the satisfied customers. A satisfaction index is computed and the degree of satisfied customers is presented. Another approach could be to look at the dissatisfied customers and calculate the impact of each factor on the customer dissatisfaction. Hill, Roche and Allen (2007) argue that it is equally important to study the dissatisfied customers as the satisfied customers. They further argue that trying to eliminate bad customer experiences is often more beneficial for the customer satisfaction than enhancing good customer experiences and exceed customer expectations. To try to exceed customer expectations can raise the satisfaction temporarily but after a certain point the customers are no longer seduced by new enhancements and services. It is more important to keep the basic service at a high level and to make certain that the service consistently meets the customers' basic requirements. Sturgis and Thomas (not dated) argue that to focus on the dissatisfaction also helps solving the problem with the skewed distribution.

3.10 Quality Evaluation

When does a survey have a high quality and how is it controlled? Eurostat uses six quality dimensions: accuracy, accessibility and clarity, comparability and coherence, punctuality and timeliness, and relevance. The accuracy of a survey is of course a large part of the results; if the data is inaccurate the results are useless. The accuracy of the data is however useless if the data is published too late or is inaccessible for its intended users. These quality dimensions often conflict with each other. The accuracy can be raised if the data collection can be extended but this will decrease the timeliness. To keep a survey relevant the basic concept may need to be changed but this affects the comparability of the data. All of these quality dimensions are also in conflict with available funding. The goal of a survey should be to have the highest possible quality given the resources. These quality dimensions are seldom considered in customer satisfaction measurements. Since many surveys are conducted with ad hoc methods and without the proper "know-how" the quality gets poorer. The systematic approach to quality improvements of the survey process is not common in customer satisfaction surveys as we have noticed.

If the customer satisfaction survey results are part of a continuous improvement process in the company it is important that the customer satisfaction survey produces data of high quality. A

part of a systematic quality management is to continually collect comparable data to see changes and effects of policy and process changes. To produce comparable data a systematic approach is a solid way to go. A systematic quality management approach can be used to achieve the quality goals of a survey as well as the quality goals of the whole company. Quality assurance is a way to establish processes that give high quality products. An example of quality assurance is to use the appropriate methods for data collection according to general guidelines. When a survey is initially designed it is beneficial to establish a process that not only produces reliable data but also produces documentation of the process itself. The process data can be used for feedback to the researchers and a part of a quality improvement process of the data collection. Systematic documentation also simplifies rotation of the work force and makes the survey easy to replicate. Different quality control methods can be used to evaluate the survey process during its course. Some examples of quality control are pilot studies, mentioned in chapter 3.5.4., and interviewer evaluations. The corrections due to quality controls should also be documented and used as part of the survey evaluation. Since customer satisfaction surveys seldom have a large budget and are not of a high priority in most companies the resources for evaluations and quality control are limited. In many cases an external company is hired, to do the measurements, which eliminates some of the opportunities for quality control of the data and the data collection itself. Some level of expertise is required to understand the need for quality controls and the companies buying these surveys often do not possess that expertise.

Biemer and Lyberg (2003) state that quality can be said to have three levels, the product level, the process level and the organizational level. An organization that works thoroughly with quality improvement often has a high process quality. One way to establish high quality on the organizational level is to work with business excellence models, as the models mentioned in chapter 2.5. A high process quality is required for high product quality. To monitor the process quality a documentation of the process performance is recommended. The process should produce data about itself, paradata, which can be evaluated and used to correct errors in the process. The term paradata originates from Couper (1998). The production and use of paradata should be standardized and give a feedback loop for continuous improvement. Paradata can be used to build warning mechanisms into the process. A high product quality means that the product can be used as it is intended, i.e., that the survey results are useful for the organization. The product should be developed in cooperation with the stakeholders of the product. The product quality is often a trade-off between cost and the quality dimensions.

Some of the most important things to consider are that the process can always be improved and successful findings should be implemented and standardized. It is also important to learn from mistakes and errors so they can be avoided in the future and by other employees. Most customer satisfaction surveys do not spend a lot of resources on quality evaluations. The evaluation is limited to pretesting, interviewer controls and control of the data processing, at best. Embedded experiments and evaluations of implemented changes are uncommon. The costs of bad data in a company can be high and corrections are therefore crucial even if that means large short-time spending. Unfortunately a systematic approach to quality control of data does not seem to be common in the customer satisfaction survey field. One reason for this can be that the Business Excellence models do not take the quality of the data into consideration when assessing a business. The existence of the data is often enough to score high on the parts regarding customer satisfaction measurements. The models do not provide any guidelines on how the data should be collected and controlled. The massive use of customer satisfaction surveys is a trend among the companies but only limited value can be derived from many of them. The high frequency of surveys prevents thorough analysis and use of the collected data and leaves no time for improvements of the survey. Because the comparability between time-points is diminished if the surveys are altered, changes in the survey methodology are costly for the companies and they might prefer to stick with an old strategy.

ISO has developed a standard 20252:2007 for market, opinion and social research (ISO, 2007). This international quality standard is developed as a tool to ensure that the data collection is done in a consistent and verifiable manner for these kinds of surveys. The standard includes some international quality principles as transparency and consensus between the involved parties. The standard consists of guidelines on many of the steps of a data collection and presentation process. The guidelines state what documentation is needed in each step to monitor the data collection process and to enable evaluation of the process.

4. Benchmarking Indexes

4.1 American Customer Satisfaction Index (ACSI)

American customer satisfaction index (ACSI) is a market based measurement for firms, industries and national economies, according to Fornell et al. (1996). It is intended to measure establishments' quality and is used as an indicator for quality development. The index goal is to measure quality of goods and services as experienced by the customers in the U.S. ACSI strives at comparing different sectors and companies. ACSI is constructed using a model that measures customer satisfaction as a latent variable, which is a version of a hybrid model. This latent variable consists of different factors and is supposed to be general enough to be comparable between firms, sectors and even nations. The primary goal of the index is to estimate customer loyalty which is a good indicator of a firm's success in a very changeable market. ACSI is constructed using three parts; perceived quality, perceived value and customer expectations. Perceived quality is operationalized in two parts; customization and reliability. Customization measures the degree of flexibility against every unique customer. Reliability measures the ability to accomplish the service promised to the customer. Perceived value is operationalized using price information and perhaps more accurately, price relative to quality. Customer expectations measure past experiences for the customers and also expected experience in the future based on rumors and market information.

Fornell et al. (1996) state that ACSI is designed to be representative to the whole U.S. economy. The index monitors seven economic sectors. The sectors are divided into industry

groups on the basis of their contributions to GDP. In each industry group many representative establishments are chosen on the basis of total sales. The largest company in every industry is also chosen. For every chosen company approximately 250 customer interviews are done. The sample is a national probability sample of households. Customer expectations are measured by questions about the customer's recollection of the expectation of the service or good provided by the company in question. Three expectation measurements are collected; overall expectations, expectations regarding customization and expectations regarding reliability. Three experience measurements are also collected; overall perceived quality, perceived customization and perceived reliability. The overall customer satisfaction is measured by three other questions; overall rating of satisfaction, the degree to which the company met the customers' expectations and rating of the good or service in relation to the customer's ideal good or service in the given category, the three questions mentioned in chapter 3.2. There are also questions about customer complaints and customer loyalty towards the company.

The index is constructed for every monitored company and takes a value between 0 and 100. An example of the index results for different sectors are shown in figure 15. The value is supposed to be comparable between companies, according to Fornell et al. (1996). An index value for a company is best understood when compared to other companies in the same industry or in comparison with an index number for the same company at a different point of time. The index then shows how good the company is doing in relation to its competitors and how it has evolved. ACSI is also used as an indicator of the state of the American economy and its customers. It has been shown that the ACSI is a good indicator of a company's revenue according to Fornell et al. A high index number or a high growth of the index value often is associated with a high return on investment. The index is also a good help for policy-makers and managers, since they receive an indicator on what to improve which in the end is good for the customers.



Figure 15. The ACSI scores for the fourth quarter of 2009. (ACSI, 2010)

4.2 Svenskt kvalitetsindex (Swedish Quality Index)

Svenskt kvalitetsindex (SKI) is a system for monitoring the satisfaction of customers and users of the products and services provided by Swedish organizations. An index is derived for every sector based on the customer satisfaction regarding a number of companies in that sector, according to SKI (2009a). The companies and organizations of a specified sector are selected based on their market share. The companies with a substantial market share are always among the selected companies. SKI measures the satisfaction regarding around 50 sectors each year. SKI is a part of the pan-European organization Extended Performance Satisfaction Index (EPSI)-rating and the same model is used. The model was developed in Sweden and is based on a research program that started in 1989 according to the SKI CEO.

An economic model concerning customer behavior is the base for SKI. The model tries to explain the level of customer satisfaction based on three areas, Quality, Satisfaction and Performance according to SKI (2009b). A number of latent variables describe these three areas. The latent variables are divided into Drivers and Results and can be found in figure 16. The Drivers are *Image, Customer Expectations, Perceived Product Quality, Perceived Service Quality* and *Perceived Value*. In the model *Perceived Product Quality* and *Perceived Service Quality* are thought to determine *Perceived Value*. The first Result variable, *Customer satisfaction* is modeled to depend on *Perceived Product Quality, Perceived Service Quality* and *Perceived Value*. The customer satisfaction then leads to *Loyalty/Trust. Financial Results* are believed to depend on customer loyalty and trust but are not part of the model. According to the SKI CEO the link between *Loyalty/Trust* and *Financial Results* is empirically sound and SKI is about to publish research that supports the dependence.



Figure 16. The SKI and EPSI model. (EPSI, 2010)

Each latent variable is measured by a number of questions, called manifest questions. For each latent variable an index from 0 to 100 is calculated by using an analysis model based on SEM with PLS. The method also provides estimates of the dependence between each the Drivers and the Results. The customer satisfaction index is measured by three questions

previously mentioned, overall satisfaction, expectations and how close the supplier is to an ideal supplier. The *Loyalty/Trust* index is also measured by three questions, willingness to recommend the supplier, how well the customer speaks about the supplier and if the customer wants to use the same supplier again. The indexes are constructed only by these three questions but the weight of each question is determined by the drivers according to the partial least squared-method. The method can be considered quite complicated and is a type of hybrid-model, mentioned in chapter 4.7. The questions are answered on a scale from 1 to 10, where 1 means *Not satisfied at all/Do not agree at all* and 10 means *Very satisfied/Completely agree.* According to SKI an index difference to units between two companies is statistically significant on the 95 % significance level. SKI considers an index number above 75 as very good and one between 60 and 75 as normal.

SKI (2009b) states that a general base questionnaire consists of about 10 background questions and 30 manifest questions and the interviews are conducted via telephone. The questionnaires are altered a bit according to the specific issues regarding each sector. We have studied an example of a SKI questionnaire. In this questionnaire the answering scales used are 10-point scales that range from, e.g., Not satisfied at all to Very satisfied or some other verbal end points regarding the question at hand. The questionnaire starts with two screening question and then continues with the overall satisfaction question. The population is the whole Swedish population between 18 and 79 years. A few large samples are drawn from the population each year according to the SKI CEO. These large samples are used for a couple of months for all surveys and smaller samples are selected for each sector. To each member of the sample a home telephone number and a cell phone number are registered if possible. The frame construction is performed by an external company and the data collection is done by at least two other companies according to the SKI CEO. The frame coverage can be questioned since not all Swedish citizens are listed and registered properly with satisfying contact information. Telephone numbers are often registered on someone other than the user and it can be very difficult to link a telephone number to a specific person. SKI states that they are very involved in the interview process and monitor the quality of the data collection. The respondents are interviewed by telephone and the interview is supposed to take around 15 minutes. Each call regards only one sector. When a sampled person is reached some screening questions determine if he or she belongs to the target population. The target population consists of customers to the specific company or sector that the telephone interview is all about. The goal is to reach active customers of the specific company but the definitions of what constitutes an active customer is somewhat different in different sectors. Especially the reference period can change between different sectors regarding on what type of good or service the sector provides. At most 20 call-backs are used for each respondent according to the CEO. If a person is not reached after these call-backs he or she is substituted. The SKI CEO states that they have a high response rate, around 70-80 per cent. The persons that refuse to participate are considered nonresponse and are substituted to reach the quota. SKI does not take the nonrespondents into consideration in the calculations or in the precision estimates according to its CEO. This can create problems with the generazibility since the nonrespondents and the persons that cannot be reached might differ from the respondents.

Some groups are easier to reach since they are available through telephone and other groups are harder to reach. One example is that younger persons might change telephone numbers more often than older people and are therefore harder to contact. These two groups might differ in satisfaction attitudes which lead to biased estimates.

The results for major companies in each sector are presented separately. In order for these results to be sound precision goals must be reached, according to the SKI CEO. To reach the precision goal at least 250 customers of each company must be reached. Often more than 250 customers are surveyed and some companies also want the results presented on a regional level which creates the need for a larger sample. The surveyed companies and other stakeholders can subscribe to the results and these results are more detailed than what is officially published. These subscriptions contain the separate results for all surveyed companies in that sector which gives the companies a lot of information on their competitors. The results contain information on each driver and how it influences the satisfaction index according to the model. The companies can use these results to what is most beneficial to improve the satisfaction. According to the SKI CEO more and more companies during the years have chosen to work with the results in this way but the results are also used in advertisement and ranking.

5. The Use of Customer Satisfaction Surveys in Selected Swedish Organizations

5.1 The Choice of Organizations

Our initial goal was to study organizations that have a high quality trademark. We tried to choose organizations that we believed had relatively complex customer satisfaction measurements. A large customer base was also one of the criteria. In the selection process organizations with well-known customer satisfaction surveys were also included. The study is limited to organizations with at least a part of the organization located in the Stockholm area for logistic reasons but this has not been a limitation since most large Swedish companies have a Stockholm office. The selection also included some of the winners of the Swedish Institute for Quality (SIQ) - award *Swedish Quality* during 2008-2009. These organizations were not located in Stockholm and were therefore contacted by telephone and e-mail. Most of the organizations contacted were willing to participate in our study. Two companies declined. One large retail company declined because of time issues and that they were in the middle of restructuring their customer satisfaction measurements. The other company that deals with insurances discontinued our correspondence after the initial contact. Some companies studied stressed that they would like to be anonymous in this thesis. They asked us not to publish their satisfaction concepts or questionnaires and we have accommodated their request.

SIQ is a member of EFQM National Partner Organization (NPO) and is a national institute that works towards continuous improvement with a wide perspective on all kinds of organizations. SIQ (2009b) states that the award is based on a point system according to the SIQ model for Customer Oriented Business. The model has seven main criteria that each consists of a number of subcriteria and is similar to the Malcolm Baldrige model. A systematic approach with continuous improvements is rewarded by the model. The model can give a total of 1000 points and a score between 250 and 400 points is considered good. The seventh main criterion is customer satisfaction and is worth 300 of the 1000 points. The measurement process of customer satisfaction is worth 60 of these 300 points. The organizations apply for the award and the participation in the evaluation process is associated with a fee.

5.2 Questions and the Interview Process

We developed a standardized questionnaire for all the interviews. The questions are found in Appendix 1. Before every interview materials from the selected organizations had been studied when possible. In most interviews the respondent talked freely about the customer satisfaction measurements in the organization and complementary questions were used to cover all the questions in the standardized questionnaire. The interviews were taped for recollection purposes and to minimize misunderstandings. The interviews dealt with subjects such as the purposes of the customer satisfaction surveys and how important the companies deem the surveys. The interviews also covered topics such as which data collections they used and how the data was analyzed. All meetings have taken place in the headquarters of each

organization. In several cases complementary material has been sent to us after the meeting. In some cases we have sent complementary questions to the organizations. In the cases with international organizations Swedish representatives have been interviewed. They are not the designers of the surveys but are responsible for the Swedish market.

5.3 Case Study Results

5.3.1 Statistics Sweden

The Customer Satisfaction Surveys provided by Statistics Sweden

Statistics Sweden conducts customer satisfaction surveys on behalf of the Swedish municipalities and other organizations. The surveys deal with the services that the municipalities and organizations provide to the citizens, for example health care and elderly care. Statistics Sweden also does employee satisfaction surveys. The frames are provided by the municipalities with contact information and Statistics Sweden usually does not make any big changes to the frame. The frames are often constructed using a combination of different registers or lists. The frames can sometimes be quite poor. Sometimes the client does the sampling and in those cases Statistics Sweden controls if the sampling has been done correctly. The mode is more and more often web surveys. In the cases where the contact information includes e-mail addresses the sample is contacted by e-mail only. If the contact information only includes addresses the sample is reached by mail with login to an onlinesurvey. In other cases mail surveys are used. Telephone surveys are considered to be too expensive. Reminders are sent with the same mode as the initial survey and telephone reminders are rare. The responsible department at Statistics Sweden has not noted any difference in response rates between web and mail surveys. Generally the response rates are decreasing for all modes, but this unfortunately applies for must surveys in society. The customer satisfaction survey in the municipalities often concern small populations and therefore censuses are often done.

The response rates vary a lot and are usually between 40 and 70 per cent. Surveys directed to companies in their roles as customers of a municipality usually have a low response rate, since the surveys are not mandatory. The nonresponse is generally treated as missing completely at random and the respondents are used in the calculations as the whole sample. Item nonresponse imputation is used if the respondents have answered three final questions.

The questionnaires are developed from a standard questionnaire and the clients can customize the questionnaire to their individual needs. The clients can use the standard questionnaire to a reasonable cost, but almost all clients choose to customize it. The questionnaire consists of background questions and a number of questions that are used to derive latent factors. The questionnaires have the three final questions about overall satisfaction, how the service meets the customer's expectations and how close the service is to an ideal service. These three questions are used to calculate an initial customer satisfaction index ranging from 0 to 100. The next step is to calculate the different effects of every factor on the customer satisfaction index using SEM with PLS. The modeling is only done if the there are more than 100 responses. The model values are used to construct priority matrices that show the impact of every factor on the customer satisfaction index. Factors with low index and high effects are considered worth prioritizing to improve the overall index. The representatives from the department are aware that the question order can influence the responses. The three overall questions are placed at the end of the questionnaire and the factors mentioned influence what the respondents consider when they formulate their opinions on overall satisfaction.

Most questions are answered on a scale from 1 to 10. In some scales 1 means *Not at all satisfied* and 10 means *Very satisfied* and in others *Not good at all* and *Good, to the highest degree*. Other labels are also used. A *no opinion* alternative is included in each question. Cognitive studies, done by Statistics Sweden, have shown that the respondents consider five or less as a bad grade and six and seven mean satisfied. Eight or more are considered to indicate very satisfied. The standard questionnaire and any considerable changes in the questionnaire are tested by the cognitive lab at Statistics Sweden.

The clients who buy their customer satisfaction index from Statistics Sweden use the outcomes in different ways. Some only look at the index but more advanced users look at the priority matrices. Many tables are provided to the clients and they can also request the raw data material but this is slightly more complicated because of the confidentiality concerns. The department says that their clients seem satisfied with their products. In those cases a customer satisfaction index is produced for the same municipality during several years the index is usually quite robust. Not many studies have been conducted regarding the improvements a municipality makes due to the priority matrices. The department representatives brought up the question whether their model really measures "true" satisfaction or if such a thing even exists. They are aware that it is nearly impossible to create a model that catches the "true" satisfaction value and that this model is an indicator of the customer satisfaction. They believe that most clients are aware that the index might not measure "true" satisfaction. The complexity of the model is probably too hard for most clients to understand and they have to trust that it measures the satisfaction of their customers in some way. It is also important to remember that the measurement is cross-sectional and that it is only worth something in comparison with other measurements.

The Customer Satisfaction Measurements among the Clients of Statistics Sweden

Statistics Sweden also conducts surveys among their own customers regarding the satisfaction with the services of Statistics Sweden. The management for customer satisfaction index among paying customers and extensive users of Statistics Sweden says that customer satisfaction is very important in their quality models. The agency has recently begun to work with the EFQM-model and the customer satisfaction is a big part of that.

According to the business description of Statistics Sweden, which was prepared in the line with the EFQM-model, the organization does three user oriented surveys. These are a customer satisfaction index called *NKI*, the *Agency Image*, and the *Delivery survey*. The *Agency Image* is a study among the citizens of Sweden about their views of Statistics Sweden. The *Delivery Survey* is a survey distributed to all the customers that have purchased a service

from Statistics Sweden at a cost of more than 10 000 SEK. The *Delivery Survey* is the tool Statistics Sweden uses for continuing evaluation of its services. Every department uses the results to follow up specific cases and problems. Major complaints can be followed-up by telephone calls to the customer. Both the *NKI* and the *Agency Image* are done every other year. The *Agency Image* has a sample of 2000 citizens and the response rate was 47 per cent in 2008. The questions are about the citizens' opinions about Statistics Sweden and their knowledge about what the organization does.

The target population in the NKI consists of two groups, paying customers and big users such as government institutions. Statistics Sweden also serves other official statistics agencies within Sweden's decentralized system for official statistics (the so called SAM-agencies). The frame population has changed during the years. One problem is that the paying customers are not always the bulk of users and consumers of the statistics. Statistics Sweden would like to reach the users to a larger extent. Another problem is that different people in the same organization use the statistics in different ways, but only one answers the customer satisfaction questionnaire. Management has tried to put in some extra effort to reach the most suitable person and user of the statistics within an organization and will work on this issue even more in the future. In the beginning the main purpose of NKI was to study the opinions of the largest customers and to get input on what to change in the statistics delivery. The survey is nowadays part of a greater quality improvement effort. Knowledge about improvements is also a big focus and as well as comparisons with other governmental organizations. The index can be compared to other central governments if they have measured the customer satisfaction in a similar way. Statistical agencies in other countries measure customer satisfaction using different methods and a meaningful comparison cannot be done. The sample is reached by e-mail and the questionnaire is web based. Statistics Sweden has a liaison at every large organization which is a customer or user and the questionnaire is sent to the liaison. The survey is voluntary. Several reminders are sent by e-mail to the sample units that do not respond and a telephone reminder is used in the last week of the survey period. The survey manager would like to change this procedure to only one reminder by e-mail and one telephone reminder to raise the response rate and decrease the respondent burden.

The questionnaire in the *NKI* has been used for several years but has been updated a few times. The questionnaire will most likely be changed for the next year and a few less useful questions will be removed. The survey manager is not completely satisfied with all the questions as they are formulated today. One unnecessary question is what kind of statistics product the customer has been using. The customer can seldom answer this question correctly and Statistics Sweden already knows the answer. This question may have led to nonresponse in the past and is probably among those that will be removed. The original questions have been reviewed by the cognitive lab at Statistics Sweden but not after the updates. The questions in *The Delivery Survey* have been evaluated more recently.

The customer satisfaction index in the *NKI* is computed via several steps in a similar way as the service provided to other organizations mentioned in the previous section. An initial customer satisfaction index is based on the three comprehensive questions about the customer

satisfaction with Statistics Sweden. The three questions are overall satisfaction, how Statistics Sweden met the expectations and how close Statistic Sweden is to an ideal producer of statistics. The other questions are used to derive latent factors about the properties of the quality of the statistics that Statistics Sweden delivers. Structural equation modeling with PLS is used to see how the different factors affect the customer satisfaction index and to assess how the three comprehensive questions affect the index. These dimensions are used to see what properties are most important to increase the index. The final customer satisfaction index is a result of both the initial index and the factor and their effects. The results are compiled in priority matrices and diagrams and these are the most important outputs of the survey. The index itself is not considered very important. The latent factors are; Information, Presentation, Usefulness, Treatment, Competence, Efficiency, Professionalism and Punctuality. An index for each factor is also calculated. Each question is answered on a 10point scale between 1 and 10. A Do not know/Does not apply option is available on each question. The verbal labels for each scale are adapted to the question structure. The following example in figure 18 illustrates the most common scale in the questionnaire. Another example is the overall satisfaction question, seen in figure 19. The overall customer satisfaction index from 2008 was estimated to 74 on an index of totally 100. The highest score on a focus area was 86 in the area *Treatment*. The lowest score was 65 in the area *Presentation* (SCB, 2008).

Grade the following aspects:	Lowest grade			Highest grade				Don't know			
	1	2	3	4	5	6	7	8	9	10	0
The plainness of the tender											

Figure 17. The question originates from the NKI and is a part of an area regarding the businesslike manner at Statistics Sweden. (Eurostat, 2003)

	Not at all satisfied		Very satisfied	Don't know
	1 2 3 4 5	6 7	8 9 10	0
How pleased are you with SCB in total?				

Figure 18. This is the overall satisfaction question from the customer satisfaction index, the NKI. (Eurostat, 2003)

The questionnaire consists of 15 questions with up to six subquestions for each main question. The manager of the survey is not completely satisfied with the *NKI*. The biggest issue according to the management is the low response rate; it was 43 per cent in 2008. Some major organizations were among the nonrespondents. Separate compilations for different customer groups are impossible because of the low response rate. The survey for 2008 could not be used for inference to the whole population due to the low response rate. The population size in 2008 was around 4000 customers and users and the sample size was around 1300. The survey manager suggests that a smaller sample might be used in the future and the survey may benefit from changing to a telephone-based survey.

The Delivery Survey used to have 10-point scales but the answering scales have been changed to seven-point scales. The reasons were that the scales were seen as too detailed and that the respondents could not report their opinions that precisely. The *NKI* could also benefit from changes in the answering scales.

The results are presented for the head of each department at Statistics Sweden and are also published in the annual report of Statistics Sweden. The *Delivery Survey* is also used in the annual evaluation. The manager of the survey did not state that the results of the Customer Satisfaction Index are actually used in a continuous quality improvement effort today. The survey is used indirectly in the quality improvement process. The use of the EFQM-model will hopefully lead to a more standardized quality improvement according to the manager. He cannot state that the customer satisfaction has increased as a result of improvements made because of survey results.

5.3.2. A Swedish University

A Swedish university has conducted two student satisfaction surveys, one in 2003 and one in 2007. The purpose of the surveys was to measure how the students experienced their situation at the university. In the 2007 survey the questions also dealt with how the students ranked the questions' importance. The planning section at the university claimed that the university thinks that measurements of the student satisfaction are very important. The university also conducts surveys among alumni. The departments and faculties also survey their own students using satisfaction questions. The survey conducted in 2003 was done by a market research agency and the 2007 survey was done by an alumnus with a background in statistics. The 2007 survey was based on the 2003 survey to some extent. The question areas were discussed and decided by the quality council at the university. The council consists of representatives from the departments, the faculties and the students.

The questionnaire was not tested in a formal pilot study. It consisted of 51 questions, each with up to 12 subquestions. The questionnaire totally consisted of 120 questions and subquestions. Each question area was concluded with a question about the overall satisfaction with that area. Some areas were, for example, *the structure of the courses, teachers, course literature, examination, work environment* and *student influence*. The response categories were the same for almost all satisfaction questions. A 5-point scale ranging from *Very Satisfied* to *Very Dissatisfied* was used with no numerical labels. Every satisfaction question was followed by a question about the importance of the issue. These questions were answered in a 3-point scale ranging from *Very Important* to *Less Important* as seen in figure 20. The importance scale is unbalanced and an alternative might be to have *Not Important* instead of *Less important*.

Satisfaction: Very Satisfied Very Dissatisfied Don't know Importance: Very Important Less Important	To sum up, hov semester of 200	v satisfied or dissatisfied are you with th 07?	ne structure of the cou	rses during the spring
Importance: Very Important 🗌 🗌 🗌 Less Important	Satisfaction:	Very Satisfied	Very Dissatisfied	Don't know 🗌
	Importance:	Very Important 🗌 🗌 🗌	Less Important	

Figure 19. The question originates from the student satisfaction survey of 2007. The importance scale is unbalanced and an alternative would be to have Not Important instead of Less Important. The satisfaction scale is however balanced but is neither verbally nor numerically labeled apart from the end points.

The survey was done with mail questionnaires and was sent to a sample of 2000 students. The frame was all students listed during the autumn semester 2006 and the spring semester 2007. A stratified sample was drawn based on faculty size. Only one mail reminder was used. The response rate was 37 per cent which was considered quite low by the researchers. The researchers stated that it is difficult to generalize the results to the whole population due to the low response rate. The results from 2007 and 2003 were quite similar and therefore the 2007 results were considered representative even if the response rate was low. A simple analysis of the nonresponse was made but no calibration or imputation method was used.

The results of the student satisfaction survey 2007 were compiled mostly with bar charts showing the satisfaction and the importance. Since the middle points in the scales were not labeled in the questionnaire the researcher has categorized them as Fairly Satisfied, Neither Satisfied nor Dissatisfied and Fairly Dissatisfied during the analysis process. This procedure is not correct since it interprets the opinions in a way that the respondents are not aware of. No index or other overall measurement was calculated. The importance ratings were considered in the evaluation of the results and the decision-makers thought that the importance ratings raised the usability of the survey. The results of the survey were intended to be used in the decision-making and in the planning process. It has however not led to any decisions on a central level. An example of a result from the survey was that 47 per cent of the respondents were dissatisfied with the constructive response given by teachers after an examination. 21 per cent were satisfied. The corresponding importance of this question was that 60 per cent of the respondents thought that it was very important. This is only one example of an area where there was room for improvement. Another example is a question about the quality of the air/temperature in the teaching facilities. The dissatisfaction rate on this question was 40 per cent and the satisfaction rate was 29 per cent. 72 per cent of the respondents regarded this question very important.

The result of the study was presented to the faculties and the departments and they could use the results in their decision-making as they saw fit. The student satisfaction is intended to be monitored again but the university has not yet set a date. The surveys are not conducted on a regular basis.

5.3.3. The Swedish Tax Agency

The measurements at the Swedish Tax Agency are a little bit different than other satisfaction measurements. The Tax Agency does not have customers in a proper sense but it must measure the satisfaction of their users. All citizens and companies are users of the Tax Agency but some have a more extensive contact. The Tax Agency provides services and the satisfaction of those services can be measured in a traditional way. The agency also needs to measure the trust of the citizens and companies, which can be more complicated. A high satisfaction with service and trust is part of the objectives of the Swedish Tax Agency. Another objective is to get the tax payers to pay their taxes correctly.

Since 1996 the Swedish Tax Agency has conducted a poll among the citizens every other year and among the companies every other year. The last poll was conducted in 2007 and the system is now under reconstruction. The surveys will be conducted less often and other smaller surveys will be conducted more frequently. Some of the reasons for this change, according to the Tax Agency, are that the surveys are expensive and that the situation does not change a lot between the measurements. These reasons are convincing and should be considered in more customer satisfaction surveys. In the future both citizens and companies will be surveyed in the same year. The objective is to do the next extensive study in 2011. The poll directed to the citizens has dealt with questions about the respondents' opinions on the Tax Agency and the Swedish tax system. The poll has consisted of two different surveys, one called the *Citizen Survey* or the *Company Survey* and the other one called the *Region Survey* (for both the citizens and the companies). The Region Surveys have studied the opinion of citizens and the companies about the Tax Agency's ability to perform its mission. In the future the Region Surveys will be replaced by one telephone survey called the User Survey. The Citizen Survey studies the opinions of the citizens and the Company Survey studies the opinions of the companies about the tax system, tax evasion and the control of tax payments. The survey tools were developed together with two market research agencies. One of the agencies was responsible for the data collection and scanning. Since 2005 the data analysis is conducted by the Swedish Tax Agency. Earlier the analysis was done by the other market research agency. After 2005 the data collection is conducted by one mode only. Before 2005 a mix of telephone interviews and mail questionnaires was used. The mode effect was however large and a decision to do only mail questionnaires was taken. The telephone mode produced more positive answers. The respondents felt more reluctant to criticize the tax authorities when they spoke to an interviewer than when they answered the questions on paper.

The Public Opinion Polls

In the most recent *Region Survey* by Skatteverket (2007a) among the citizens, conducted in 2006, a simple random sample of 5000 persons between the ages 18 to 74 was used. The frame for both the *Region Survey*, directed to the Swedish citizens and the *Citizen Survey* was the Swedish person and address register (SPAR) which comprises every person registered in Sweden. The simple random sample in the *Citizen Survey* 2006 consisted of 3000 persons between the ages of 18 to 74. In both the *Citizen Survey 2006* by Skatteverket (2007b) and the *Region Survey 2006* mail surveys were done. In the *Citizen Survey* two mail reminders were **67(96)**

sent out, and then a telephone reminder was used if telephone numbers were available. If not, a third mail reminder was sent out. In the *Region Survey 2006* two mail reminders were used. One of the purposes of the *Citizen Survey* and the *Region Survey 2006* was to gain knowledge about how the Swedish population viewed the Swedish tax system and the Swedish Tax Agency and how the views had changed over time. Another purpose was to gain knowledge about the opinions of the Swedish population regarding tax evasion, and the services of the Swedish Tax Agency. The results were intended to be used both as feedback and as a basis for future developments. The questionnaire of the *Citizen Survey* consisted of attitude questions and most of them were formulated as positive statements for the respondents to consider. Most of the questions could be answered with a 5-point scale that ranged from 1 to 5. 1 equaled *Do not agree at all* and 5 equaled *Completely agree*. The questionnaire also included questions about the overall trust in the two authorities.

The questionnaire of the *Region Survey* by Skatteverket (2007a) consisted of attitude questions regarding the service of the Swedish Tax Agency. Ten quality dimensions were covered in the questionnaire; *accessibility, efficiency, client treatment, expertise, communication, control, justice, work system, trust* and *attitudes of officials*. The questions were worded as positive statements for the respondents to consider, an example is provided in figure 21. Most of the questions could be answered with a similar scale as in the *Citizen Survey* by Skatteverket (2007b). The last question was about the perception of the officials of the Swedish Tax Agency. The respondent was presented with three claims and was asked to grade how accurate each claim is on an eleven-point scale that ranges from 0 to 10, where 0 equals *Do not agree at all* and 10 equals *Completely agree*.



Figure 20. An example from the Region Survey of 2006. The question is a positively worded statement for the respondent to consider. (Skatteverket 2007a)

The results are computed by a Generalized Regression (GREG-) estimator to compensate for the nonresponse. The GREG-estimator used the auxiliary variables gender and age category. Proportions and means were calculated for each question and presented in diagrams and tables with a margin of error. This method is quite sophisticated and not common in Swedish customer satisfaction surveys.

The Company Opinion Polls

During 2007 there were two polls directed to the companies in Sweden. One was the Region Survey 2007 by Skatteverket (2008b) and the other was the Company Survey by Skatteverket (2008a). They were both conducted with mail surveys. The frame for both the Company Survey and the Region Survey was the Business register of Statistics Sweden. The Region Survey was intended to measure the opinions of the Swedish companies regarding service, control, knowledge, work system and the perception of the officials at the Swedish Tax Agency. In the questionnaire 11 areas of quality was covered. They were accessibility, client treatment, efficiency, expertise, communication, information, control, justice, work system, trust and officials' attitudes. The sample in the Region Survey 2007 consisted of 5000 active companies with a branch code. The response rate 2007 was 40 per cent. Two mail reminders were sent out. The companies were stratified after number of employees. Accounting firms were put in a separate stratum. The nonresponse was compensated by calibration. Proportions and means were calculated for each question and presented in diagrams and tables with a margin of error. In the Region Survey 2007, the results among 1491 respondents gave a mean of 4.03 on the question regarding the friendliness of the staff. The question was answered using a 5-point scale that ranged from 1 to 5, where 1 equaled Do not agree at all and 5 equaled Completely agree. The margin of error was 0.06.

The questionnaire in the *Region Survey 2007* done by Skatteverket (2008b) consisted of 21 blocks of questions. Six of these concerned background variables, four were about the extent of contact the company had with the Tax Agency and the rest were questions about the perceived service from the Tax Agency. The questions were worded as positive statements for the respondents to consider. Most of the questions were answered using a similar scale as in the public opinion polls. The last question was about the perception of the officials of the Swedish Tax Agency. The respondents were presented with three statements and were asked to grade how accurate each claim was on an 11-point scale that ranged from 0 to 10, where 0 equaled *Do not agree at all* and 10 equaled *Completely agree*.

The *Company Survey* by Skatteverket (2008a) was intended to measure the views of the companies regarding the tax system, tax evasion and tax control. The sample in the *Company Survey* of 2007 was a stratified random sample of 3010 active companies. The companies were stratified after number of employees. Accounting firms were put in a separate stratum. The response rate 2007 was 55 per cent. Two mail reminders were sent out, and then a telephone reminder was used if telephone numbers were available. If not, a third mail reminder was sent out. In the earlier editions of the *Company Survey* no telephone reminders were used which led to a lower response rate of 40 per cent. The mean estimation was conducted as in the *Region Survey*. Proportions and means were calculated for each question and presented in diagrams and tables with a margin of error. The questionnaire of the *Company Survey* consisted of 20 questions. The same answering scales for the attitude questions were used as in the *Region Survey*. The questionnaire also included questions about the attitudes towards the Swedish Enforcement Authority. Both sections ended with a question about the overall trust in the two authorities. The *Company Survey* was the only one

of the four surveys that had an open question where respondents could provide further comments or opinions.

Surveys since 2008

One *User Survey* has been done. The target population in this survey comprises all citizens and companies that have been in contact with the Swedish Tax Agency during the last year. The survey was and will be conducted by telephone to enable the screening process of the individuals that have not been in contact with the Swedish Tax Agency. Tax declaration alone does not qualify as having been in contact. One benefit from measuring the satisfaction of the citizens and the companies in the same year is that it is easier to make comparisons.

In 2008 a survey called the *Control Survey* was conducted. The population of this survey was companies and citizens that had gotten a positive or negative revision of their tax payment. The purpose of the survey was to study how the trust in the Swedish Tax Agency changed because of the decision. The mode was telephone interviewing. The population was stratified and one stratum was private persons and the others were stratified by organization type. The sample consisted of 1000 units from each stratum. The response rate was 43 per cent but differed somewhat over the different strata. If the trust had changed the person could answer an open-ended question on the reason for that. The respondent also got a few statements to consider. The statements concerned different kinds of client treatment. The correlation between the statements and the trust change was calculated. There are no plans to do this survey regularly.

The Swedish Tax Agency took part in an omnibus survey, in 2009, conducted by a market research agency. The agency regularly conducts an omnibus survey by telephone among all people in Sweden over the age of 14. The sample was 500 citizens and 250 self-employed. The frame was the Swedish Phone-book. One number was selected randomly and then the numbers 1 to 9 were added to this number. In this way unlisted phone numbers were included. Only one of these ten numbers was used. Substitutions were used to some extent. If no member of a household was available after four call-backs the telephone number was substituted. When a telephone number was reached a computer program randomly selected which person in the household that should be interviewed. If this person was unavailable another person in the same household was selected randomly. In this way 750 units were collected. A person could not be included in both the citizen group and the self-employed group. The sample was stratified by region. Post stratification was done on the variables size of household, sex, age and occupation. The market research agency employing this survey believes that the post stratification neutralizes the substitution effect to some extent. This belief is correct if the post-stratification is done on variables that correlated to the willingness to respond and they probably do. Some nonresponse analysis was made. The market research agency stated that the results only represent the studied material. In the omnibus survey the Swedish Tax Agency asked questions about the attitudes towards them regarding information, simplicity to declare taxes, client treatment and attitudes towards tax evasion and the controls that the Tax Agency conducts. The questions were formulated by the Tax Agency and based on the questions from the *Region Survey* and the *Citizen Survey*. The questions were positive statements that could be answered using a scale from 1 to 5, where 5 meant *Completely agree* and 1 meant *Do not agree at all*. The alternative *No opinion* was also available. The questions were practically identical for citizens and self-employed persons. The Swedish Tax Agency plans to participate in an omnibus survey of this kind every year to get continuous measurements. Until then these results cannot be compared to earlier measurements. Another survey, *Trust and Participation*, was done in 2009. The survey studied the reasons for tax evasion and the trust in the Swedish Tax Agency.

The most extensive contact that the people in Sweden have with the Tax Agency is nowadays by a telephone service. This service provides answers to questions about tax payments and other issues. A sample of the calls to the telephone service is selected and the callers are asked to participate in a short telephone survey directly after they have been in contact with the service. If they are willing to participate, an interviewer calls back and asks them three questions about the client treatment, waiting time and satisfaction with the answer provided. This is the most direct way to measure the satisfaction of the clients of the Swedish Tax Agency.

The need for sensitive questions in the surveys is more evident at the Tax Agency than at a regular company. The questionnaires bring up questions about tax evasion that can be very sensitive. The researchers of the Tax Agency have considered the difficulty in measuring these types of variables and that it can be hard to get truthful answers. One way is to place these kinds of questions at the end of the questionnaire. Another problem that the Tax Agency deals with is that many people do not have any knowledge about the work in, for example, tax control and therefore do not have any opinions on the matter. The surveys produce a large amount of *Don't knows* and neutral responses. The researchers express some concern about how to present results like this. One alternative could be to change the answering scales but the Tax Agency considers the comparability over the years very important.

The satisfaction measurements of the Swedish Tax Agency currently are undergoing a change and the kind of measurements that are going to be used in the future is not decided. The analysis procedures have been developed at the Tax Agency and to be able to use these methods in the future the documentation must be solid and the risk is that only a few persons know the procedures.

The Use of the Survey Results

The survey results are used to measure how well the Swedish Tax Agency has met its goals regarding client treatment and trust. These goals are to be found in the Mission Statement and evaluated in the Annual Rapport. The results are also sent to the local offices and presented to responsible leaders. The Swedish Tax Agency was less centralized a couple of years ago and during that time the results could be used more by the regional offices for improvement processes. Some of the regional offices were very interested in measuring the satisfaction of their users and to be able to look at every region very large samples were used. The response burden was considered too large and the sample size was decreased. The possibility to look at

the satisfaction for each office is no longer available and no longer relevant since most contacts with the users are made via the centralized telephone service. Another reason not to measure the satisfaction on a regional level is that many of the local offices have been merged to a combined office for the Tax Agency and another government agency *Försäkringskassan*. External sources are also used in the evaluation process. The Swedish Tax Agency takes the results from SKI in consideration when they evaluate their progress. They also use self-measured processing times to evaluate the efficiency and client treatment.

5.3.4. An International Hotel Chain

This international hotel chain has one main headquarter that is located outside of Sweden. Each individual country has its own headquarter. Every hotel is self-managed and has to reach a minimum standard to be a part of the hotel chain. The quality of each hotel in Sweden is monitored by the Swedish headquarter.

The hotels have a standardized customer experience management system online where all customers are asked to give their opinions on their stay at one specific hotel. The questionnaire is initially the same for all countries but translated. The questionnaire was developed by a market research agency and has been used by the hotel chain in other countries for some time. It is fairly new in Sweden and only recently has it become mandatory for all the hotels in the chain to use it. Earlier only the guests that made their reservations through the official reservation channels were asked to fill in the questionnaire. They were invited by e-mail and such invitations are still used for this group of customers. As a minimum, the information about the web questionnaire must be given to the guests in the guest information according to demands from the international headquarter. The hotels can, however, choose to promote the survey more extensively. Until now the response rate for the Swedish hotels has been very low, nearly nonexisting for some hotels. The U.S. and other countries have a much higher response rate. The hotel chain hopes that the response rate will rise due to the new policy of mandatory promotion of the survey in Sweden. All customers are asked to answer the web survey and no sampling is done, which in practice makes this a survey with a self-selected sample. All guests not invited by e-mail are asked to use the same link to the web page, which means that there is no way to see who filled in the questionnaire if the respondent does not provide information about that. This means that the respondent can fill in the form multiple times. The system remembers IP-addresses for 90 days which makes it difficult to fill in the form multiple times from the same computer. In the system an opportunity to delete fake responses or multiple responses about the same reservation exists. The responsibility to delete false responses lies on the individual hotels but they must contact the research agency to do so. The lack of a proper sampling method and the low response rate makes it improper to use this survey for inference. The quality manager states that when 75 responses are collected for a hotel the results can be compiled and used to gain knowledge about that individual hotel. We believe that since the sample is self-selected no generalization to the whole population (all the reservations or guest on the individual hotel) can be done. In practice, the system merely collects feedback and complaints.
In the web questionnaire the guests are asked to answer questions about their stay and the service provided. They are asked to state at which hotel they stayed and when. They are also asked to provide full name and e-mail address. The headquarter encourages each hotel to react to every questionnaire that is sent in. If a guest has given negative feedback the specific hotel has to contact that guest. If the hotel does not follow up bad critics it can lead to exclusion from the hotel chain but a first step is that the hotel is excluded from the official reservation channels. The system automatically compiles the data into graphs and means. The hotels can also study the statistics for a given time period, for example to see if changes have resulted in improvements. Each hotel is supposed to use the data in their own quality improvement process but this process is not standardized. The headquarter uses the results to evaluate each hotel and to monitor if the hotels damage the hotel label. One important question is if the quest will recommend the hotel chain to others. If a specific hotel gets a bad score on this question a warning is sent to the hotel and they have to deal with this complaint. The willingness to recommend the hotel is very important to the brand of the hotel chain. The chain cannot risk having individual hotels that compromise the brand name; therefore this warning method is functional. The survey can also be used for positive feedback to the employees. In the questionnaire the guest has the opportunity to name a specific staff member at the hotel who has been especially helpful. The system enables comparisons between different hotels in a country and between countries. The quality manager points out that comparisons between countries can be risky since different cultures often interpret questionnaires differently and that some cultures have a tendency to answer with more extreme values. The hotel chain is interested in comparisons between hotels in different countries but acknowledge the difficulties.

The questionnaire consists of approximately 40 questions about the stay at the hotel, which can be considered as quite extensive. The questionnaire begins with some overall questions about the visit, the service and the quality of the hotel. The questionnaire has some openended questions. The question areas are, for example, *comfort, service at arrival, service at departure* and *cleanliness at the hotel*. Most of the questions are answered using a 10-point scale with the alternatives *Extremely Satisfied*, *Satisfied*, *Neutral*, *Dissatisfied* and *Extremely Dissatisfied*. This means that each alternative has two scale points as seen in figure 22. This scale is quite uncommon and hard to interpret for the respondents. A *not applicable* option is also provided. Every question is equally important in the summary. The questionnaire ends with some background questions. The guest is asked to answer the questionnaire within seven days after his or her stay. One reminder is sent out. If one person has made the reservations for his or her whole family only one e-mail invitation is sent out. The hotel has no respondent rule concerning if every guest or a representative of every reservation should be invited to participate.

ow saushed were you with noted STALLSERVICE.	Extremely Satisfied		Satisfied		Neither		Dissatisfied		Extremely Dissatisfied		N/A
1	10	9	8	7	6	5	4	3	2	1	
Quality of HOTEL STAFF/SERVICE overall	0	٢	٢	0	\bigcirc	0	\bigcirc	0	\bigcirc	0	0
Helpfulness of front desk staff	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	0
riendliness of hotel staff	0	0	0	0	0	0	Ô	0	0	0	0
Knowledge/efficiency of staff	\bigcirc			\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	0
Staff responsive to requests	0	0	0	0	0	0	0	0	0	0	0
Professional appearance of staff	\bigcirc			\bigcirc	\bigcirc	0	\bigcirc	0	\odot	\bigcirc	0
Helpfulness of housekeeping staff	0	0	0	\bigcirc	\bigcirc	0	0	0	\odot	0	0

Figure 21. This is an example from the web questionnaire used by the hotel chain. The questions are overlapping and it can be hard for the respondents to separate the front desk staff from the hotel staff et cetera. The scale is unconventional with two numbers for each verbal label.

The hotel chain offers bonus points to loyal customers if they answer the questionnaire. The guest then has to be a member of the frequent guest club. Other incentives are not offered.

The quality of every hotel is also monitored by on site controls performed by the Swedish headquarter. The results of these controls often match the results of the survey according to the quality manager. Some of the Swedish hotels still use paper questionnaires that they themselves designed alongside the standardized web questionnaire to further monitor their own quality level.

One problem with a centrally developed questionnaire is the translation process. The Swedish questionnaire is translated into proper Swedish but some of the answers and answering alternatives no longer match with each other in the Swedish questionnaire. Another issue is a calendar where the respondent is asked to fill in the days for the stay. The calendar is an English type calendar which starts with a Sunday. The same calendar is used in the Swedish questionnaire but the Swedish calendars typically start with a Monday. The risk for measurement error is obvious.

5.3.5. Public Transportation

A major public transportation company in Sweden with a large customer base conducts many different kinds of customer satisfaction surveys. The most important one is an ongoing survey that is done regularly during the travels. During one year approximately 20 000 answers are collected. The survey is done by paper questionnaire and an external market research agency is responsible for the distribution of the paper questionnaires and the data processing. The selection process is based on an inclusion probability for each departure based in turn on the frequency of that departure's route. For a selected departure a systematic selection of the passengers is done. The public transportation company chooses to use an external agency to

avoid that the selection process is biased by personnel of the public transportation company. The questionnaire can be handed in directly but the respondents also have the opportunity to send in the questionnaire by mail. When one of the authors during a journey was asked to participate in the survey the systematic sampling was obviously not done in a correct way. It seemed that nice looking persons were asked to participate and that the selection was not systematic. It was an externally recruited person that did the selection and distribution. To be able to send in the questionnaire by mail the author actually had to ask for instructions. However, at a later time, the other author was asked to participate in the same survey and at that time the selection process seemed to be done correctly. Some problems are always hard to avoid, for example, when a passenger is asleep or not in his or her seat at the moment. During over-night travels the respondents are not disturbed but instead sent a questionnaire by e-mail after the journey. The results for the ongoing survey are compiled every month. The nonresponse has generally been very low and no nonresponse adjustments are made. The high response rate can be explained by the fact that the respondents spent a long time on their journeys and have the time to answer the questionnaire. The fact that the questionnaire is collected directly is also beneficial for the response rate. Some nonresponse analysis has been done which, according to the public transportation company, showed that the nonresponse did not influence the results. The survey deals with three topics and only one topic is asked about at a time. The three topics are comfort, benchmarking and client treatment. The same procedure has been used during a couple of years and when the questionnaires were initially developed, the concepts were formulated by internal expertise and by the use of focus groups. Some of the questions have been updated since then and adjusted if they have shown to be hard to interpret for the respondents.

The questionnaires are developed with a number of question areas regarding satisfaction level and three overall satisfaction questions. Each question is answered on a scale from 1 to 10 and a *Don't know* alternative is included. The verbal meaning of each scale is adjusted to fit each question wording as in figure 23, where the answering scale ranges from *Very unpleasantly treated* to *Very pleasantly treated* and the question obviously is about treatment.



Figure 22. This question regards the client treatment during the ticket control. A bi-polar 10-point scale is used. The question originates from the survey regarding client treatment.

Each question area ends with an overall question and the importance of each question to the overall satisfaction is assessed by multiple regression analysis. The three overall satisfaction questions are used to construct a customer satisfaction index and the importance of each

question area to that index is assessed by multiple regression analysis. The three overall questions regard overall impression, if the journey met the customer's expectations, and how far the journey was from a perfect journey. The three questions have the same weight in the customer satisfaction index. The company has set the threshold for a good result to be 70 or above on an index with a maximum of 100.

When this survey procedure was initiated at the company it was a step toward a more standardized and centralized monitoring of the customer satisfaction. Other ad hoc surveys are also conducted to monitor changes in the organization. The goal is that all statistics that are compiled must have an area of use. The results are used in developing business plans and governing documents. The staff gets feedback from the survey results on a monthly basis but not on an individual or group level. The results are also compiled in an extensive annual report. The data analysis is performed by the company internally. The company is ISO certified and works according to the ISO 9001:2000-standard.

The company also has a customer panel where customers can sign up. Today the panel has 6500 members. Each member of the panel can be surveyed up to 14 times per year and the surveys deal with a variety of subjects. The company is aware that the results from the customer panel are not generalizable but are used to compile knowledge and feedback from the customers.

The company compares its satisfaction levels with benchmarking questions regarding other travel companies in their own surveys. They also use SKI results but are somewhat doubtful about the selection process used by SKI.

5.3.6. A Car Manufacturing Company

This international car manufacturing company has as a prominent business idea that it should work for a high level of customer satisfaction. Therefore a reliable measurement of customer satisfaction is very important. The importance of high customer satisfaction is well anchored on every level of the organization, from the management to the retailers and the service stations. The measurements of customer satisfaction regard the service and client treatment. The quality of the product is measured in other ways. The customer satisfaction measurements have been done on the Swedish market for a few decades and until 2007 an external market research agency was used as the research service provider. A paper questionnaire was administered once a year. In 2007 it was decided that a consistent approach for customer measurements should be developed for the whole European market. As a result a standardized questionnaire was developed using 72 focus groups from all over Europe.

The customer satisfaction is currently measured after a car has been purchased and after a visit to a service station. The goal is to get feedback on every private car purchase and also to study a random sample of visits to every service station. The sample of the customers of the service stations only comprises visits that cost the customers more than 1000 SEK. The sample size for each service station depends on its size. The ongoing interviewing process is done by telephone and every interview is supposed to take about 10 to 15 minutes. The

private buyers of all new cars are contacted one week after the delivery of the car. The point of this waiting period is to give the sales person a chance to do a follow-up on the purchase. A big effort is put into really reaching all the buyers. This has resulted in a response rate of 80 percent. No further nonresponse analysis is done on the data material. No customer is contacted more often than every nine months. Regarding the sample of customers to the service stations a random sample is selected for every service station. A specified number of customers for each station are to be reached and after a certain number of unsuccessful callbacks a sampled customer is replaced. The same questionnaire has been used since 2007 with smaller adjustments. The standardized questionnaire is in English and a translation to Swedish was done before the implementation of the survey. Some smaller modifications of the translation have been made to clarify certain questions.

The questionnaire regarding retailers consists of seven focus areas that are measured with multiple questions. The seven areas correspond to the steps that a car purchase consists of. The questionnaire also contains one overall satisfaction question, one question about loyalty and one question about willingness to recommend the car retailer. These three questions initiate the interview. The questionnaire regarding service stations also consists of seven focus areas linked to the steps involved in a car service. The service station questionnaire also contains the three overall questions about satisfaction, loyalty and willingness to recommend. Other focus areas that regard some of the steps involved in a service case are covered in the questionnaire. Every satisfaction question, in both surveys, is measured with a 5-point scale from 1 to 5 where 1 means Not satisfied at all and 5 means Completely satisfied. The scales also contain one combined option for Do not know/No response/Does not apply. In some questions the telephone interviewers must code the respondents' answers and in some cases the interviewers are told to probe for answers. Every retailer and service station gets instant access to the measurement through an online system. Every car retailer can see what needs to be improved. Analysis can easily be done on the data material for both the retailers and the headquarters. The respondents have the opportunity to remain anonymous but most choose not to be. If a respondent has a serious complaint the interview is stopped and the retailer involved is alerted directly in order to instantly deal with that customer. The interview is resumed at a later time. The satisfaction measurement is the most important measure for the car manufacturing group. The number of ratings 5 (Completely satisfied) is counted for every retailer on the satisfaction question and the financial conditions between the headquarters and the retailers depend on that score. The reason for the intense focus on the top-score Completely satisfied is that the company's own studies have shown that if the overall satisfaction increases from 4 to 5 the willingness to recommend the car brand increases five times. In theory the willingness to recommend the car brand to others is the most important measure for the company brand. No studies have been done on the subject but the company works according to the hypothesis that satisfaction and willingness to recommend are closely linked. The company also believes that customer satisfaction and willingness to recommend are closely related to profit. The loyalty measurement is harder to interpret since a person can claim a high theoretical loyalty but is not loyal in reality. The company does not calculate any correlation estimates between the focus areas and the overall satisfaction question or between the overall satisfaction and the loyalty and recommendation questions. In Sweden the company has a unique opportunity to measure actual loyalty since the car register can give precise knowledge on which cars a person has owned in the past. The register provides an opportunity to see from which competing company they win customers and to which they lose customers. The car company is interested in comparing its customer satisfaction with that of other car companies in Europe. They measure the satisfaction of all car customers using a special survey. SKI also makes customer satisfaction comparisons of car companies but our car company does not consider these ratings very highly regarding service customer satisfaction.

The results of the customer satisfaction measurements are used both as information to the retailers and the service stations but also as an evaluation method. The company truly believes that a high customer satisfaction leads to a high profit and it is important that the retailers also believe in this connection. The headquarter sends teams to help the retailers analyze the data and to improve poor ratings. The car company has recently started to use web questionnaires to monitor the service station process. The sample for the web questionnaire is not included in the sample for the telephone interviews.

5.3.7 HSB Östergötland

HSB Östergötland is a real estate company that has both tenants and tenant-ownership. HSB Östergötland got the Swedish Institute for Quality (SIQ) – award, *Swedish Quality* 2009. SIQ (2009c) motivated that HSB Östergötland got the award because of their ability to systematically develop the organization in a way that continuously improves the situation for the customers and generates engaged employees. To measure customer satisfaction HSB Östergötland uses a service provided by an external market research agency. The agency has developed a survey system customized for real estate companies. The market research agency does market research for other real estate companies as well. This gives their clients an opportunity to compare their results to other companies in the same business.

For the customer satisfaction survey conducted during 2009 HSB Östergötland used a paper questionnaire, which also was available in a digital format, i.e., a mixed mode approach was used. All tenants were surveyed in 2009 and the survey was anonymous. HSB Östergötland has conducted the survey for the last seven years but earlier they have surveyed both tenants and tenant-owners. The response rates have been around 65 per cent. During the previous years the apartments of every other entrance was surveyed. With the new system only tenants are surveyed; the survey will only be done every other year. The tenant-owners will be surveyed through another system provided by another marker research agency. This survey concerns a sample of the board members of the local tenant-ownership associations.

The market research agency responsible for studying the tenants has developed a standard questionnaire that HSB Östergötland used for their 2009 customer satisfaction survey. The standardized questionnaire gives an opportunity to compare all real estate companies that are clients of the agency. If a real estate company wants to ask its customers more specialized questions, the agency also provides a longer questionnaire with both the standard questions

and the additional questions. The standard questionnaire consists of 17 questions or question areas. The questions deal with *comfort, satisfaction with HSB Östergötland, opinions about the building and the apartment, opinions about the maintenance* and so on. There are also questions about the customer's willingness to recommend HSB Östergötland to other people. Some of the questions are double-barreled with two questions in one; an example is provided in figure 24.



Figure 23. This question originates in the 2009 questionnaire for HSB Östergötland. The question is doublebarreled since the floor plan and the furnishing possibilities are not the same. A tenant can like a floor plan that is hard to furnish and vice versa. The answering scale is a verbal 4-point scale with no mid-point but with two alternatives for those respondents that have no opinion in the matter.

The questions are answered using a four-point scale with *Very Good*, *Quite Good*, *Not so Good* and *Bad*. The market research agency does not use any neutral middle alternative because it wants the customer to take a position on each question. The respondents are, however, provided with the alternatives *Not taken a position* and *Does not apply*. For every question area there is a possibility for the respondent to provide comments. The agency believes that this can give valuable information on how the company can improve in specific areas. Each question is weighted according to its response rate. If few customers have answered a question, the research agency takes this as an indicator that the question is less important to the customers. This method is strange since item nonresponse can have a variety of explanations, e.g., misunderstandings, satisficing, or that the response rate of at least 65 per cent and sends out reminders to reach this goal.

The results are used to calculate two different indexes, the *Service Index* and the *Product Index*. The *Service Index* consists of the four subindexes *Taking the Clients Seriously, Safety, Cleanliness* and *Help when Necessary*. Every subindex contributes with 25 per cent to the *Service Index*. The *Product Index* consists of the three subindexes *Apartment/Premises* (60 per cent), *Common Spaces* (20 per cent) and *Outdoor Environment* (20 per cent). Each subindex is derived from 10 to 15 subquestions. The questions linked to each subindex do not come in that order in the questionnaire but are presented in topic order. The results also show what the customers feel about the development of the management of the property, the company brand, the status of the property area and the affordability of the apartments.

The data material can be presented down to the property level, which means that different properties can be compared against each other. HSB Östergötland uses the results to see if it has reached its previous goals and if they should set up new ones. The results are presented to all employees and to the board members of the tenant-ownership associations. The results are

also presented at annual general meetings in the tenant-ownership associations and in a newsletter to the tenants.

5.3.8 Tandläkarhuset Älmhult

Tandläkarhuset Älmhult is a dental practice that got the SIQ-award in 2008. When winning the award it measured its customer satisfaction once a year with a questionnaire that was developed by the dental group Praktikertjänst. The questionnaire is used all over Sweden by many of the dental practices that are part of Praktikertjänst. The questionnaire was distributed to all the patients of Tandläkarhuset during a specific time period. The questionnaire consisted of 20 questions that were intended to measure the areas: *attitude, environment, client treatment, care, information* and *dental treatments*. The objective of Tandläkartjänst was to have 100 per cent satisfied patients which meant that it wanted a mean score above 6, on a scale up to 10, in all the areas mentioned. The questionnaire also gave the dental practice an opportunity to compare its customer satisfaction score to the scores of the other practices that were members of Praktikertjänst.

After each treatment the patients had the opportunity to discuss the treatment with the dentist and ask additional questions and give his or her opinions on the treatment. After extensive treatments Tandläkarhuset called those patients to control their health status. Tandläkarhuset also investigated those cases when a patient stopped visiting the practice, and tried to find out why this happened.

After 2008 a new questionnaire was developed and the yearly survey was abandoned. Tandläkarhuset wanted a more continuous measure and therefore changed the survey method. The new questionnaire consists of two closed-ended questions, one about satisfaction, as seen in figure 25, and one about willingness to recommend the dental practice to others. One open-ended question for comments is also included. The questionnaire is distributed manually to all customers directly after a treatment and is supposed to be handed in before the customers leave the practice. One background question about age is also included. The results are compiled on a monthly basis. The results of willingness to recommend are used as a so-called PromoterScore. The data processing and analysis are performed by an external market research agency.

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O O O O O O O O O O O O O O O O O O O			0	0	
VERY DISSATIFIED	QUITE DISSATISFIED	NEITHER SATISFIED NOR DISSATISFIED	QUITE SATISFIED	VERY SATISIFED	

Figure 24. The question regards the satisfaction with a visit to the dental practice. A verbal, 5-point scale is used.

6. Towards an Improved Customer Satisfaction Survey Design and Implementation Process

6.1 Summary of Results

6.1.1 Literature

Peterson and Wilson (1992) claim that many satisfaction surveys produce skewed distributions with more answers on the satisfied side than on the dissatisfied side. Thomas and Sturgis (Not Dated) have seen similar results. 75 per cent of the respondents in the surveys they have looked at have answered that they are fairly or very satisfied. These negatively skewed distributions are linked to the interpretation of the concept of satisfaction and also to methodological choices. The first cornerstone when doing a customer satisfaction survey is to thoroughly decide what is to be measured and define the concept of the survey. Hill, Roche and Allen (2007) believe that in order to use the survey results efficiently the concept must be developed from the customers' point of view rather than the organization's point of view. The validity of the survey is dependent on if the research objectives have been specified correctly, or else the survey measures something other than intended. The concept must be translated into measurable variables and these variables must be covered with suitable questions, according to Hox (1997). The conceptualization can be done in several different ways.

How to define and cover the population in a customer satisfaction survey is a big issue. A variety of customer types exists and the organization must decide on which to study. Regardless of what kind of customers the organization chooses to study, it has to find them in some way and to create a frame population. The frame must provide a way to reach the customers and the study is always limited to those customers that can be contacted. If an organization has a large customer base and has created a frame covering it, a random sampling method can be implemented. Stratified sampling is often the most effective way of sampling if the frame contains background information on the customers. Systematic sampling or intercept sampling is often used in customer satisfaction surveys when no concrete frame is available. The goal of the sampling process is to create a sample that is representative of the target population. Quota sampling can, on those premises, be viewed as less suitable since it does not give each element in the population a specified probability of being selected. If substitution is used the sample gets less random since refusals and noncontacts are replaced by respondents that are easier to study. Sampling methods that are based on personal judgments are quite common but are not random sampling methods. Lin and Jones (1997) state that in customer satisfaction studies, uncontrolled sampling methods are common which leads to samples not suited for statistical inference. One explanation to the questionable sampling methods, used in customer satisfaction surveys, is that the focus often lies on getting a high response rate rather than selecting a sample with a statistically valid method.

The content and design of the questionnaire are important parts of the customer satisfaction survey. The questionnaire must cover the areas that the organization is interested in but also

those areas that have a high impact on customer satisfaction. Ideally, these two areas should correspond. In order to find out which areas that are important to the customers and their satisfaction level, questions of importance might be included in the questionnaire or derived using some kind of analysis method. When the question areas have been chosen the question wording must be considered. The question wording should not bias the results. Leading questions can influence the respondents and Peterson and Wilson (1992) suggest avoiding positively worded questions that induce a higher frequency of positive answers. Positively worded questions and statements are very common in customer satisfaction surveys. One example of the use of positively worded statements is the use of Likert scales, where respondents are asked to rate their agreement to a statement. Since organizations seldom want to portray themselves in a bad light, only positive statements are used which biases the results. The choice of answering scales also influences the results. Different scales produce different kinds of data and enables different kinds of data analysis. The first choice is between a verbal and a numerical scale. Hill, Roche and Allen (2007) claim that verbal scales produce data on the ordinal level and that numerical scales produce interval data. Regardless of choice, the scale should be balanced so that the results not get biased. Krosnick and Fabrigar (1997) state that bipolar scales are the most fitting for attitude questions, such as satisfaction. The number of scale points is the next thing to consider, and is based on beliefs concerning how detailed the customers can specify their opinions. Dillman, Smyth and Christian (2009) stress that the results are very sensitive to scale choices and that the different effects should be reported in the presentation of the results.

Another thing that is common is that the questions and questionnaires are too long and too detailed, which may decrease the response rate. To get a high response rate, the respondents' ability to and interest in answering the questions should be considered during the questionnaire development. Engaging questions that are fairly easy to answer are beneficial. In general, customer satisfaction surveys are associated with a low response rate. This might be due to low interest from the customers and the timing of the surveys. Personal contacts as in-person appeals, telephone invitations or personalized invitation letters are ways to increase the response rate. To put more effort in encouraging the respondent to participate creates a higher social obligation for the customer to answer the questionnaire and also makes the survey more memorable. It is, however, important not to bias the respondents' opinions when encouraging them to participate or to put more effort in encouraging a special type of customer. When a high nonresponse rate is a fact the most common approach in customer satisfaction surveys is to ignore the nonresponse in the analysis. Too detailed and long questionnaires might also induce acquiescence and satisficing behavior. The respondents do not put in the required effort to be able to answer the questions truthfully. Many other issues must be taken into consideration when constructing the questionnaire. If it is to be used in many different countries, different cultural effects must be accounted for and the questionnaire must be translated correctly. In order to see if the questionnaire is constructed in a good way, is understandable and not biases the results, some sort of pretesting should be implemented. Vavra (1997) states that pretesting is not used to the extent it should in customer satisfaction surveys.

In customer satisfaction surveys mail, paper, telephone and web surveys are the most common modes of data collection. The cost is the most prominent factor when choosing mode but also the available contact information. The different modes have different benefits and drawbacks and cause different effects on the data collection. In order to minimize the impact of the different effects, the modes should not be mixed and one must be careful when comparing results produced by different modes.

The data analysis in customer satisfaction surveys are of varying complexity. Hill, Roche and Allen (2007) divided the data analysis into three categories, univariate, bivariate and multivariate. In univariate data analysis each variable is analyzed separately and a typical example is to study the number of top scores on each question. The bivariate and multivariate data analysis is used when the correlation between different variables is to be studied. Most typical to study is the dependence between overall satisfaction and the other variables, in order to derive the importance of these variables. In bivariate data analysis the correlation between a single variable and the overall satisfaction is studied. In multivariate data analysis the dependence of many variables and the overall satisfaction can be studied at once. The multivariate data analysis is, according to Allen and Rao (2000), divided in three parts; dependence models, interdependence models and hybrid models. A typical example of a dependence model is the multiple regression model. The model is used to estimate the importance of each predictor (question or question area) on the overall satisfaction. Factor analysis is an interdependence model and is used to group the measured variables into different distinct areas. These areas are underlying factors that influence the satisfaction in different ways. In hybrid models the factors are constructed beforehand and the models estimate the effect of each latent factor in the data. The most common hybrid model is structural equation modeling with partial least squares estimation. One common way to compile the results of a customer satisfaction survey is to do an index. The index can be a simple aggregation of the measured variables or based on a more complex model, such as multiple regression or a structural equation model. The index makes it easier to see changes over time but does not provide much information. An index number alone does not provide any information if it is not compared to something else, such as a benchmarking index. In general, in order to benchmark the customer satisfaction measurements, similar methods and concepts must have been used. In order for an organization to compare the results over time the survey methodology should be consistent.

The point in doing customer satisfaction surveys is to be able to act on the results. In order for the results to be actionable they must be interpretable and presented in an understandable way for the decision makers. In the results, the importance of each area should be presented. According to Vavra (1997) the best areas of improvements are where the satisfaction is low and the importance is high. Hill, Roche and Allen (2007) suggest that it is most beneficial to concentrate on the areas where the gap between the customer expectations and the customer perceptions is the widest. The point is that the decision makers need to know where it is most beneficial to put the resources in order to increase customer satisfaction. In many customer satisfaction surveys the focus lies on the satisfied customers. Hill, Roche and Allen note that it

is equally important to study the dissatisfied customers and that to eliminate dissatisfaction can be more beneficial for the organization. It is important to communicate the results to the organization in an understandable way and that not just managers get to know the results. The employees that work with the customers on a regular basis must also be informed about the results in order to improve customer satisfaction. Hill, Brierly and MacDougall (2003) believe that communicating the results back to the customers, is also a good use of the results. The customers acknowledge improvements faster if they are made aware of them. Hill, Roche and Allen (2007) believe that providing the results back to the customers is an under-exploited use of the customer satisfaction surveys and that it will increase the customer satisfaction per se.

6.1.2 Case Studies

The satisfaction concept is covered in many different ways in our case studies. In our opinion not much effort has been laid down to formulate what the companies really want to measure. Most of our companies have come up with a number of questions or question areas from the company's point of view without discussing them with customers. The exceptions are two companies that used customer focus groups when designing the questionnaire. Most of our companies use questionnaires that have been around for a long time and do not have a lot of insight regarding who formulated the concept or the questions. In those cases where market research agencies have been used, the concept and questions have been developed by the agency. The trust in the external agencies is high and the companies that hired them do not seem to have been questioning the measurement tools to any noticeable extent. The companies in our case studies do not seem to have given much thought on how the customer satisfaction concept has been defined and if the questions really cover the customer satisfaction issues in a relevant and useful way.

The frame constructions for the customer satisfaction measurements in our case study are diverse. The dental practice and the transportation company surveyed their customers while they were using their services. The dental practice, HSB Östergötland and the hotel chain do censuses and the public transportation company does an intercept survey. The automobile company, the university and HSB Östergötland had registers as frames. Their frames were rather unproblematic. Statistics Sweden and the Swedish Tax Agency have a more problematic frame situation because they do not have their customers readily available. The Swedish Tax Agency is switching from a mail survey to a telephone survey which will make the relevant population more easily reached by the use of screening questions. Previously too many people without knowledge of the services of the Tax Agency were surveyed. This mode change can be seen as a way to change the target population to get more relevant measurements.

The hotel chain wants to conduct censuses but the results are more like those generated by self-selected sampling. The hotel guests were asked to fill in a web questionnaire and the hotels had no control over which persons answered the questionnaire. The web questionnaire was not administrated via personal logins, which enables people to submit more than once, albeit not from the same IP-address, and it also gives noncustomers an opportunity to answer

the questionnaire. The elements of the frame should be either persons or room reservations but the hotel chain has not defined which of the two alternatives that captures their elements. Another problem is that the individual hotels are responsible for reminding the customers to answer the questionnaire. This probably leads to variations between hotels, in that some guests get more encouragement to answer the questionnaire than others. The public transportation company claims that they select a proper systematic sample but this can be hard to maintain in practice. Nice and friendly customers are probably approached more often than others. The car manufacturing company contacts every customer that has bought a new car and this is due to the fact that the number of sold cars is quite small. One major problem in the cases where telephone interviewing is used is that a certain quota must be filled which is the starting point but as soon as substitutions are used to compensate for nonresponse the sample is biased. This is especially a problem when refusals are substituted since the refusals can be correlated to the satisfaction rate.

A few companies used some kind of focus groups when the questionnaire initially was developed and most of them based their questionnaires on different question areas. The question areas are adapted to the type of organization but some areas are to be found in all of our case studies. Client treatment and service quality are two areas that are very important to the satisfaction concept in all industries. Many of the questionnaires and questions in our case studies have not been rigorously developed or pretested and some of our cases have changed the questionnaires during the implementation if any misunderstandings or other problems occurred. The use of proper pretesting and pilot studies has been rare among our cases. We have, however, not noticed any serious wording problems or unbalanced answering scales but minor corrections could surely be considered. One of the most consistent questionnaire features among our cases is the use of positively worded statements.

The answering scales range from 4 points in the HSB-case to 10 points in other cases. Three of our cases had scales with 5 points. Three of our cases used verbal scales only and the others used numerical scales with verbal labels. Most of our cases using numerical scales that were labeled in both ends except for the hotel chain that had verbal labels on every other scale point. All the case studies provide an opportunity to the respondents not to take a position on the questions by using either a neutral point, a *Don't know* option or a *Does not apply* option or some combination. All of the organizations we studied use some overall question regarding question areas or overall satisfaction. Statistics Sweden and the public transportation company use the three overall questions mentioned in chapter 3.2 and so do SKI and ACSI. These questions covered overall satisfaction, the expectations of the customer and how close the organization was to the customer's ideal provider. How these three questions came to be used to cover the satisfaction for using these three questions to measure overall satisfaction. The lengths of the questionnaire have in some cases been quite extensive. Especially the questionnaire of the university was very extensive and also the questionnaire of the

public transportation company was quite extensive. Many of the questionnaires we have studied have been too detailed and the questions are often overlapping.

In our case studies we have encountered web questionnaires, telephone interviews and paper questionnaires. In the cases using web questionnaires, low response rates have been a problem. Another problem is that no control exists of who is answering the questionnaire. The surveys done by paper questionnaires have not had big problems with low response rates. One reason is that the paper questionnaires used by the dental practice and the transportation company were distributed manually, which may raise the response rate and also that these questionnaires are supposed to be answered on the premises. The telephone interviews have had a high response rate but since substitution has been used the response rate can be hard, if not impossible, to calculate. One concern is that the telephone interviewing often indicates higher satisfaction ratings due to the presence of the interviewer, since most people feel reluctant to express negative attitudes to another person. One of our cases has noticed this effect but most of our cases have not seemed to be worried about these effects. HSB Östergötland used a mixed-mode approach with both paper and web questionnaires. Most of our cases use reminders when possible to try to minimize the nonresponse. No invitation or introduction letters were sent out except in connection with the mail questionnaires. The hotel chain used incentives is the form of bonus points to frequent quests. The surveys done by telephone used many call-backs to assure that the sampled person was reached. Some of our cases have done some analysis of the nonresponse. The Swedish Tax Agency is the only organization that has done calibration to compensate for the nonresponse. Statistics Sweden treats the nonresponse in its customer satisfaction surveys as missing completely at random and one can suspect that this is not the case. In the NKI done among the clients of Statistics Sweden the nonresponse was considered so high that the results were not generalizable to the whole population. The same occurred at the university. The public transportation company has studied the nonresponse and regarded it missing completely at random. The automobile company did not take the nonresponse in consideration due to its small size and neither does HSB.

The analysis methods are quite diverse among our cases. Many are just estimates of simple averages and proportions. The main presentation methods are proportions and top-scores and developments over time, if possible. All of our cases present a result for each question. Indexes are computed by Statistics Sweden, the public transportation company, the hotel chain and HSB Östergötland. The indexes are computed with different methods. The hotel chain gives all questions the same weight when computing the index. Statistics Sweden uses structural equation modeling with partial least squares to compute the effects on the index of each questions and HSB Östergötland computes different indexes based on prespecified weights of each question area. The transportation company also computes subindexes and uses regression to compute the impact of each question on the subindex value. Some of our cases want to know which factors have the most impact on the satisfaction level. The methods to determine importance or impact are also diverse. Statistics Sweden has the most advanced

method, similar to the method that SKI and ACSI use. The public transportation company uses regression to derive importance and the university used stated importance. The university did not make any clear interconnection between the importance and the stated satisfaction. This was a huge drawback in their presentation of the results. HSB Östergötland uses the item rate of each question to show how important the customers believe each question is. This method is unreliable though, since item nonresponse can occur for many reasons, e.g., unclear wording.

The presentation and use of the customer satisfaction results are among our cases somewhat deficient. The car manufacturing company and the hotel chain use the results to a large extent and even evaluate their retailers and individual hotels on the basis of the results. It is the individual retailers and hotels that must assume responsibility to act on the results while the headquarters have a monitoring role. The results are used both for evaluation and improvement. The public transportation company also seems to use the results to a large extent to improve its services. The main impression we have got while doing the case studies is that the results are inefficiently used. The results are presented at a few meetings and are maybe even published but no systematic improvement process is initiated due to the results. The results do not seem to be a part of some strategic quality management model. The exceptions might be the SIQ-award winners who do work with the results systematically. Survey results are easier to use if the surveys are done regularly and if changes are monitored. The municipalities that use the services of Statistics Sweden to measure their customer satisfaction regularly have the benefit of being able to compare their results over time and with other municipalities. Many of our cases have recently changed their ways of measuring customer satisfaction which is unfortunate since it disables the comparability over time. If the changes lead to better measurements, they are of course necessary but this is not always the case. The Dental Practice, for example, seems to have changed to a poorer survey method. The comparability to other organizations is generally difficult since the methods are very diverse. HSB Östergötland can compare its results to other real estate organizations that use the same research agency and the hotels are compared to other hotels in the chain. The public transportation company and the car manufacturing group do their own benchmarking surveys. The transportation company does the survey among its own customers but the car company surveys other car owners as well as their own.

The results of the customer satisfaction surveys among our cases are mostly used within the organizations in annual reports and business plans. The anchoring among the employees is not extensive and not one of our cases has stated that they use the results as customer feedback, in a way that is mentioned in chapter 4.8. The results might be used as advertisement.

6.2 ISO Guidelines

ISO has recently developed a standard called *Quality management — Customer satisfaction* guidelines for monitoring and measuring (ISO 10004:2010), which provides guidelines on how to effectively measure and monitor customer satisfaction. In the ISO guidelines customer satisfaction is defined as the gap between the customers' expectations and the customers' perceptions. The first step, according to ISO 10004:2010, is to get a picture of the customers' expectations. The customer satisfaction is determined by how the customer perceives how the organization meets or exceeds these expectations. It is therefore important to separate the customers' perceptions and the organization's view of their ability to meet or exceed the customers' expectations. Since satisfaction is always changing, it is essential for the organization to plan and establish processes to monitor and measure these gaps continuously and systematically, according to the ISO guidelines. ISO 10004:2010 states that satisfaction can be divided into two parts, the first being the satisfaction with specific elements or characteristics of the service or good. The second part is overall satisfaction and ISO 10004:2010 states that the overall satisfaction is not an average or aggregation of the satisfaction of all the specific elements and should be measured separately. ISO 10004:2010 divides the elements of a product or service into three categories. The category Hygienics involves basic features of a purchase that the customers always expect. If these expectations are unfulfilled the dissatisfaction increases, but fulfilling the features does not increase the satisfaction because these are the basic demands from the customer. The second category *Motivators* is directly linked to satisfaction. If the elements are fulfilled the satisfaction increases and vice versa. The last category Hidden Opportunities consists of elements that would satisfy the customers but they are not expected or fulfilled yet.

The ISO guidelines state that it is important to establish the purpose of the data collection and that different objectives might need different data collection methods. How the information should be obtained and how often, must be planned and also who the information is directed to in order for it to be used properly. In order to plan a survey process, the customers must be indentified and the organization must determine which kind of customers that should be studied, i.e. the target population must be defined. It can be regular customers or occasional customers or some other segment. The expectations and requirements of the customers can be conceptualized in different ways and it is important that the organization clearly understands the chosen concept. To be able to measure the organizational features that matter most for customer satisfaction the organization must characterize its features. The organization must rank these characteristics according to their importance to the customers' satisfaction. To do this a pre-test on a smaller sample of the customers might be conducted. The measurement and monitoring of customers might be done with qualitative or quantitative methods. ISO 10004:2010 states that the qualitative methods are in-depth interviewing or focus-groups and the quantitative methods are surveys of different kinds. When a quantitative method is used the sample size and the sampling method must be decided. According to the ISO guidelines, the goal is to obtain reliable data with high accuracy at minimum cost. ISO 10004:2010 lists face-to-face, telephone, mail, and internet surveys as possible quantitative modes and lists benefits and draw-backs for all of them. The guidelines do not recommend one over another. Regarding sampling methods ISO 10004:2010 states that random sampling can be used if the population is homogenous and little background information exists about it. Stratified sampling is more efficient and ISO 10004:2010 recommends stratified sampling if background information is available. The sampling method used should give a result that is generalizable to the whole population.

When the most important characteristics of the organization are selected and clearly defined the questions should be developed according to these areas of interest. The questions must cover all the sufficient details of each characteristic and the measurement scale must match the questions and question wording. The question should be formulated with ordinary language and the layout and question order must be considered according to ISO. ISO 10004:2010 suggests that general questions should be put first and complex questions later in the questionnaire. It also suggests that a 5-point scale can be used for attitude questions but if more fine-grained answers are needed a wider scale can be used. A neutral alternative should be avoided if the organization really wants to make the respondent to take a position. ISO 10004:2010 recommends pre-tests to evaluate the questionnaire and if it meets the scope of the survey. The data collection process should be systematic and thoroughly documented. The methods should be adapted to the problem at hand and clearly specified. The data collection might be conducted by the organization itself or by an external research agency. Both alternatives have benefits and drawbacks. The knowledge of the organization might be beneficial in an internally conducted survey and it might strengthen the customer relation but on the other hand the results might be biased because the organization is not neutral.

According to ISO 10004:2010 the data analysis should typically give information on customer satisfaction ratings and trends, what characteristics of the organization that have the highest impact on customer satisfaction, information about competing organizations and areas of improvements. The analysis methods depend on the type of data collected and both direct and indirect analysis methods can be useful. Direct methods regard the answers to specific questions and the indirect methods regard analytical methods to derive factors and estimates of importance and impact. The analysis should give indications on what elements and characteristics that should be prioritized according to their impact on satisfaction and degree of importance. The *Motivators* and *Hidden Opportunities* are the most important elements if the customer satisfaction should be improved.

The results should be comprehensively reported together with recommendations on what the organization should improve, according to ISO 10004:2010. Summary measures such as indexes can be used to give a clear picture of the changes of customer satisfaction over time. The results of the survey must be used in an appropriate way, in order to be beneficial. The information of customer satisfaction data should be distributed to the relevant divisions of the organization. These divisions then can take the necessary steps to improve the relevant processes in order to create better products and services. The actions taken should be evaluated and a regular customer satisfaction measurement can monitor the changes and effects of implementations. If actions are taken due to the survey results, positive results should also be traceable in other business indicators, such as revenue. When a measurement

and monitoring process is established and used regularly, it is important to continuously control if it maintains a high quality and results in useful data. The methods and concepts might be up-dated to fit current business priorities.

6.3 Discussion and Conclusions

Customer satisfaction surveys have many benefits on today's competing market. The most important asset to a company is its customers and customer loyalty is not as easy to accomplish today with a growing global market. Developing a customer satisfaction survey can be costly and we believe it is no use in developing a mediocre one. The utility of the survey must overshadow the costs of it and the utility increases greatly if the survey is designed according to current best practices. One large pitfall seems to be that the surveys are not part of a bigger picture. Many companies, both those we have studied and others, seem to do the surveys only by routine and do not think through why they do them and what they want to know. Little effort is spent on defining the concepts. The first step for many organizations seems to be to develop the questions, but even here little effort is spent. A lot of our cases used questions developed a long time ago and did not think about the purpose of the questions. Respondents' interpretations of the questionnaire design and individual questions were not something the companies or the research agencies seemed to worry about. In many cases the questionnaires were tested during the survey rather than before. Most experts advocate some kind of pretesting or pilot study and that is a quite simple way of reassuring that the measurement tool is useful.

Not many of our cases have expressed concern regarding the definition of the target population. Most believe they have a clear picture of who their customers are. The surveys have dealt with existing customers and not potential customers. The frames have been somewhat problematic but still not a great concern to our cases. Most of our cases had welldefined frame populations. The sampling was more questionable. The hotel chain did not do any sampling, which lead to some kind of self-selected respondents. The results cannot be generalized to any population which is not a problem as long as the users are aware of this fact. The pitfall is when the results are used to draw conclusions about a larger population. As long as the system is only used to gather complaints and feedback, and to monitor specific hotels the procedure can be seen as valid. The sampling used by the car manufacturing company regarding the visits to the service stations is also questionable. They used some kind of quota sample with substitution, which is not statistically valid for inference. The use of censuses was common in our cases. Some of our cases could benefit from doing samples instead and spend more time and effort on increasing the response rate and analyzing the results. More resources should be spent on informing and inviting the respondents to participate in the surveys. Longer personal contact encourages the respondents to participate. The hotel chain is the clearest example of flawed information; we believe that each guest should get a personal invitation to participate in the survey. It is, however, important to remember that the invitations and personal contacts must be systematic. Otherwise the responses can be biased. It can be hazardous to let the staff distribute the questionnaires and encourage the respondents, since they might choose to approach nice and friendly customers to get better ratings and to push the respondents into answering more positively. This behavior might be both intentional and unintentional.

In our opinion, some of the questionnaires we have studied have been too long and detailed. Overlapping questions are very common. It can be very hard for the respondents to separate different elements of a service or purchase and provide detailed opinions on all of them. Some of the surveys are also done too often. The response burden is too heavy especially since the topic might be regarded as uninteresting by most respondents. Some respondent get tired of participating in continuing surveys. If the surveys are done too often, there is not time for improvement between the surveys. If no changes are made the surveys only measure sample variation which are of no value to the decision makers. It would be more effective to do the measurements less frequently and spend more money on improvements. The very long questionnaires with overlapping questions can lead to acquiescence behavior and satisficing. More thoroughly defined concepts would probably shorten the questionnaire lengths. One exception is the dental practice which could benefit from a much longer questionnaire. As for design most questionnaires have been acceptable, from our view point. We have unfortunately not been able to study all of the questionnaires, though. The questions have been of varying quality. Many of them have been positively stated which biases the results positively. We have encountered two basic types of positively worded questions. The more common case is when the question is worded as; How satisfied are you with ...? and a less common case is the positively worded statement as, The staff is competent, which the customer is asked to consider. We believe that neutrally worded questions and answers always are preferable to avoid unnecessary influence on the respondents. Agree-disagree Likert scales can generate acquiescence and should also be avoided. Some of our cases have used double-barreled questions and some of them have not specified the reference period for the questions. Three cases used only verbal scales which can be a drawback for the analysis. The scale choices affect the results, e.g., short scales often produce higher ratings than longer ones and it is important for the organizations to keep this in mind. A problem can occur when a survey is redesigned and the answering scales are changed. Another issue is the verbal scale points. In some scales they range from Completely Satisfied to Not Satisfied at all and in some from Satisfied to Dissatisfied or some variation of this. The Satisfied-Dissatisfied continuum is more balanced and more easily interpreted than the Satisfied-Not Satisfied continuum. We believe that the scale ranging from Satisfied to Dissatisfied is preferable since it is balanced and bipolar, which is fitting for attitude questions according to Krosnick and Fabrigar (1997) as mentioned in chapter 4.4.2 in this thesis. A scale ranging from Satisfied to Not Satisfied is really a unipolar scale, although it can be interpreted as a bipolar scale ranging from positive to negative. Two of our cases used a questionnaire that was the same for several countries. In one case we noticed that the translation from English to Swedish was a little bit flawed. The questions and answer categories no longer matched and the translation process had not been as thorough as suggested by Harkness (2008) and in chapter 4.4.5.

The choice of data collection method must be based on the design situation. Two examples when a different mode could have been chosen are the university and the hotel chain. The

mail addresses of students are often uncertain because students move a lot. Students are accustomed to using e-mail and the university has the e-mail address to most students. The response rate in the university survey was very low and this was perhaps caused by the choice of mode. A web-survey might have been more beneficial. The hotel chain uses web questionnaires, when a simple paper questionnaire could be much more beneficial. Many hotel guests do not have access to internet during their stay and have to remember to answer the questionnaire when they get an opportunity. By then they might have forgotten the survey or even their opinions. During their stay at the hotel they probably have some time to finish a paper questionnaire. This mode would also make it easier for the hotel to check who answered the questionnaire. Another option would be to have personal logins to the web survey. The telephone mode has both advantages and disadvantages. One advantage is that a screening process can be used which enables the organization to define the target population better. The Swedish Tax Agency's User Survey is one example of this. A disadvantage is that the telephone survey often induces higher ratings than other modes due to acquiescence and the interviewer effect. Even though the companies want high ratings the telephone interviews can create false ratings that are higher than the "true" satisfaction. It is important to have the mode differences in mind when comparing a telephone survey to a self-administered survey. In telephone surveys quota samples are often used. We believe that quota samples can be valid if the respondents are randomly selected and nonrespondents are not substituted. Otherwise it is not and should not be used for statistical inference.

The nonresponse is often high in customer satisfaction surveys. We believe that this is partially due to the fact that the topics are quite uninteresting to the respondents. The research providers would benefit from making the topics more interesting and stress the importance of the surveys to the respondents. Avoiding doing unnecessary surveys would also decrease the response burden which may lead to higher response rates. The surveys' main purposes should be to indentify the customers' requirements so that they can be met and subsequently enhance the satisfaction of the customers. This scope is not entirely clear in most customer satisfaction surveys and the response rate would probably benefit from a better communication to the respondents that the surveys are really conducted for their sake. The anchoring of the surveys among the customers is often poor and is a potential improvement area. We encountered one survey, the one of the hotel chain, where incentives were used to motivate the respondents. The incentive consisted of bonus points that only could be used for transactions with the hotel chain. Only members of the frequent guest club could get the incentive. This way of using incentives creates measurement errors since it only encourages frequent guests, which probably is generally more satisfied with the hotel chain, to participate in the survey. This type of incentive is discouraged by Dillman, Smyth and Christian as mentioned in chapter 3.6.2. Some of the cases we have investigated do not seem to consider the high nonresponse a big problem. On the other hand, other cases do stress that the high nonresponse has made the results less useful and they have not been able to generalize the results to the whole population. These cases should really consider changing their survey design to improve the response rates, since they are aware of the problem. The high response rate in some cases is due to the survey situation and the service provided. In situations when the customers have a

lot of time to answer the questionnaire, the response rate increases. The use of methods to compensate for the nonresponse is very rare among our case studies. Most of them ignore the nonresponse and use the responses as the sample. Analysis of the nonresponse is also rare. This seems to be systematically lacking in customer satisfaction surveys and can be due to the fact that these surveys are supposed to be quite simple. In general, advanced statistical methods are not common and the statistical and cognitive competences are not present in most cases. In the literature and in some cases we saw that advanced analysis is used in the customer satisfaction industry and we stress the importance of matching the analysis methods to the data quality. In customer satisfaction surveys it might be better to spend the resources on the data collection than on complicated methods that might bias the results.

The data analysis and estimation were in our cases quite simple. Our initial belief was that the methods would be more advanced. None of our cases did the surveys in the same way. This is an indication that many different methods are available in the customer satisfaction measurement industry. We believe that simple averages and graphs can be sufficient to clearly highlight the results of the surveys. This is so, especially since it is very important that the coworkers and managers can interpret and use the results. Some kind of importance measurement or estimator is, however, beneficial. What kind of importance indicator that should be used is difficult to tell. The important thing is that it is consistent and that the importance ratings are interpreted relatively. It is easy to interpret the results when they are presented in a way that compares the satisfaction rating to the relative importance, e.g. by presenting a priority matrix. The use of indexes is also varying and ranges from simple aggregations to complicated equation modeling. We believe that the important thing is to keep the results interpretable and not to get into too complicated methods. The index numbers are only numbers and should not be the main focus. The customer satisfaction is an intricate concept that should probably not be summed up in one number or in one overall question. One risk can be that the index dominates the picture and that a robust index number dampens the willingness to improve. A high index number can satisfy the managers and they do not feel the need for improvement. A simple index is also easy to present and communicate and does not encourage a critical take on the survey results. An ordinal variable such as customer satisfaction might not be summed up in such a numerical way. If it is to be done it is important to at least use a scale that imposes even intervals on the satisfaction variable. Verbal scales are not suitable for calculating indexes. Overall we feel that the results are presented with a much higher precision than what is justified by the data material. This can create a trust in the numbers that is uncalled for. If the decision-making is based on these types of results it can be very hazardous.

We feel that presentation-wise many of the surveys fail. The results are not used to the extent possible. It does not seem efficient to put down a lot of effort in a survey that is not utilized to its full potential. Many organizations would benefit from more explicitly incorporating their customer satisfaction surveys into the quality work and business plans. The customers donate their time and effort in answering the questionnaires and the results should then be used efficiently, or else they are shown some lack of respect. A distinct improvement that the

customers notice as a result of the survey might raise the satisfaction significantly and the customers might be more willing to play an active role towards the company. The feedback to the customers is one big flaw in the surveys we have looked at. The feedback itself can be a way to raise the satisfaction and could be utilized to a much larger extent. Comparisons with other organizations are rare and all of our cases were aware of that the survey results were not suitable for comparisons if the methods differed. Two of our cases did their own benchmarking studies in order to be able to make comparisons. The public transportation company did the benchmarking survey among their own customers which probably biases the results in a beneficial way for the public transportation company. The benchmarking survey done by the car manufacturing company seems to be less biased since the population consisted of all car owners in Sweden. Many of our case studies used SKI benchmarking results. The companies, however, had some reservations on the methodology used by SKI. We believe that the frames used by SKI might have coverage problems, especially regarding undercoverage. The contact information on the frames is probably deficient. SKI uses relatively small samples for each company which might imply that a difference between two years can be explained by the sample variation. The small sample sizes also make the estimates sensitive to bias due to substitutions. The concept and questionnaire that SKI uses have been more or less the same for a long time and the question arises if they really measure "true" satisfaction. As long as all stakeholders recognize that this is a model of satisfaction the concept is fair. It is more problematic when organizations and customers interpret the values as "the truth". We believe that the measurements must be considered as relative measures of a constructed concept, which can be used for comparisons.

Some of our cases have expressed a satisfaction with the robustness of their customer satisfaction measurement results. They believe that this is an indication that the measurements are consistent and approaches some kind of "true" satisfaction. In all of our cases the measurements have been robust in the sense that the satisfaction has been quite high and the researchers have been satisfied with the results. They have expressed a belief that the customers are generally quite satisfied. We have two concerns about these beliefs. First, a robust measure indicates that no or only slight improvements have been made since the previous measurement. The purpose should be to increase the satisfaction continually. Secondly a robust measurement might primarily capture an overall satisfaction in most humans. Humans tend to be quite satisfied with most things in life, especially with goods and services we have chosen ourselves. It has been recognized that satisfaction is a highly skewed distribution and most customer satisfaction surveys probably capture this effect more than the indication of specific efforts of the company the survey concerns. The organizations should be careful when interpreting good results. As seen in the chapter about the concepts, customer satisfaction can be a feeling of contentment and that the expectations of the customer have been fulfilled. That is most often not the same as the customer being perfectly happy with the service or product. A high index number should therefore not be overrated and is not enough to keep the customers. The important key is to be better than the competition. If there is no benchmarking available the only way is continuous improvement and never to be satisfied with the results.

Our impression from our customer satisfaction cases is that the customer perspective is not in focus but that the company perspective is more important. The measurements have been used more as a monitoring device than an improvement device. Even though this is not a bad use of the surveys, the companies might benefit from using the surveys as an improvement tool. The initial purpose would be better satisfied if the surveys were more focused on the customers.

A poorly designed and implemented survey with a low response rate is not an asset to the improvement process of an organization. If the survey is not a part of a bigger picture and not anchored among the co-workers the results are not especially useful. If an organization decides to do a survey it should be conducted properly, otherwise the resources are better spent on something else. If the organization thinks the costs to do a proper survey are too high in comparison to its utility, it is not a good idea to conduct a mediocre survey at a lower cost.

The quality models and awards treated earlier in this thesis underline the importance of customer focus. Unfortunately they speak little about how to get a customer focus and how to identify requirements and measure satisfaction levels. They do not stress the importance of accurate and generalizable data and how to measure the customer attitudes in a sound way. Unfortunately this might lead to ad hoc measurements among the organizations using these types of models. Some may implement the measurements in a very sound way and some may not. The quality of the data does not seem to be important according to these models. Measurement capability is not really a concern in the models. In the models we have studied, the EFQM model, the Malcolm Baldrige model and the SIQ model for Customer Oriented Business the customer satisfaction data collection give relatively low scores. For example, in the SIQ model the measurement process of customer satisfaction only corresponds to 60 out of 1000 points. This means that organizations that use good and reliable methods are not noticeably rewarded compared with organizations that use questionable data collection methods. Since we began writing this thesis ISO has, as mentioned, published guidelines on the matter. The guidelines, reviewed in chapter 6.2., are fairly simple and straight forward. The suggestions are similar to our own conclusions on many points which indicate that our final suggestions in chapter 6.4 are worth considering.

6.4 Some Modest Suggestions

We promote continuous and regular measurements with a consistent, well developed method. Much effort should be spent on the planning process and the company should decide what the results will be used for, before implementing the survey. If the company does not possess the required knowledge, external competence should be used. It is, however, important not to lose track of the survey and to develop a close cooperation with the externally recruited competence. When an external market research agency is used, it is important to list a number of clear requirements and to scrutinize their methods. If the company is not willing to spend the necessary resources to do or buy a solid survey it should consider if it really needs the results. A poorly implemented survey might damage the company if it uses the results in its decision making. We believe that it can be more effective to use short and concise questionnaires with thoroughly defined variables than to spend a lot of time and effort on very

detailed questionnaires and complex data analysis. Complex estimates might only be hard to interpret for the decision makers and employees that should act on the results. The data should not be presented on a more detailed data level than justified. We have noticed a distinct absence of precision estimates and believe that the results would be more trustworthy if uncertainty measurements were used to a larger extent.

We suggest sampling instead of censuses to be able to spend more time and resources on reminders and to anchor the survey among the respondents in order to increase the response rate. The surveys are often done to frequently and they are inefficient if there is no time to implement changes in the organization between surveys.

The frames are often a big problem in customer satisfaction surveys. We suggest that when no concrete frame exists, the survey is implemented in a way that collects contact information to the customers. In that way, the respondents feel more obligated to answer the questionnaire and reminders can be used. The survey also becomes more memorable to the respondents, due to the longer personal contact, which probably increases the response rate. In the implementation process, it is also important to communicate that the respondents are important and their opinions valuable to the organization.

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Appendix 1

Questions used for the Case Studies

- How important does your company think customer surveys are?
- How often does the company carry out customer surveys?
- Does your company hire an external company to carry out the surveys?
- Which customer does the company really want to survey, i.e. what is your target population?
- Would you like to reach another target population, which you cannot define?
- What is the main purpose of the Customer Satisfaction Survey?
- Is the goal to get a general picture of all customers or is the objective to gather complaints and improvement suggestions mainly?
- How important is the customer satisfaction surveys in the decision process of the company?
- What data collection method is used in the surveys?
- How is the sample process carried out?
- How do you reach the respondents in the sample?
- What did the questionnaire development look like?
- What information was considered when the questions were formulated?
- Did you do any pretesting of the questionnaire?
- Have you used the same questionnaire during a longer time-period?
- What do the analysis process look like?
- Do the questions have different weights in the estimation process?
- Does the company use some kind of model to calculate customer satisfaction?
- Does the company calculate some kind of customer satisfaction index?
- How do you deal with nonresponse in the surveys?
- Is the company satisfied with the survey as it is today?
- Is the company satisfied with the data collected by the survey?
- What are the data used for?
- Are the results usable in the improvement process of the company?
- What does the improvement process in the company look like?
- Have you seen any improvements in the customer satisfaction due to changes made from earlier measurements?
- How much trust does the company have in the overall satisfaction measurements?
- How much trust does the company have in specific measurement in the customer satisfaction survey?
- Does the company compare the results with the results from other companies?