Växjö universitet
Institutionen för teknik och design, TD
School of Technology and Design, TD

Measuring Customer Satisfaction in a Service Company combining approaches for Quality Service Improvement

Mätning av Tillfredsställelsen hos konsumenter i ett Serviceföretag med inriktning på Förbättring av servicekvalitet.

Växjö 2 06 2008
Thesis nr: TD 028/2008
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Subjetc: Quality Service and Customer Satisfaction

Organisation/ Organization
VÄXJÖ UNIVERSITET
Institutionen för teknik och design
Växjö University
School of Technology and Design

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Dokumenttyp/Type of document
Examensarbete/ Bachelor Thesis

Handledare/tutor
Per-Anders Akersten

Examinator/examiner
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Titel och undertitel/Title and subtitle
Mätning av Tillfredsställelsen hos konsumenter i ett Serviceföretag med inriktning på Förbättring av servicekvalitet.
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Sammanfattning (på svenska)
Den här uppsatsen handlar om förbättring av servicekvalitet sett utifrån ett konsumenttillfredsställelse-perspektiv. Detta är motiverat i ett tjänsteföretag som har problem med att mäta konsumenttillfredställelse i form av servicekvalitet. Vi tror att konsumenttillfredställelse är relaterat till kvaliteten på servicen, och att en mätning av denna kan användas som en fördel för kvalitetsförbättring. För att åstadkomma detta presenterar vi en teoretisk bakgrund om kvalitet, en del verktyg för kvalitetsförbättring samt en del verktyg för att mäta konsumenttillfredställelse. Vårt empiriska underlag är fokuserat på hur vårt exempelföretag har gått tillväga i arbetet med dessa verktyg. I analysdelen jämför vi informationen för att se om det existerar en korrelation mellan de olika författarna och hur företaget arbetar. Vi noterar att de arbetar väl med TQM, Six Sigma och att de använder en del av aspekterna i SERVQUAL och CSM. Dessutom kommer vi att applicera QFD som relaterar konsumenternas behov och förväntningar till serviceegenskaper, som tidigare identifierats. Resultatet är baserat både på SERVQUAL och CSM. Exempelvis är bristen på kommunikation mellan konsumenterna och företaget det främsta gapet beträffande mätningen av konsumenttillfredställelse. Rekommendationer angående mätningen av konsumenttillfredställelse och andra förslag ges i slutet av uppsatsen. Slutsatserna är de fördelar som vi fått fram genom att kombinera metoderna SERVQUAL och QFD, två metoder som fungerar bra tillsammans och blir ett kraftfullt verktyg, som kan ge svar på om konsumenten är tillfredsställd eller ej. Dessutom visar det hur vi ska agera för att förbättra servicekvaliteten, och därmed konsumenternas tillfredställelse. Uppsatsen är baserad på intervjun med vår kontaktperson. Flertalet observationer har genomförts av den mätmetod som företaget använder sig av.
Nyckelord
Servicekvalitet, Kvalitetsförbättring, konsumenttillfredställelse mätningar , SERVQUAL, CSM, QFD

Abstract (in English)
This Thesis is about improvement Quality Service from the perspective of the customer satisfaction. This is motivated in a service company that has some problems measuring customer satisfaction in a quality of service. We believe that customer satisfaction is related with the quality of service, and measuring can be used like a advantage for Quality improvement. To archive this we present some theoretical background about Quality, some tools for quality improvement, some tools for measuring customer satisfaction. Our empirical findings are focused on how our case company tried to use these approaches. During the analysis we compare these information and we'll see if there is a correlation between the different authors and how the company works. We'll see that they work very well with TQM, Six Sigma, they use some approaches of SERVQUAL and CSM. Also we'll apply QFD that relates the customer needs and expectations, and the Service Characteristics, identified previously. The results are based both in SERVQUAL and QFD. For instance, the lack of communication between the customers and company is the main gap regarding how to measure the customer satisfaction. Some tips about how to measure the customer satisfaction and other recommendations are given at the end. The conclusions are the benefits that we obtain from combining the SERVQUAL and QFD method, because we believe that both work very well together due to it becomes a powerful tool that is telling if the customer is satisfied or not. Aside it is telling us where we should act to improve the quality of service and therefore the customer satisfaction. The work presented is based on the interview with our contact person. Several observations were made regarding the measurement method that they are using.

Key Words
Quality Service, Quality Improvement, Customer Satisfaction Measurement, SERVQUAL, CSM, QFD

Utgivningsår/Year of issue	**Språk/Language**	**Antal sidor/Number of pages**
June 2008	Engelska / English	56

Internet/WWW http://www.vxu.se/td

ACKNOWLEDGEMENTS

The group would like to thank our case company in Sweden an our contact person M.C., for providing the information necessary. We also want to appreciate the valuable information and suggestions given to us by Per-Anders Akersten our supervisor and Mirka Kans our course teacher, regarding to the thesis work in Quality Service at Växjö University during 2008.

Växjö, June 2008

Marco GONZÁLEZ VEGA *Javier SANTAMARÍA GARCÍA*

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1. Introduction

The introduction part will give an overview and general description of the problem area addressed in this study.

1.1 Background

Nowadays, quality has become a very important factor for successful companies. Companies have the difficult task of covering and fulfilling all of the needs and expectations from their customers. According to Ishikawa (1985) the quality must be built into each design and process, because quality cannot be created afterwards through inspections. Poor quality creates losses of sales in a competitive market and increases the costs of production through remanufacturing and costumer complaints. Unnecessary costs can be avoided by controlling and assuring the process and avoiding errors throughout the entire process, (Juran, 1988). Quality is often divided into service quality and product quality (Bergman B. et al. 2003). The dimensions of Quality of Service are quite different from the Quality Product due to the main difference between services and products. A Service is intangible and the customer can use it only once.

Customer Satisfaction is one of the topics very related with the Quality, The ultimate measurement of quality is customer service. (Bergman B et al.2003). The customer wants his needs fulfilled. The main question about quality service is what does the customer expect to get from the service. Knowing the customer- their needs, expectations, price and wants- helps the company succeed. It is the customer who judges the quality of goods and service.

1.2 Problem discussion

Traditionally, customer satisfaction has been studied within market research. Unfortunately, that information has very rarely reached those who design the products and services. In recent years, much has been done to increase the developers' understanding of factors that are important to customer satisfaction (Bergman B. et al. 2003).

When a customer places an order in any service company they must consider the different service companies and different thoughts and skills. This is due to the market becoming more competitive. In some other words, service quality is the most important aspect in business. In a logistic service company, service quality begins when the customer places the order and is present up until it is delivered. Errors and also delivery problems can occur and this is not beneficial for any company's reputation.

There are several ways to increase the profit of a company. Within a service company, the main aspects that customers look at when determining the quality are the service, quick response, delivery times and cost. . As the demand increases people want to try the best and reliable solution to send products abroad. Quality of service is becoming important among all the people that want fast, cheap and great care of their valuable things that they are sending.

By measuring customer satisfaction companies receive a lot of knowledge about which expectations of the customer are fulfilled and which others need to be satisfied. Acquiring this knowledge is the first step in order has customers satisfied with the service. The second step is implementing a quality improvement system that is based on these results, which will improve the service process.

1.3 Problem presentation

In this case study, we are working together a freighting company. This wants to ensure the loyalty of their customers. Customer satisfaction is related to loyalty because by continuing to use the company this means that the customer is satisfied. Large companies have to deal with several different kinds of customers. For big customers such as other companies or partners, loyalty is especially important because it allows for better communication, to know the needs of the customer and because of that, to offer a better service.

The company needs to know how satisfied the customer is with their service in order to be able to make improvements. Which attributes should be measured? Which factors can be taken from different tools to measure the customer satisfaction? How much does a quick response, the delivery times and costs in affect his satisfaction? How should the company gather the customer expectations? How should the company fulfill these expectations? How should the company implement a continuous quality improvement system? Is it suitable to combine different techniques to get the best results in measuring the customer satisfaction? Is it appropriate to combine tools to improve the quality of service?

1.4 Problem formulation

Which tools should be combined to measure the customer satisfaction in a service company in order to improve the Quality of Service?

1.5 Purpose

The main purpose of this project is to find out how a service company can measure the customer satisfaction and which factors to consider in order to improve the quality of service. The factors can be taken from several tools. Tools are used to measure the customer satisfaction and provide a parameter of how to measure the customer satisfaction. This project is focused on the service, quick response, delivery times and costs. Service consists of many steps, the first step is when the order is placed and the last one is when the product is delivered. Although delivery times and costs have a relationship between each other, once the product is not shipped, for any reason, it triggers costs like transport, tracking and delivery time. Getting a better understanding of service quality will make it possible to make some improvements in the features that are not working well or the ones that need more investment. Through observations and interviews, the quality department will learn about the situation, the market and the gaps within the company. Through this, the last goal should be reached: a continuous improvement system which implements new strategies or places improvements in the service process. The main result of this research is to give a better understanding about the service quality in service companies.

1.6 Relevance

The relevance of the project for the company is to get some ideas about which factors measure the quality of service. Since the service is intangible it is quite difficult to measure. Bringing a good service quality will give the company a good reputation among the market and the customers. As the demand for the service increase and decrease during the year it is important to have a good strategy to provide the best service to the customers. The importance of this project for the company is to have a tool for measuring that allows continuous improvement of the quality of service that allows more satisfied customers and more sales.

1.7 Limitations and delimitations

Before starting the main process of investigation and development in this thesis, the authors and the supervisor have established some limits. The first limit of this project is the time of study. It will be 13 weeks according to the schedule from Växjö University. The empirical findings are limited to the extent that the company allows and thinks is suitable. Nevertheless, with the data gathered and the observations made it was possible to get an overview of the company and it was feasible to give a full value conclusion based in the theory and the empirical findings. The delimitations are mostly the measurements of service quality. The process will not be accomplished in a qualitative way for the researchers. This is because the information about the measure quality of service was not well clarified. Instead, quantitative measurement will be performed by the researchers in the form of interviews and observations.

1.8 Timeframe

Month	March				April				May				
Activity Week	10	11	12	13	14	15	16	17	18	19	20	21	22
Company visit:													
Supervisor meeting													
Report:													
Introduction													
Research methodology													
Theory													
Empirical findings													
Analysis													
Result													
Conclusion													
Correction													
Presentation:							I			II			Final

2. Research methodology

The methodology will give an understanding about how the problem is approached, existing strategies for a case study, which data that is necessary and important tools, models and methods to be used.

2.1 Research strategy

The goal of any study is to find a conclusion. In this type of case study the research is being conducted in order to relate theory and reality. There are several ways of conducting research depending on the kind of conclusions the researcher are looking for. The research strategy is about in what way the relation between theory and reality is established. According to McNeill & Chapman (2005) the concepts of scientific perspectives are characterized through the set of assumptions. There are several approaches; the main are induction, deduction and hypothetic-deductive.

Induction: In inductive research, the theory should be the conclusion of the research. In that case, the researcher starts investigating the reality through collection of empirical data. Patterns can be identified and a new theory can be formed. Empiricism is related with this method. Science is based very much on empirical data, however, empiricism also has its limitations. People cannot see gravity or heat. But we can observe phenomena indirectly through the observation of their impact on other objects like for example observing the impact of gravity by dropping something on the floor. (Graziano, A.,2007)

Deduction: On the other hand, this approach is characterized by the conclusion being obtained from previous existing theory. The hypothesis derived from theoretical knowledge needs to be examined empirically. This leads to a confirmation or rejection of the stated hypothesis with the result of revising the existing theories (Bryman & Bell, 2007). Rationalism uses this way of acquiring knowledge. Logical processes would lead until a conclusion is found. But this strategy can be very weak. Accurate conclusions depend both on the reasoning process and the accuracy of the premises. There is no provision for assessing their accuracy in the purely rationalistic approach. (Graziano, A.,2007)

Hypothetic-deductive: The last approach brings together elements of both rationalism and empiricism, employing rational logic and checking each step with empirical observation. According to Graziano (2007) conclusions are based on hypotheses drawn from the already existing theories with the aim to gain a conclusion closer to reality, the hypotheses are empirically tested in real life in order to define the validity of the conclusion.

2.1.1 Research strategy used in this project

The result of the study will give a conclusion that helps to how to apply the theory in a specific industrial work area. In other words how to measure the customer satisfaction. The study strategy will be qualitative, meaning that only one company and production area will be evaluated and analyzed and thereby give more information and useful results.

This research will use an inductive approach, where solving the problem formulation, regarding measuring of customer satisfaction in order to improve quality of service, is the goal of the report. The theory that is exposed tries to give an overview and some basic knowledge to the reader about Quality, quality of service, Dimensions of Service Quality, customer satisfaction and the measurement of that. Also it provides some brief notes about ISO, Six sigma, TQM and Supply chain management.

2.2 Research technique

According to Gummesson (2000) there are three types of uses of case study research: descriptive, exploratory and explanatory. In the descriptive case most of the theory is known. The descriptive case study is an attempt to describe, for example, what happens when a new product or service is developed and launched on the market. Exploratory cases believe in a tangible reality and it is used when there are gaps in the knowledge. The last, explanatory cases use multiple constructed realities. In this case there is lot of theoretical and practical knowledge so it's easy to connect both to create hypotheses and refute or accept them.

2.2.1 Research technique used in this project

This paper will be explained using existing known theories about service quality and customer satisfaction and it will be connected with existing knowledge about the company processes regarding the subject of measurements and quality improvement. After that the gathered information will be analyzed using the described method and some conclusions will be developed regarding how to measure the customer satisfaction and improvement possibilities in the service.

2.3 Data collection types

Two different types of data can be collected: qualitative and quantitative (Morse J., 1994). This section deals with individual techniques for collecting empirical data (Pickard A. J., 2007). There are not absolute quantitative or qualitative methods; but you obtain both quantitative and qualitative data from all of them. But we can classify in qualitative data methods like: interviews, analysis, written text and other verbal methods. Measurements and figures that are more useful for statistical analysis in order to provide quantitative data.

Interviews (Pickard A. J., 2007) are used to gather specific and empirical information from relevant persons. Questionnaires and observations are also useful tools. Interview processes starts with the selection of people or one person that is interviewed by the researches. The research interview can take a number of different forms, from the very structured, formal interview which is usually a research-administered questionnaire, to the very informal, purposeful conversation. It can be performed face to face when the subject is more difficult or online, when no personal attendance is needed or just some questions are requested.

Preparation of the interview: It's very advisable to establish an interview guideline before the interview is carried out. It should be an array of questions and it should be prepared with the main questions and details, and based on theory and research. It does not have to be followed chronologically.

Realization of the interview: When performing the interview the statements should be annotated or if possible recorded to later be able to put the information in the project exactly as it is. It is important to think about how are asked and how the body language and other factors that can affect the interviewed person to give correct statements.

Transcribing: It should be done as soon as possible. In qualitative research this starts with the transcription and analysis.
Analysis of the results: The analysis and interpretation of the information shall be in relation with the theory. As we said before, in qualitative research analysis is a constant. The result should give the answers and solutions to the problem formulation in order to get a good conclusion.

Survey: Questionnaires are one of the most popular data collection tool in any research involving human subjects (Pickard A. J., 2007). Some reasons for using questionnaires are: you can reach a large and geographically dispersed community at relatively low cost; you can harvest data from a larger sample than would be possible using any other technique. Anonymity can be offered as well as confidentiality. But the success of a survey depends on how the questionnaire is designed.
Forms of questionnaire: There are a number of options available for administering and distributing questionnaires; you need to think very carefully about your target group when you decide how to reach them. It could be a paper-based postal, an electronic or a researcher-administered questionnaire.

Observation: Observations are carried out in order to provide evidence of the “here and now”, to discover how people behave and interact in particular situations. Almost all research involves observation of some sort. Observations are real, events happen out of nowhere and the researcher has to know how to react. In this kind of data collection method the observer plays a very important role. The researcher can work like a participant observer, semi-participant observer or non-participant observer. Anyway, the observer should maintain the greatest level of normality possible. The researcher taking copious notes in front of research participants will not help this. The field notes should be written immediately after the observation, they should be descriptive, not interpretative. (Pickard A. J., 2007)

2.3.1 Data collection types used in this project

In this paper the theory will describe the fundamental definitions of quality and other important concepts like service quality and methods for measuring the quality of service. These will be gathered through books and scientific articles which gives the latest information on the related topics.
For the empirical chapter the methods that are used are mostly qualitative. The qualitative data is theory through studies of literature, websites and articles, observations and interviews. For this point we planned four visits to the company headquarters to carry out the observations and perform some interviews face-to-face. Interviews online also will made through Skype™ and furthermore e-mail was used for clarification and to ask more detailed information.

2.4 Validity and Reliability

A major concern in research is the validity of the procedures and conclusions. A valid test measures what it is supposed to measure; a valid research design tests what it is supposed to test (Graziano, A.,2007). Concepts that have been offered have to be valid; we can test the validity according to trustworthiness, credibility, confirmability, and data dependability (Yin, 2003). As Mr. Roger Martin (2005) professor from management at Toronto University says: "validity is a method that produces a precise result depending on your desires". We can distinguish among four types of validity: statistical validity, construct validity, external validity and internal validity (Graziano, A.,2007).

Statistical validity is defined as the accuracy of the *p*-value on which a statistical decision is based. The Construct validity is defined as the degree to which the theories behind the research study provide the best explanation for the results observed. External validity is the extent to which the results of a particular study generalize to other people, places, or conditions. And last but not the least; internal validity is the extent to which we can be confident that the observed changes in the dependent variable were due to the effects of the independent variable, and not to the effects of extraneous variables (Graziano, A.,2007).

There are several methods to enhance the validity, according to Merriam (1998): Triangulation: using multiple investigators, multiple sources of data of multiple methods to confirm the emerging findings. Member checks: Taking data and tentative interpretations back to the people from whom they were derived and asking them if the results are plausible. Long-term observation: at the research site or repeated observations of the same phenomenon. Peer examination: Asking colleagues to comment on the findings as they emerge. Participatory or collaborative modes of research: involving participants in all phases of research from conceptualizing the study to writing up the findings. Researcher's biases: clarifying the researcher's assumptions, worldview, and theoretical orientation at the outset of the study.

Reliability is the ability to obtain the same findings and conclusions if a later investigator follows the same procedures as described by an earlier investigator and conducts the same case study all over again. The goal of the reliability is to minimize the errors and biases in a study. One prerequisite for allowing this other investigator to repeat an earlier case study is to document the procedures followed in the earlier case. Without such documentation, you could not even repeat your own work.

The general way of approaching the reliability problem is to make as many steps as operational as possible and to conduct research as if someone were always looking over your shoulder. In accounting and bookkeeping, one is always that any calculations must be capable of being audited. In this sense, an auditor is also performing a reliability check and must be able to produce the same results if the same procedures are followed. In some other words, we can say that reliability is a process that produces the same result every time you run it. (Yin, 2003)

2.4.1 Validity and reliability of this project

This research will ensure the validity of the data and results by collecting the theory needed for subjects (construct validity) like Quality, Service Quality, Dimensions of Service Quality, Customer satisfaction and the measuring of that. Also the theory chapter provides some brief notes about the tools that we are going to use. The method SERVQUAL will be described and applied to the company process. This is in order to use triangulation, by using different methods we will check the validity of the results. Long-term observation is not possible due to the time limitation. But member checks and peer or expert examination will be used.

Others ways to ensure the reliability is to check the outcome of the measuring results more than once. In the interviews, the questions will be connected to every part of the process in order to gain a whole view of the problem area. As observers, the researchers will obtain practical experience by observing the work method over a period of days in order to understand the process, work, equipment and information and goods flow.

2.5 Generalization

Generalization is a process of researching a limited numbers of elements of a population; we are able to generalize to a larger universe. Survey research relies on statistical generalization, whereas case studies rely on analytical generalization. In the last one the investigator is striving to generalize a particular set of results to some broader theory. (Yin, 2003)

2.5.1 Generalising on this project

The goal of this paper is to decide which attributes measure in the customer satisfaction in order to improve the service quality. We would like to obtain a good result that could be applicable to the rest of the service companies. To ensure the quality in the beginning of the process it becomes easier to assure the quality throughout the total of the service process. Each step should be evaluated in order to understand the effect they have on the whole process and in the end, the result become more generalising, but unfortunately we will not have enough time.

We recommend following the same method described in the theory to obtain high quality results in similar process.

3. Theory

The theory part will give the information needed to understand the problem and theories, tools and methods necessary for evaluating the company situation.

3.1 Quality

According to Bailey (1990): *"Quality is what makes it possible for a customer to have a love affair with your product or service. Telling lies, decreasing the price or adding features can create temporary infatuation. It takes quality to sustain a love affair. Love is always a fickle. Therefore, it is necessary to remain close to the person whose loyalty you wish to retain. You must be ever on the alert to understand what pleases the customer, for only customers define what constitutes quality. The wooing of the customer is never done."*

It has been said that quality is in the eyes of the beholder. Therefore quality has many definitions and means different things to different people. Indeed, quality has been defined in many ways, but nowadays quality is based on achieving the consumer satisfaction. Indeed the term quality has been used in a blurred way. For example, if someone talks about 'working on quality', they may simply mean activities designed to improve the organization or/and its services. Quality can be used as a parameter; it can be useful to check what the employees are doing well and what they can improve. Or if we say with other words, it is just trying to reach the different needs of the customers that are using our service. To understand quality, think of it as a secondary term that is often used to cover many aspects. This can be as a collection of concepts, ideas or tools that are proven to improve customer satisfaction, reduce cycle time, eliminate errors, and reduce costs and rework. D. Garvin (1984)

According to Garvin it is basically based in 3 main aspects; these aspects are understanding, improvement and assurance. The first stage of any business is understanding, this means what is needed and how to satisfy the stockholder's needs. To know which the needs are assumptions, feedback and brain storming are the possible solutions to know it. Understanding the needs is not merely about stakeholders, it is about all the people involved in the service or product. This is basically knowing who they are, what value they are bringing and what they are expecting from the service or product. Improvement is the second aspect regarding the qualities in which the companies are investing now in order to get the profit later. Business decisions at strategic levels lead to necessary changes in order to accomplish the goals. In this, improving systems or services based on intuition, brain storming, or assumptions can be risky. Systems are related to each other, so changing one element can have a significant impact in the other. Therefore meeting today's demand of improvements can be the long term target. When the needs and capabilities are understood and the system improved and updated, all we need to do is make sure that it actually works. This final aspect is about making things happen on time, every time. Hence, quality is about:

- Knowing what you want to do and how you want to do it.
- Learning from what you do.
- Using what you learn to develop your organization and its services.
- Seeking to achieve continuous improvement.
- Satisfying your stakeholders.

3.2 Continuous Quality Improvement

Continuous Quality Improvement stands as an issue regarded as an integral part of activities of an increasing number of companies and organizations. This is the basis for what is often referred to as Total Quality Management, TQM, which means: *"a constant endeavour to fulfill, and preferably exceed, customer needs and expectations at the lowest cost, by continuous improvement work, to which all involved are committed, focusing on the processes in the organization".* (Bergman 2003)

The customer perceives the quality of a service depending on the competence of the staff to handle their relations with customers. There the staff depends on the competence of other staff members to provide them with what they need to serve the customer. All rely on competent management to be able to do their job: *"Service is a social process, and management is the ability to direct social processes. And service organizations are more sensitive to the quality of their management than probably any other kind of organizations".* (Norman, 1984)

According to Norman (1984) and Mitra (1993) there are some steps that may help for the quality improvement:

1. Show the need for improvement.
2. Identify specific projects for improvement.
3. Organize leadership for the projects.
4. Organize for diagnosis – for the discovery of causes.
5. Identify causes
6. Provide remedies
7. Prove that the remedies are successful under operating conditions
8. Provide for control to hold the gains.

In order to have a good plan for quality improvement it is important to point out the obstacles since the beginning; then describe how social values have changed, making it more difficult to employ, develop and keep quality skilled employees. Staff gives the condition to realize the companies' business concept, this depends on developing staff competence and motivation, and both are needed to improve the quality of services. (Edvardsson and Thomasson, 1993)

3.2.1 Obstacles to Quality Improvement

Many service companies accept that it is the people in the organization who create service quality. However, few have found it possible to achieve the right quality despite the best intentions. Norman (1984) suggests that this is because managers have not paid sufficient attention to two main obstacles:

- Staff do not have a full understanding of the business, and do not understand the consequences of their actions for others. Staff in support services does not see the importance of their work for the final quality of service to the end customer.

- Staff wants to change and develop with support, and want more than monetary rewards. If they do not feel that they are growing as people, then their motivation and commitment are diminished and the quality of their work suffers.

3.2.2 Total Quality Maintenance

According to Scherkenbach (1986) Total quality management, referred as TQM, is basically a business philosophy founded on customer satisfaction: *"The business process starts with the customer. In fact if it is not started with the customer, it all too often abruptly ends with the customer"*.

TQM stands for a holistic view of quality improvement, where the understanding, interest and commitment of top management are an absolute precondition for achieving success. TQM for services depends on creating a culture in an organization which involves everybody in quality improvement. Everybody can affect quality, but everyone must first realize this, and have the techniques and tools which are appropriate for improving service quality. (Edvardsson and Thomasson, 1993)

Edvardsson and Thomasson summarize the total quality management in a service approach in the following points:

- The importance of management.
- The involvement, commitment and responsibility of everybody.
- Quality in all processes.
- Quality as strategy.
- Focus on prevention rather than inspection.
- Quality by design. (It means that the company must have a strategy and this one should be a part of the business strategy market)
- Continuous improvements.
- Zero defects.
- Meeting the needs of target customers.

In other words by Drummond, TQM involves more than wishing customers a nice day and providing a product or service. It involves designing organizations to please all customers day in and day out. It has two strands, namely:

1. Careful design of the product or service.

2. Ensuring that the organization's systems can consistently produce the design.

These two objectives can only be achieved if the whole organization is oriented towards them. Orientating the organization to quality requires much more than a managerial proclamation that from tomorrow everything will be different.

3.2.3 Six Sigma way of improvement quality

According to Sunil Thawani (2000) a certified Six Sigma Black Belt, member and Country Councilor for American Society for Quality in UAE; *"Six Sigma was originally developed for manufacturing processes by Motorola about 15 years back, but today service firms and service functions within almost every sector are using Six Sigma to improve profits and performance. Many companies are deploying Six Sigma in their marketing, finance, information systems, legal, and human resources processes".*

Unlike manufacturing operations, defining a service defect is quite a challenging aspect in applying Six Sigma in service delivery systems. This is because it is not easy to reach an agreement on what a service defect is. Since the Six Sigma effort is linked to customers, most Six Sigma companies define a service defect as a flaw in a process that results in lower level of customer satisfaction or a lost customer. Standardized service processes like issuing credit cards, opening bank accounts, administering customer loyalty programs etc. can yield substantial benefits from a Six Sigma effort.

Six Sigma Methodology

Sunil Thawani refers to DMAIC as a process of problem solving i.e. Define, Measure, Analyze, Improve and Control. Below is one of the most common Six Sigma methodologies: in brief:

-Define

Identify, evaluate and select projects for improvement and select teams.

-Measure

Collect data on the size of the selected problem, identify key customer requirements, determine key product and process characteristics.

-Analyze

Analyze data, establish and confirm the "vital few" determinants of the performance.

-Improve

Design and carry out experiments to establish cause & effect relationships and optimize the process.

-Control

Design the controls; make improvements, implement and monitor.

3.3 Quality of Service

This term quality of service may be ambiguous and subjective. Quality is like beauty, it is in the eye of the beholder. For some people, maybe quality is fulfilling customers' expectations (citizen customers and company customers) in the market. Customer perceived quality is often defined as the relationship between the customers' expectations of the service and his or her perception of the service received. For this, the term quality is multifaceted. According to Edvardsson and Thomasson:, *"Quality is fulfilling expectations and needs from the staff and the owners. Customer expectations are based on their needs, their earlier experiences of the service in question and the reputation the service has in the market".*

Service quality perceptions are formed and changed in a social process. We receive and interpret impressions in the present, we reinterpret previous perceptions, and we form future expectations of quality. These expectations can be developed as service specific measurements.

Zeithaml has defined five commitments, to which two have been added by Stamatis (1996). These are the commitments mentioned by Zeithaml and Stamatis:

- Reliability
  Is the ability to provide what was promised, dependably and accurately, Never over promise and always keep your promises.

- Responsiveness
  The willingness to help customers and provide prompt service. Always get the definition of prompt from the customer.

- Assurance
  The knowledge and courtesy of employees and their ability to convey trust and confidence.

- Empathy
  The degree of caring and individual attention provided to customers.

- Tangibles
  The physical facilities and equipment and the appearance of personnel.

- Competition
  The ability to asses what the competitor is doing. When evaluating or researching the competition, is important to know the service that they are providing, the cost of that service, their opportunities and their customers.

- Management Leadership
  Is the art of influencing people to progress with cooperation and enthusiasm to accomplish a mission.

3.4 Measure the quality of service (SERVQUAL)

The term quality measurement covers both quantitative measurements, expressed in figures, tables or diagrams, and qualitative measurement, where the results are usually presented in the form of verbal description. Quality measurement is probably the most important technique for a service aiming for more than a superficial improvement. To know where to start and to set the priorities, managers have to measure the quality of their service. (Edvardsson and Thomasson, 1993).

Measurement is one of the most important ingredients in customer service. As an example Zeithaml, et al (1990), show in their diagrams how customer service performance and customer service standards can be measured. Figure 1 shows the possible way to measure the customer service performance; and Figure 2 shows the customer service standards.

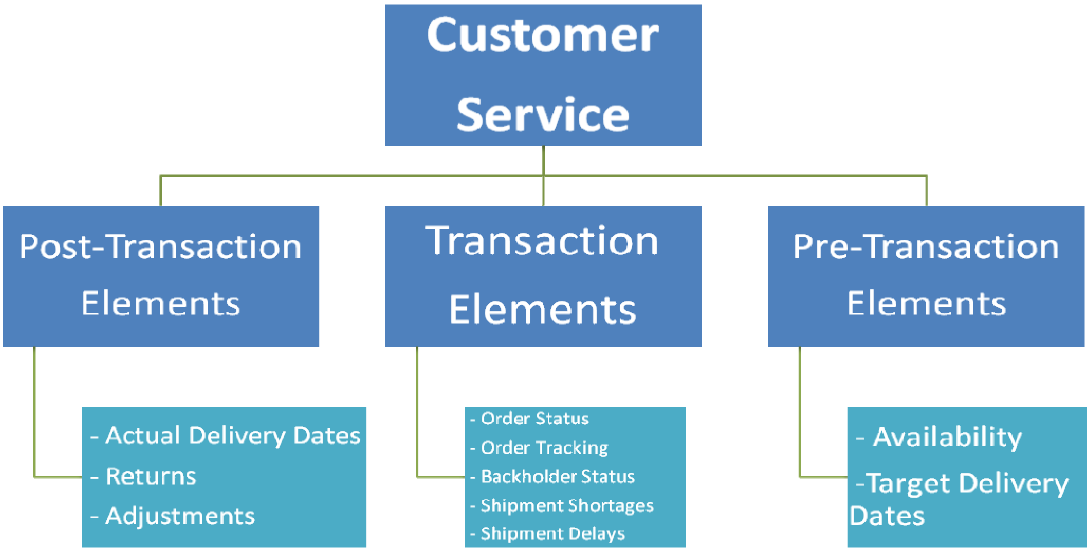

Figure 1. Possible measures of customer service performance. Zeithaml, et al (1990)

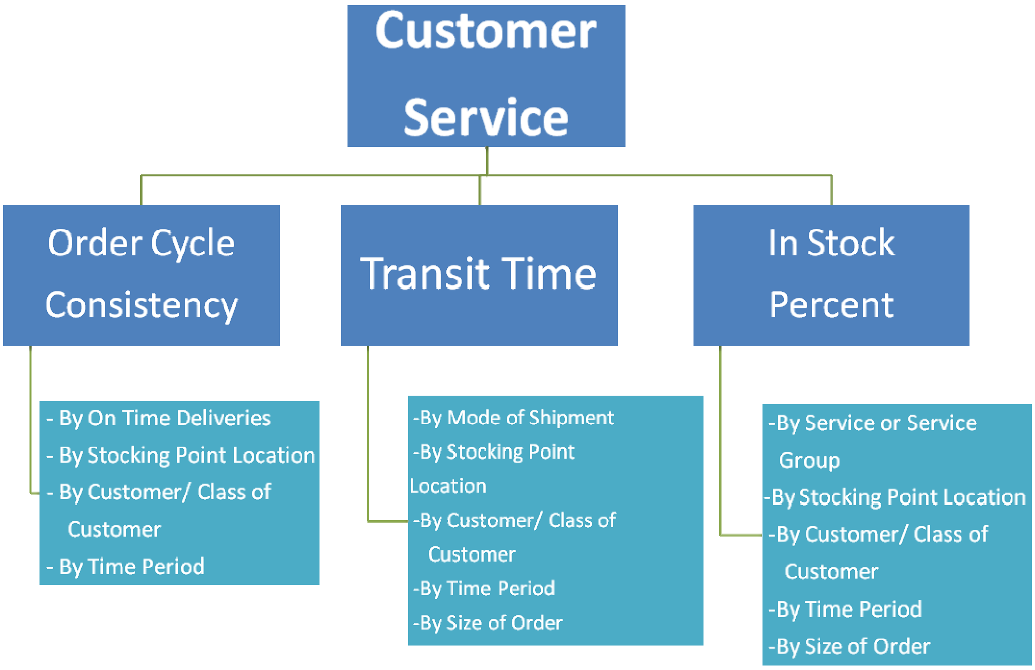

Figure 2. Examples of Customer Service Standards. Zeithaml et al (1990),

Many efforts have been made to develop instruments to measure internal service quality based on the dimensions in SERVQUAL. Chaston (1994) measured potential gaps in internal service quality using a modified version of the SERVUQAL instrument. The results indicated that gaps in service quality existed because departments placed efficiency above internal customer needs and made little effort to understand internal customer requirements. Young and Varble (1997) assessed internal service quality within a purchasing context by applying the original SERVQUAL instrument which provides the purchasing function with a useful method for obtaining feedback from its internal customers. All of them including Edvardsson and Thomasson proposed that the SERVQUAL instrument could be utilized to measure internal service quality. There are, however concerns with the three studies. Chaston for example, altered the wording of SERVQUAL items to accommodate the unique characteristics of the sample, but did not modify the items to assess internal service quality. Another concern is that although these studies were based on the SERVQUAL dimensions and tried to utilize modified SERVQUAL items, none of the three tested whether their modifications were valid and reliable measures of internal service quality. (Kang, G., 2002)

For example, Edvardsson and Thomasson create a methodology to measure the quality of service not based in just commitments. This methodology is based in Quantitative and qualitative methods that complement each other. Quantitative methods aim for “objective facts” and unambiguous measures. They can be used to measure service availability and precision and may be used at different times of the day, week or year. Qualitative measurements do not have the same precision, these ones help to understand people’s expectations and requirements. Service managers need both types of methods because customers’ opinion of the quality of services depends on relations between people, as well as more easily measured factors such as waiting time. Qualitative measurement involves listening, studying, analyzing and interpreting customers´ statements. This method helps to understand customer expectations and perceptions of the quality of services. (Edvardsson and Thomasson, 1993).

Edvardsson and Thomasson develop some steps to measure. The first and the most important step is to begin by defining quality as the starting point. To measure how a customer perceives quality, the customer must give content to the concept of quality. This is best done by clarifying with customers the key quality factors for them, expressed in the customers´ own words for a better understanding for both sides. The next step is to get customers to specify the quality factors in terms of variables. The variables should be formulated as far as possible in the customers´ own words. The third step is to get customers to indicate the importance of the different variables, for example on a scale from one to five. This may help to understand the customers´ view of the “ideal service”. The next phase is to get the customers to rate the actual service. It can be rated based on questionnaires or brainstorming. (Edvardsson and Thomasson, 1993).

Inside customer service, emerges an important tool called SERVQUAL that provides one way of measuring service with a ready-made tool. This method is based on the five quality dimensions. These dimensions are tangibles, reliability, responsiveness, assurance and empathy. The tangibles refer to the equipment (can be transportation trucks, computers, IT systems, etc) staff appearance (how do they look, easy to recognize), facilities, etc. The reliability refers to the ability to perform a service consistently and correctly. The responsiveness refers to the willingness to help and respond to the customers' needs and expectations. The assurance aspect refers to the talent of the staff to inspire confidence and trust to the customers. The empathy aspect refers to the individualized service given. (Edvardsson and Thomasson 1993).

There are many applications for SERVQUAL, the data obtained from this tool can be used to compute service- quality gaps. By examining these various gap scores a company can not only asses its overall quality of service as perceived by customers but also identify the key dimensions, and facets within those dimensions, on which it should focus its quality improvement efforts. The SERVQUAL tool can be used for many other features like:

- Comparing customers´ expectations and perceptions over time.
- Comparing your own SERVQUAL scores against competitors´ scores.
- Examining customer segments with differing quality perceptions.
- Assessing quality perceptions of internal customers.

(Zeithaml V., Parasuraman A, Berry L., 1990).

3.5 Customer Satisfaction Measurement (CSM) in a quality of service

So far, measurement has being part of service quality. As Chakrapani (1998) says: CSM works! In other words, CSM is related to important business variables such as repeat purchase, customer retention and profitability. It is logical to suppose that if customers are satisfied, they will return. They will be less inclined to switch to another company. Almost by definition, we would expect customer satisfaction to relate to loyalty and profitability. If customer satisfaction does not accomplish these, then from a business point of view, there would be little point in tracking it. Customer satisfaction could be related to loyalty and profitability, and if it is not, it is the measurement that is at fault.

Many executives explain that their companies do not measure customer satisfaction because: there are problems in identifying and communicating with customers; defining what aspects of satisfaction to measure is problematic; and collecting the data was too difficult. Others suggested that measuring customer satisfaction wouldn't add anything useful (Piercy, N. 1996)

Measuring things the wrong way is one of the common problems in trying to measure the customer satisfaction. As Chakrapani (1998) says, measuring the performance of a company versus the competitor will be inconsistent or insensitive in detecting differences. Using metrics that are not tested for their validity and reliability can also provide misleading measurements of customer satisfaction. Social measurements can be as precise as physical measurements. To have an idea about the physical measurements some questions must be asked is the metric sensitive enough to detect the differences in service quality offered by two companies?

CSM is not an isolated research activity but a key management tool providing direction to the company's quality improvement activities. Objectives are also necessary to keep the CSM programme from wandering into other areas of customer research that are best left to the marketing department. (Lawrence, A. 1991)

Chakrapani shows 10 steps to measure customer satisfaction. In this methodology the first three steps are the conceiving steps, the next three are the developing steps and the last ones are the interpretation and tracking steps.

Step 1. Gather background data.

Is important to begin with some qualitative research; techniques such as brainstorming are useful.

Step 2. Choose the attributes to measure.

In this step relevant attributes may be chosen. These mean that the attributes are relevant to the mission organization, contribute to customer satisfaction, avoiding measures that are no longer valid and avoiding measures that are unfavorable to customer satisfaction.

Step 3. Choose the right audience to be measured.

Customer dissatisfaction is the main engine to look for discrepancies and some customer dissatisfactions.

Step 4. Decide on the basic CSM question components.

Five basic questions relate to the basis of the customer satisfaction measurement: incidence, frequency, importance, performance and an overall criterion measure.

- Incidence relates to the relevance of a given service or the incidence of a given problem. Did you have any problem with this service in the last year?

- Frequency relates to the recurrence of the problem. How often did you have the problem with this service?

- Importance is the service that is not used frequently by the customer.

- Performance is just how satisfied is the customer with the company performance.

- Overall criterion measure provides the importance of the individual attributes.

Step 5. Choose the right metric.

Attributes can be measured on a number of different scales. Numeric scale (10 point scale), verbal scale (good, average and poor) and binary (satisfied or not satisfied) scale can be used.

Step 6. Make Analysis Action Oriented.

In this step several analysis techniques can be used; quadrant analysis is one of the most common ones.

Step 7. Consider Segmenting Customers.

Segmentation analysis is the best option because not all customers are seeking the same benefit. Techniques such as cluster analysis and a classification tree can be used.

Step 8. Interpret the measures correctly.

It is important to differentiate common cause and special cause variations, if customer satisfaction is tracking; it may be easy to plot the results on a run chart using upper and lower control limits.

Step 9. Use results cautiously.

For this step it will be easy to have all the results in attributes. For example services give the attribute and the branches can be speed, availability and courtesy.

Step 10. Create a tracking system

It will be easy to track customers on a continuous basis rather than in longer intervals. Combining standard tracking with proactive tracking might provide greater input in terms of current customer satisfaction.

3.6 Supply Chain Management

Supply chain relationships are among the most complex and least understood areas of logistics operations. The distribution channel was positioned as the battlefield of business. It is within the channel that the ultimate success or failure of a business is determined. The success or failure is clearly related to competition. It's also related to a firm's ability to establish effective supply chain relationships. This relationship involves the development and management of supply chain arrangements. A typical supply chain relationship involves primary trading partners and the service providers. These services were traditionally sold by separate providers. One example can be warehousing and transportation, where the integrated service provider receives customer orders, picks and packs the merchandise, and then completes delivery. The typical approach is for the integrated firm to perform the specified services under single ownership. However, many have created alliances to extend their ability to market single source logistics service. Few argue that the provision of integrated services represents a significant business opportunity. Participants in the industry are generally recognized as having originated from five basic businesses: carrier-based, warehouse-based, forwarder-based, information-based, and customer-based. The carrier- and warehouse-based firms are essentially integrating into each other's basic business via acquisition. The provision of transportation and storage in combination with a broad range of basic and value-added services offers shippers the potential single-source purchase of an integrated service package. (Bowersox et al. 1996)

In addition, the supply chain is the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services, in the hands of the ultimate consumer. Nowadays, a new desirable strategy is applied: increasingly organizations are now focusing on their "core business"- in other words the things they do really well and where they have a differential advantage.

In the past it was often the case that relationships with suppliers and customers were adversarial rather than cooperative. Is it still the case today that some companies will seek to archive cost reductions or profit improvement at the expense of their supply chain partners. Companies such as these do not realize that simply transferring costs upstream or downstream does not make them any more competitive. The reason for this is that ultimately all costs will make their way to the final marketplace to be reflected in the price paid by the end user. As in the service, it can be seeing in the price of the shipping.

Logistics management is primarily concerned with optimizing flows within the organization whilst supply chain management recognizes that internal integration by itself is not sufficient. Logistics is essentially a planning orientation and framework that seeks to create a single plan for the flow of service provided and information through a business. Supply chain management builds upon this framework and seeks to achieve linkage and coordination between processes of other entities in the pipeline, i.e. suppliers and customers. The focus of supply chain management is on cooperation and trust and the recognition that properly managed *"the whole can be greater than the sum of its parts".* This brings with it some significant challenges since there may be occasions when the narrow self-interest of one party has to be subsumed for the benefit of the chain as a whole. (Christopher. 1998)

3.7 QFD (Quality Function Deployment)

QFD is a translation of the Japanese. *Hin Shitsu* (quality), *Ki Nou* (function), *Ten Kai* (deployment). The Japanese characters for *Hin Shitsu* represent quality, features or attributes, *Ki* and *No* represent function or mechanization and *Ten* and *Kai* deployment, diffusion, development or evolution (Chow-Chua, C. & Komaran, R. 2002)

QFD is a technique where the main task is to integrate the customer voice (expectations and needs) in the process to design and develop a product or service. In a service company QFD can be a very useful technique (Lawrence, A. 1991). The main reason for that is because it is based and focused on what the customer wants and how the company should do it. Knowledge of customer requirements and "importance weights" provide direct input into QFD. This is a process plan that guides the design or redesign of a product or service. The purpose of using this tool is to allow the companies to organize and analyze the information related with their product or service. This tool can indicate the strong areas and the weakness of the service provided. The information provided by the customer is organized and is integrated into the requirements provided to the service into a matrix. QDF allows improving preventive actions instead of corrective actions. So when any company is using this tool they are focusing more on the customer needs and desires, this is the key action to improve the customer satisfaction and their value perception. (Summers, D. 2005).

According to Bergman (2003) QFD has many advantages in the Swedish companies, some of them are:

- Improved communication.
- Better knowledge transfer.
- Improved designs.
- Higher customer satisfaction.
- Information for competitive benchmarking.
- Service improvement.

The main difficulties encountered by Swedish companies are the lack of management support, lacking commitment in the project group as well as insufficient resources. (Bergman 2003)

3.7.1 How QFD Works

The "Quality Function Deployment for Products" according to Mountain Ash Consulting Ltd White Paper (2007) explains how the QFD works. The main 5 steps are the following (See Figure 3):

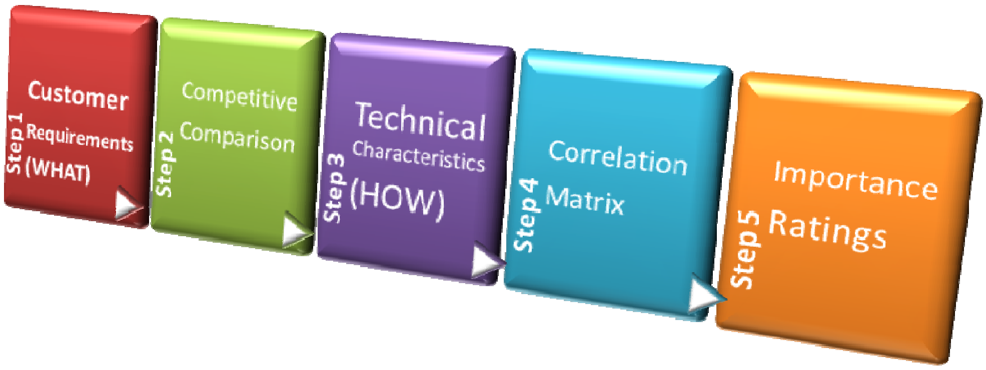

Figure 3.QDF Diagram, Mountain Ash Consulting Ltd White Paper. (2007)

1. Customer Requirements

The first step of the QFD methodology starts creating a list of customer needs and requirements. The company has the tough task of know the point of view of the customer. This list must be concrete and specific. *,* MA White paper (2007) recommends using techniques such as affinity diagrams, critical observation or function analysis. They state the "the customer requirements form the first section of the comprehensive matrix for documenting findings, which is commonly referred to as the process House of Quality" MA White paper, (2007) (see Fig. 4).

2. Competitive Comparison

The second step according to MA White paper (2007) regards a competitive analysis. We should compare what the study company does against the competitors in the market. That can be expressed like a SWOT chart. This analysis gives other chance to ensure that all points of view have been taken in consideration in order to get a reliable result based on information from the customer.

3. Technical Characteristics

At this point customer requirements construe into technical characteristics including design features. Many factors between the WHAT's and the HOWs are complex and they are difficult to take into account. The relationship section of the House of Quality helps the relationships between the WHATs and the HOWs. Symbols inside the house of quality are used to represent the strength of the relationships. At this point the team makes sure that technical characteristics are produced in response to customer needs, this helps to decrease unnecessary costs and service complexity. Using QFD helps the team work to consider plenty alternatives before choosing the optimal solution. (MA White paper (2007))

4. Correlation Matrix

This is a triangular diagram that shows the relationship between each HOW item. As mention before symbols are used to describe the strength relationships and to indicate the assurance or the negativeness of the relationships. As a House of Quality extension, this tool is very important for identifying positive correlations, which effect is to avoid duplication. Negative relations are shown and it represent trade-offs. Monitoring this tradeoffs will avoid problems in later and may lead to take major competitive advantages and avoid redesign. (MA White paper (2007))

5. Importance Ratings

The penultimate step is about express the level of the strength in the relationship between requirements. MA White paper (2007) states "The importance ratings are calculations based on the customer requirements". Moreover the Service characteristic shall be rated as well. This step of the method will allow us to have a ranking among the different aspect and make able to economize efforts.

6. Analysis

The last step is "The House of Service Quality matrix" (See figure 4). In it the company has all the information gathered and the results from the relations are showed. Now it is time for them to define the service development strategy and state the action plan. The information obtained can fed the next phase – design deployment – but we are not using so far in this study. MA White paper, (2007). According to them, "QFD is a useful methodology to facilitate planning, decision-making and communication in the service development environment". "At its core is the Voice of the Customer, which gives it the cohesive platform throughout the service development process".

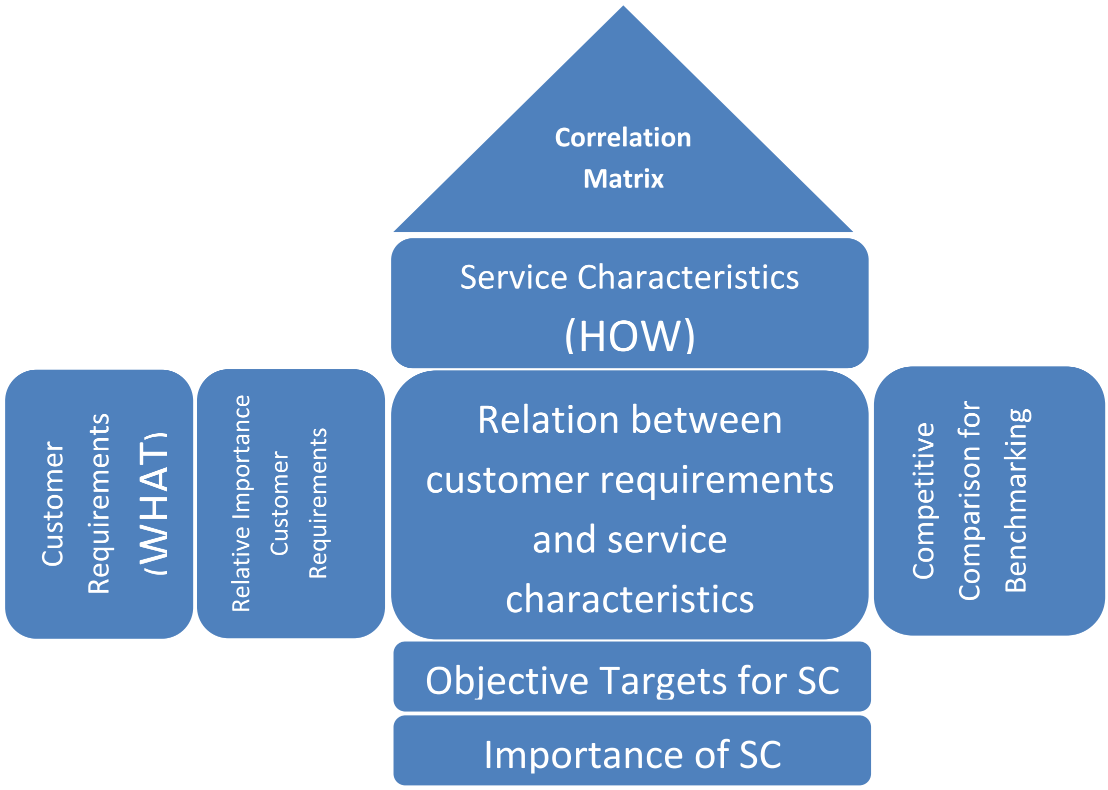

Figure 4. House of Service Quality. (Inspired by Mountain Ash Consulting Ltd White Paper. (2007))

4. Empirical findings

The empirical chapter gathers information regarding the company, their service quality and activities that are related to the customer satisfaction measurement. This part is based on observations, interviews and practicing experience.

4.1 About the company

First of all, we want to explain that this is a particular version of the thesis where the name of the company, the contact and some very sensitive data has been deleted. We would like to add that this was a desire of the company in order to prevent any industrial espionage, but all the data here written are true and reliable, so we can assure the result will be valid and the anonymity doesn't have any influence on the Thesis process. We'll always refer to "the company" or "our case company". Sorry for the inconveniences

The company was in the late 60's. It started as a courier service in USA and later on they expanded their business worldwide. The main target of this company is to provide international and national shipping of documents and freight worldwide. The service is available for all persons and companies that want to send a package or a document wherever they are. They now act as one company, with approximately 4000 employees and about 70 offices, terminals and stations in Sweden.

In Sweden is divided into four business units:

-Express Service operates land-based traffic, national- and international transports, parcel distribution and Air Express.

-Global Forwarding handles intercontinental Air- and Ocean freight.

-Freight handles international groupage, part-load and full-load shipments by road and intermodal.

-Exel Supply Chain handles integrated third-party logistics (3PL).

4.2 Quality

As we know, this is not a manufacturing company. The services are the main target of this company. Since the beginning the goal of this company was to provide safe transportation and right time service to all their suppliers. Our company contact gave us an example about quality, but more specifically on the quality of service. The example was buying a computer. What do you look for in a computer? I answer the important features like drive, software compatibility, memory and design. Above all of those features he asks me what could happen if it broke? This is when we realize that service support, that we didn't consider before is important and also the post selling service. The way that the company thinks about the customer satisfaction is with this simple formula:

Customer Satisfaction = Actual Performance by the firm / Customer Expectations

Unfortunately it wasn't able to get the performance by the firm. This company really cares about their customers and of course they want to provide the best service for them to make them maintain the loyalty. Our contact explained to us that these perceptions help them to get more customers, in addition to maintaining their loyal customers. Customers can be won or lost from a single shipment; to avoid these disagreements they try to make their best effort to meet their needs and their expectations. Some of the techniques used are:

1. Word of mouth publicity (this is more like recommendations from friends, relatives, neighbors, etc)

2. Personal experience on the part of the customer.

3. Personal needs of individual customers.

4. External communications (publicity of the firm in the media and advertisement).

4.3 Continuous Quality Improvement

Besides of other techniques that this company is working within the quality sector, they have mainly based all quality approaches in TQM (Total Quality Management). Our contact explained to us that they use this approach principally for service quality improvement and customer satisfaction. They are using this approach because they saw that all personnel participate in improving processes, products and services. The results of using this approach were:

- Increase quality
- Increase productivity
- Purpose for improving products and services
- Minimize total costs
- Minimize break downs
- Self improvement

4.3.1 Total Quality Maintenance

In addition they use specific TQM techniques that help them in the short and long term in order to have a different perspective of the market, customers and the company. The main techniques that they are using are:

Strategic planning

According to our case company this is a long term plan that gives a different perspective and the possibility to the company to help and decide which are the possible solutions or the taking actions.

Statistical Process Control (SPC)

This process gives all the personnel the tools that help them to find some problems in a graphical or numerical way. Some of the tools used are histograms, control charts, pareto charts, cause and effect charts, flow charts, etc.

Work in Teams

Working in teams provides different point of views and different thoughts about any situation or problem. Using this kind of strategy is easy to stimulate creative thinking, brainstorming and create a friendly working environment.

Training

Nowadays most of the companies are trying to find skilled people to do their jobs, therefore the company is giving the opportunity to all the people to improve their work skills, this includes group dynamics, interpersonal communication skills and problem solving tools. As a reward the case company gives those employees gifts and recognition; both are not monetary but they reinforce teamwork and organizational cooperation.

Quality Assurance Systems

This system is used to prevent problems and errors from occurring. This system is trying to focus on quality assurance during the whole process. It involved the time from when the order is placed, until it is shipped. Also this system is inspecting for errors after the service is done.

4.3.2 Six Sigma

For our case company Six Sigma is considered a customer based methodology. In every phase, or act there are always customer requirements involved. As our contact stated before and we mentioned as well; customer satisfaction is one of the most important factors to meet, those factors are related to the results and generate the success of quality improvement. Our contact person explained that the customer is the engine, it is the solid base on which the whole methodology is built. *"In this company implementing Six Sigma gives us significant benefits that contribute to give a competitive advantage and to change the culture of the organization from immediate problem solving to proactive problem prevention"*. The most considerable benefits shown by them were:

- Bottom line cost savings (5%-15% of turnover per year)
- Improved quality of service as perceived by the customer
- Reduction in delivery times

- Development of staff skills
- Common language throughout the organization
- World class standard

Six Sigma involves a few concepts depending on every company, for them, the main concepts regarding the Six Sigma implementations are:

- Critical to Quality: Attributes most important to customers
- Defect: Failing to deliver what the customer wants or at the right time
- Process Capability: What your process can deliver and in how long
- Variation: What the customer can see and feel
- Stable Operations: Predictable processes to improve what the customer sees and feels
- Design: Meet customer needs and process capability

They adopt the DMAIC method for team-based process improvement that sits at the heart of Six Sigma. According to our contact person, many of their global customers have their own longstanding process improvement programs – including Six Sigma. This helps us to speak their language and means we can readily align our processes with theirs. The methodology that they are use is comprised of five steps:

- Defining opportunities: establishing goals and ensuring they are consistent with customer requirements.
- Measuring performance: collecting data on the current process for future comparison.
- Analyzing opportunities: assessing performance to determine ways to improve or optimize the process.
- Improving performance: implementing the improvements.
- Controlling performance: setting up pilots to establish process capability, then transitioning and monitoring.

4.4 Quality of Service

The company is trying to provide the best service possible, for that there are some attributes in which they are referring to improve their quality of service. Our contact explained to us that using a framework of structure (related to facilities and the human resources), the process (interaction with all the personnel) and the outcome (result of the interaction) they developed 7 attributes of what the customers expect from this company. It's important to note that these attributes were settled by the same people inside the company and this is based on the system, mission, costs and the company's adaptability and availability.

These attributes are:

- Efficacy.
    - They are trying to use in a correct way all the resources available with the aim of avoiding extra costs.
    - The enterprise behaves with honesty, responsibility and accessibility.
    - Trying to be updated and looking for renovation.
    - Service quality and fast deliveries.
    - Flexibility in the system.

- Effectiveness.
    - Advance delivery system combined with advanced IT technology.
    - Accomplish the goals.
    - Give the personnel the knowledge they need to succeed in their work area.
    - Avoiding breakdowns and delayed shipping's.

- Efficiency.
    - A measure of cost.
    - Promote the growth and keep their personnel updated.
    - Accomplish and exceed expectations from their customers.
    - Define clearly their objectives; they follow it until they reach it.
    - Motivate their personnel to feel a part of the enterprise.

- Optimality.
    - Cost-benefit evaluation.
    - Use of specific type of maintenance.
    - Reinvest wherever it's needed.
    - Consolidation of business segments (countries).

- Acceptability.
    - Adaptation to the wishes, expectations and values of the customers.
    - Well recognized brand.
    - Loyalty from the customers.
- Legitimacy.
    - How people see the company.
    - Barriers around the world.
    - Laws to be followed.
- Equity.
    - Negotiations.
    - Trades.

4.5 Customer Satisfaction

In the company there are some comparisons about many concepts that are related to the customer service. These concepts are quality and satisfaction; both play an important role inside the enterprise. Although they are different, satisfaction and service quality are closely related. Our contact used an analogy to demonstrate. He stated that the service quality is like an attitude. To compare these two concepts they ask whether a provider's objective should be to have consumers who are merely "satisfied". He suggested that service quality perceptions should be considered as long-term consumer attitudes. Satisfaction should be referred to as short-term attitudes. It's hard to reach a great quality if the employees are not working right or if the system is failing. The more involved the employees of the company are in quality programs and the higher the efforts to improve customer satisfaction, the better the quality will be.

CASE COMPANY SERVQUAL statements (expectations and perceptions) are used in order to improve their service. To do this, they based their results on previous surveys and phone calls. Nowadays they are using 6 dimensions. These dimensions may help to measure quality:

1. Tangibles

It includes the appearance of the facilities and personnel, equipment and communication material.

2. Reliability

This is ability to perform the desired service without fail and perfectly.

3. Responsiveness

Is just to help customers and provide them prompt service.

4. Assurance

This is measured by the firm to deliver promised service, courtesy extended to customer.

5. Empathy

This is the gentle and individualized attention that the firm provides to its customers.

6. Firm's credibility

This is basically the trustworthiness, believability and honesty of the service provided and the extent to which the customer feels secured.

Research done previously by the marketing and logistic department showed that Swedish customers perceived reliability, assurance, tangibility, responsiveness, empathy and firms credibility (in that order) as determining the service quality of a firm. This is in contrast to a study made for other customers (North America). This study showed that reliability, responsiveness, assurance, empathy and firms credibility were rated higher by customers than the tangible dimension of service.

The next chart shows how the company interacts. In a few words our contact explained to us that they work mainly as a service provider, but the main role is to interact with the customers. In the first step (service provider) it combines reliability, responsiveness, assurance, empathy and tangibles. In this case, service appearance and the ability of the company to provide the service is very important to the customers. When the customer places an order, the case company transforms into the service provider, and when the order is taking place it is when the main interaction occurs with the customer. It is at this point where some people choose this or another company. They make their decision based on the price, delivery time and also the treatment that they receive from the personnel. This moment is where the company objectives are challenged, currently is where all the short terms and long terms plans are becoming a challenge or just a bad mistake. If the customer places the order and they accept the terms and conditions this is where all the plans and goals will be accomplished. Also, if the order is place an association is made, and hopefully more orders may be placed in short or long terms. As a service receiver (customers) are the engine of the changes and the improvements that can be done to avoid mistakes and develop the service. Case company's main ideas of customer satisfaction are to deliver the product on time, have no scratches on the item and the present the best attitude at the time of delivery. This could sound like some normal behaviors of a company like them but they still have to work again and again to be perfect in those aspects. See figure 5.

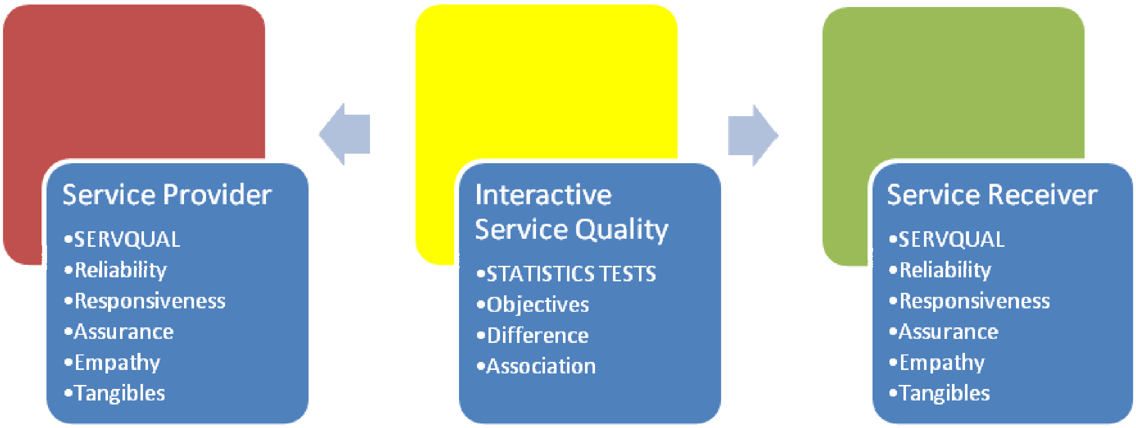

Figure 5. SERVQUAL Chart.

Our contact explained to us that this chart is quite important for the company but the most important aspect is that all the steps have the same importance. Unfortunately there are some aspects that are not well covered. It is pointless to focus only on one step of the chart because everything is important, as much as for the customer than for them. Customers will receive the service with the best quality from the company. In this case, quality refers to deliver on time, no scratches on the product, in a gentle way, etc. The interaction with the customers is very important and this company is trying to focus more on how to meet customer satisfaction. In addition, customers believe that a service company should show higher priority in upgrading its facilities, equipment and communications. For them, these aspects will show a more structured and reliable company. For the company it will show well planned goals and a structured workforce,. Although it seems impossible to get the latest technology because every year more technology comes to the market, the case company is keeping up to speed. One thing that stands out at our company is that delivering service quality is a combination of people and technology strategy. The latter affects all factors of organization and service delivery points which can help the firm achieve 100% customer satisfaction. Using this tool the case company is trying to get the best aspects to measure the customer satisfaction, the problem regarding this is that many other tools are used to measure the customer satisfaction.

4.6 Customer satisfaction measurement (CSM) in Quality of Service

As we said before the only technique used by them is the Quality Function Deployment primary, and some principles of SERVQUAL but all of this is useless if the feedback is not involved in this measurement. At this point measuring the customer satisfaction has been a problem for them; they are using these methods to try to find the best way to measure the customer satisfaction. CSM can be a good management information system in order to get a reliable way to measure customer satisfaction. CSM is also important because it includes many other features that SERVQUAL doesn’t have. According to our findings the case company is using some features of the CSM management system such as:

- Brainstorming inside the company, to try to make new ideas, projects and systems that may work to measure the satisfaction in different sizes and homogenous people.

- The attributes like delivery, costs, shipping, courtesy, tracking system, etc; that may happen and which of them are not relevant.

- The way they measure is probably not the best for the customer, some questionnaires could be too long, some phone calls will take a long time or either the customers don't have time to answer or simply they don't want to answer. The most common problem, according to our contact person, is that the individual customers don't have time or they don't want to answer either the phone call or the questionnaire. This involves questions about the service, the frequency they used their service, if they are satisfied, if they are planning to use the service again, etc.

- A major problem that our contact person told us about was the different ways to measure customer satisfaction that they were implementing before. They have tried using different scales from numeric scales, verbal scale, and binary. Nowadays they are using the numeric scale for all their questionnaires and reports. Unfortunately those reports were not available for this project. Based on these results they make a decision about where they have to improve.

- CSM is helping them to segment the customers but they have a huge problem with that. They have small companies, medium companies and large ones like Volvo or Saab. They also have small customers like the people that want to deliver a package from any part of the world. All of them are different: mentality, expectations, needs, requirements, age, etc.

So it's quite difficult to have a right perspective of how to measure all these homogeneous groups. Our contact explained to us, that they were using phone calls, but it was difficult to call all of them and to reach them. On the other hand, giving a questionnaire upon delivery was difficult as well because sometimes they weren't at home, some other times they were not able to answer it and some other times the employees forgot to give them the questionnaire.

- After they get some questionnaires they analyze the results and try to improve the service. They place the most important attributes in a list like service, tracking system, delivery time, availability, etc, in order to find the gaps and the problems that they are having. Sometimes it is difficult for them because the attributes are not placed well or in the right position or either the questions are not the ones that they want to analyze. Mostly all the questionnaires were from 10 to 25 questions, in which aspects like shipping, cost, loyalty, problems regarding tracking, etc. were placed and described. So far, no good results were presented in this type of customer satisfaction. Regarding the phone calls, they are experiencing the same problems, more than 40% of the customers don't answer the questionnaire or they don't have time.

- The last step that they are using is implementing a tracking system in which they can track the packages. This is so important for mostly the people between 15 to 50 years old which are the customers that can use the service in a faster way.

Talking with our contact person he explained that the customer feedback is the most important input for the company to deliver a good quality in the service. Feedback shows where the company is going and what the main challenges are that need to be faced. Using this help allows them to improve customer loyalty, reduction of service failures, lower operating costs and re work and improved employee performance. Another important aspect mentioned by our contact person was that using several different tools to improve the customer satisfaction measurement makes things difficult. The more tools that are used, the more difficult it gets.

4.7 Supply Chain Management

The process and performance management are essential elements of every modern supply chain. We take a structured approach to process improvement, IT enhancement, customer implementations, and training and employee engagement with the objective of continuously improving performance, increasing customer satisfaction and generating efficiencies. The figure above provided by our contact person shows how the case company works in some easy steps:

1. When they place the order all the supply chain management start planning, which transportation they will use, which warehouse they will send to, which tracking number they will use, etc. Information about the shipping address is important and the complete name of the people receiving the package is also important.
2. In order to send the product,, they use specific transportation depending on the size, weight and height of the package. Once it comes to a storage place, some other type of transport (or the same) is used. If the package needs special care it will be sent by another transportation system; including a high cost.
3. Once the product has arrived to a local destination they send it to a distribution center in which they are scanned, therefore updating the system with the tracking number. In this phase the details about the shipping are more specific. The package is then sent to the small retailer closest to the shipping address.
4. Now that the product is in the retailers a transport decision is made, of which transportation system they will use and so on. The main purpose of this step is to deliver the product in the best way possible. Once the product is delivered to the customer, they come back to the service center and here is where they give the feedback from the customer.

This system is based on a small customer. This is an example of a normal person sending a package from one country to another. We can assume that the package is going from one continent to another. See figure 6.

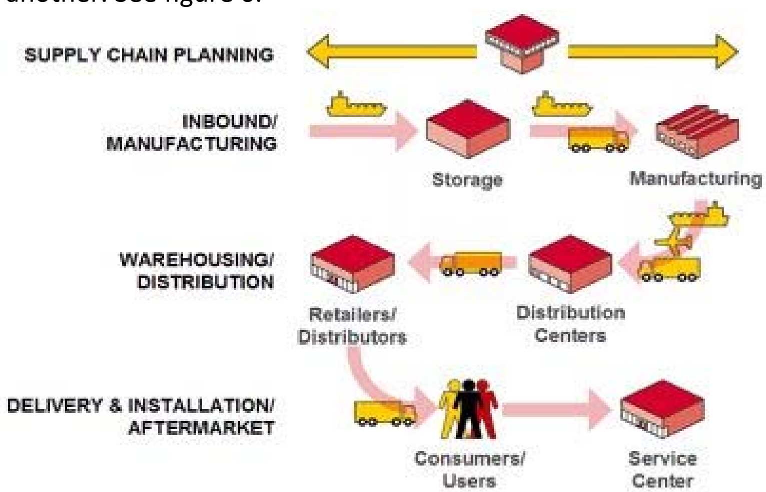

Figure 6 How the case company works. Source: their web-site

4.8 Customer requirements and Service characteristics

As we know and said before our case company is an important worldwide service shuttling enterprise. In the beginning our contact explained to us that them are always trying to focus on the client. He states that in a global business world competence is the most important aspect. “Nowadays customers are more likely to change from one supplier to another in order to get better service and more courtesy. In order to obtain and retain the customers, we focus on determining what the clients want and value in order to provide it for them. We have been improving its service through a few steps and these steps are simply listening to their customers”. We asked him how they accomplished that. And the answer was that them translates all the customers’ feedback and they just align all their processes depending on the customers’ needs. This technique they are using is called QFD (Quality Function Deployment). Using this technique they are trying to improve the preventive actions instead of corrective actions. The main aspects of this are the:

-Customer Requirements

-Competitive Comparison (strengths and weaknesses)

-Service Characteristics (relationships between the WHATs and the HOWs)

-Correlation Matrix

-Importance Ratings

-Analysis

Our company contact explained to us that the structure of the company is based on functions. That means that the functional activities come together and they become independent entities. The main departments in the company are marketing, logistics, finance, human resources, production and the system department. All these departments are correlated together in order to have a better quality of service. Talking about quality in the case company is differing from two different types of it. The first one is the technical and the second one is the functional. The technical quality means “the material content of the buyer-seller interaction, or what the customer receives.”

The service shuttling dimension of the case company that falls more closely with the technical aspect of quality is the competence. This aspect is very important and it’s connected directly to the QFD because it involves all aspects like competitive comparison, technical characteristics, etc. As our contact explained to us QFD helped them a lot to prevent corrective actions, one of these actions is to find the way to be the leaders and avoid the competitor. Nowadays competence is a very important aspect. Regarding competence, the main competitors were identified, but our case company has more than 60% of the market. The customers are diversified, and homogenous; they can be important and large enterprises, internet sellers or just normal persons that want their package in another place. Competence at the present time is becoming more difficult for every company, is just simple as if the product is not on time or if the product suffers damage; the customer will try with another company and if that company makes them pleased they will trust that company immediately.

When the customers start to lose the loyalty with their supplier is when the customer service plays an important role. Our contact said that more than the 60% of their work is to have a great customer service; he said that the problem is not delivering the product on time. The problem is to give the best service including shipping, time, costs, etc. The company is one of the few companies that deliver the product until the final customer. This is what they are going to make as many as visits needed to the shipping address in order to deliver the product. Customer service is what makes this company more profitable, he explains. This is when customer service became a functionally quality aspect. This aspect involves the process of how the customer receives the service.

Examples of functional quality, includes the quality of carry/customer interaction. Accessibility of shipping information is very important to the customers that want to track their product. The company group defines functional quality as the customers' perceptions of service received relative to their expectations of what service should be. While there is some ease in differentiating technical and functional aspects of quality, there is difficulty integrating the measurement of these concepts.

5. Analysis

This chapter will apply the methods described in the theory, evaluating the empirical findings described in the previous chapter.

5.1 How the case company works with continuous improvement.

In a service company the service provided could be the key to success or the reason for failure. Customers are the judges for these kinds of companies. It doesn't matter if it's a long term or short term relationship. Recommending the company by using word of mouth will be the best marketing strategy and the best way to gain a firm's credibility. The service provided goes beyond the customer's expectations and needs; it has to fulfill all those expectations and needs and give them the confidence to come back and become loyal customers. The attributes that they are using to accomplish these service is the efficacy, effectiveness, efficiency, optimality, acceptability, legitimacy and equity.

As we said before there are two main obstacles for continuous improvement regarding the staff of the company. The first one occurs when they do not completely understand the business and they don't see the importance of their work for the final quality of service to the end customer. The second occurs when their motivation and commitment are diminished and the quality of their work suffers. Based on the empirical evidence we can state that the staff has a great knowledge of the business and they are advised about the importance of the final quality of service. The managers are also motivated to improve the quality and they are convinced that continuous improvement will bring success.

In this case they are working with seven attributes that have been improved throughout the years and so far have been working for them in a right way. All these benefits involve many aspects that cover the system, employees, goals, customer expectations and needs. The attributes help the case company to bring a good and well recognized service. Comparing to the Figure 1 on page 14 (The customer service chart) to the attributes mentioned before; in the post transaction elements, Efficacy is involved with customer satisfaction; aspects like adjustments and returns are helpful to measure the flexibility of the system. Regarding the transaction elements in the same figure, Effectiveness might be related to the shipment delays, order status, order tracking and shipment shortages. The last one, pre transaction elements may well be connected to the Efficiency of the service provided as mark the delivery dates and avoid delays. In these services provided by the company, some aspects are related to each other and those are the keys that make the service better.

5.1.1 TQM

According to Scherkenbach (1986) Total quality management, referred as TQM, is basically a business philosophy founded on customer satisfaction and based on the empirical evidence it is obvious that our case company is focused on the customer. TQM is not a tool for measuring the customer satisfaction or the quality of service, TQM is one of the best methods for improving the quality, because this philosophy establishes a continuous improvement system.

In the same concept Bergman (2003) defines TQM as: *"a constant endeavor to fulfill, and preferably exceed, customer needs and expectations at the lowest cost, by continuous improvement work, to which all involved are committed, focusing on the processes in the organization".* Both definitions are correct according to the empirical evidence gathered during our visits at the company. Everything is based on fulfilling and exceeding customer needs and expectations while at the same time providing a good quality of service.

On the other hand, the service approach according to Edvardsson and Thomasson (1993) fits very well with the approach that the company gives:

-Increase quality in all processes.
-Quality is a business strategy.
-They use a *Strategic planning* and a *Quality Assurance Systems* to learn from the errors and improve the system.
-Increase productivity.
-Minimize break downs.
-There is a purpose for improving products and services: Continuous improvements and self improvement.
-Minimize total costs.
-Zero defects.

TQM for services depends on and creates a culture in an organization which involves everybody in quality improvement (Edvardsson and Thomasson, 1993). According to the empirical findings, they use specific techniques that help them in this task. They said they use some *Statistical Process Control (SPC)* that allows the personnel to have tools that help them to find some problems in a graphical or numerical way. *Work in Teams* attempts to give different points of views and different thoughts about any situation or problem. Also these teams make possible that all the workers realize about the importance of the TQM and quality improvement. They have a *Training* program to improve the workers' skills. This training program includes group dynamics, interpersonal communication skills and problem solving tools so they are more capable of applying the TQM philosophy properly. The last technique used by the company is *Quality Assurance Systems*; a system which aims to prevent problems and errors from occurring. This system is the key of the TQM, it tries to focus on quality assurance during the whole process, since the order is placed, until is shipped. This system inspects for errors after the service is done.

5.1.2 Six Sigma

They use some parts of the Six Sigma Methodology like another tool of quality improvement focus on the customer. Even if Six Sigma was developed for manufacturing process, the case company obtains good results from it, they estimate that the profit increased and also the quality of service.

Particularly, the company adopts the DMAIC method for team-based process improvement that sits at the heart of Six Sigma. This one it's one of the standard methods that the Six Sigma offers. We can believe that they use it in a proper way because as a far as we know, they have well defined the five steps and we can trust them when they say that they perform the actions and the improving performance.

5.2 SERVQUAL in the case company

Based on the empirical findings and the theory we saw that the company has many problems relating to the customer satisfaction measurement. First of all they are trying to use different approaches to take the best benefit of most of them, this means that they are trying to get different attributes from different tools and trying to gain more knowledge about quality and quality of service. About the quality of service aspect, they are using TQM and Six Sigma to gather information of their clients, markets, etc, in order to have a better quality system.

On one hand, measuring customer satisfaction (the main target of this thesis) has been a problem to measure. Several techniques were developed and tested in order to get a better way to measure the customer satisfaction. The main tools used are the SERVQUAL, CSM, QFD and some commitments are used as well.

On the other hand several other tools are used to measure the customer satisfaction; one of these tools is SERVQUAL. The theoretical results indicated that gaps in service quality existed because departments placed efficiency above internal customer needs and expectations and made little effort to understand internal customer requirements. At the company, the perspective about internal customer requirements is not a gap, it is just a problem to measure the customer satisfaction. They are making a good effort to understand the internal customer requirements and expectations and the factors that they are more concerned about.

In order to try to fulfill all these expectations Zeithaml (1990) and Stamatis (1996) came with 7 commitments. As we saw in our visits to the company, the commitments that match with the ones presented by Zeithaml are *Tangibles, Reliability, Responsiveness, Assurance and Empathy*. All these commitments are used in a correct way according to Zeithaml. This means that the approach that they are taking from these aspects is what Zeithaml recommends. These commitments are represented by them.

There are another 2 commitments suggested by Stamatis which are *Competition* and *Management Leadership* that are not used directly by them. Competition as we all know is to assess what they are doing, the service they are provided, the cost, their customers, etc. Going through some talks, our contact person told us that they are not assessing the competitors. They can probably take the service once or twice and then check how they manage to deliver the package, but besides that they are not assessing other companies to improve their method, and this is just because they are different companies with different customers, providers, etc.

The other aspect referred by Stamatis was *Management Leadership*; this aspect of course is inside the case company, but not as a commitment that the customers should see in order to take the service because of their management leadership. They are not considering that it has to be a leader to make the people work and progress, they think that it is a flat company in which all the people have their own responsibility, tasks, goals and all of them together have the same mission and scope; and everyone can motivate each other.

Instead of using these two commitments, they are using what they call *Firm's Credibility*, in which they are trying to make the people believe in the company. This is a trustworthy, honest and believable company in which the customer can feel secure. To make this more clear Young and Varble (1997) assessed internal service quality within a purchasing context by applying the original SERVQUAL instrument to obtain feedback from its internal customers. This may help them to know what the customer thinks, expect and rely on from the company and their service.

All of the authors before, including Edvardsson and Thomasson (1993) proposed that SERVQUAL could be utilized to measure internal service quality. But nowadays they are using the SERVQUAL approach combined with some other tools, not of all these tools are used as a complete methodology to follow on. The reason is that many aspects may differ from one tool to another.

5.3 CSM (Customer Satisfaction Measurement) in Quality of Service

Regarding how they measure the customer satisfaction, it is important to know that feedback is the vital aspect that makes all this work. Many factors can be described for the company to be measured. Many of these factors can be useless or some of them cannot help to measure the customer satisfaction. Customer satisfaction can be measured with the tools and the factor to evaluate the appropriate ones. For instance every company expects that their customers will come back to them because they were satisfied with the service; this will be a result of a logical thought after giving a good quality of service, measure the customer satisfaction may vary this thought. It is not only the service given that will make the customer come back but there are also a few more aspects that may change the customers' satisfaction and come back. One of these aspects is the tracking system for instance, people don't want to go to the company supplier and find out that their product is not yet there. In order to gather the best factors to measure the customer satisfaction they have used several techniques to improve the way to measure and to fulfill customer needs and requirements.

According to Piercy, N. (1996) many executives try to avoid measuring customer satisfaction. This is not the case of our case company. They agree that collecting data is difficult but they believe in the usefulness of this approach. Because they believe in the usefulness and the importance of measuring customer satisfaction, the methods suggested in this paper will be valuable to the company and it will be easy to implement the necessary changes with the support of the managers.

In the difficult task of measuring the customer satisfaction, they are using SERVQUAL to get the best factors to measure and the best attributes they want in the service. They are also using QFD as a tool to help them to improve the quality of service because it mainly focus in the customer needs and expectations. Companies are trying to retain customers and they are trying to make them loyal. Chakrapani (1998) explains that measuring the wrong factors and measuring the wrong way are the most common problems of trying to measure the customer satisfaction. According to our contact person, they have several gaps in measuring the customer satisfaction. Some of these gaps are the result of the case company's employees not performing the necessary steps to receive the information or sometimes because the customers don't want to cooperate. Finding the right way to measure the customer satisfaction is important because they want to know what customers think, what they want and what they expect from the service. In order to start with the right methodology they want to have a small background of what the customer wants in general. So some other factors will be changed and some of them will be redefined.

Chakrapani (1998) starts his methodology that includes ten steps with gathering background information as the first start to measure customer satisfaction and finish with creating a tracking system. The company works with some of these steps as we said before, they gather background information based on the customer behavior from the last years and they implement a tracking system. It can be inferred that they are working as Chakrapani says, but in the middle steps is where changes occur. Attributes may change the same as the customer behavior, different ways to measure the customer satisfaction, etc. Comparing the steps with the information gathered, they applied brainstorming, surveys and phone calls as the main tools used for measuring customer satisfaction. The problems related to the way of measuring are different and they are mainly because the factors they measure are not well clarified and the different scales they use are not the appropriate ones. One of the problems that we found is how to measure a target group that may vary from size and persons. It includes homogenous people, different size companies and different scales using to measure them. The ten steps formulated by Chakrapani (1998) include some features like segmenting the customers, choosing the right metric, interpreting the measures correctly, choosing the right attributes to measure and gathering background data. Some of these steps are used by them but some of them are not part of their methodology, the reason why they don't implement all the steps can be a lack of knowledge about the methodology or a lack of necessary information to fill all the steps. This last reason looks like the most plausible due to the fact that it can be a difficult to gather all this data without a good methodology.

5.4 Supply chain management

Comparing the empirical findings with the theory we can see that them are working in a very easy and comfortable way that makes the logistics easier. The linkage that they have with other suppliers is almost nothing because they have their own airplanes, boat, cars, trucks, etc. Comparing to other companies they have their own warehousing, distribution centers and transportation as we say before. As Bowersox (1996) says about how a company can be recognized, in this case our case company can be associated with its warehouse- based and customer-based strategy. This is because, as we know, the company is a warehouse and customer based company mainly. It is probably more customer-based than warehouse, but depending on the company and in the package is when the company becomes a warehousing based enterprise.

As we saw in the figure related to the supply chain management, they work in a flat way within the fewer suppliers in order to avoid delays and hiding external suppliers. Unfortunately not many details about suppliers were gathered but the way that they work has been the most reliable way until now. According to Christopher (1998) the focus of the supply chain management is on cooperation and trust; this is a good mentality took by them about their suppliers, clients and workers inside and outside the company.

5.5 QFD Analysis in the case company

One of the tools that they are using is the QFD, this one is based on focusing on the client. The main reason of using this tool is to improve their preventive actions instead of corrective actions. For example; they prefer to develop a tracking system that can be updated easily and invest in new servers, than made a new tracking system and suddenly it will be useless if something happened to the old servers. The main advantage of using this technique in the case company is the linkage between customer needs and the development of service features and specifications. As we have seen through our visits, it is important to have the right link between the customer needs (what they want, what they need, from where they need it, etc) and the development of the service (why the service is good, why it is not). This is what they call the relationships between the WHATs and the HOWs. Both play the aspect of competitive comparison; in this phase the strengths and weaknesses are found in order to avoid re work and corrective actions. These WHATs and HOWs are useful to get a perspective of what does the customer wants and what does the company can bring them. They are using the house of quality as the last step of QFD to plan, detailed information and a better service development environment. Combining QFD and SERVQUAL for the case company may increase the aspects and the factors to analyze to improve the customer satisfaction.

The following QFD Analysis is performed according with the theory described and based on the empirical findings gathered.

STEP 1 Customer Requirements (WHATS)

The following Customer Needs were identified based on critical observation described on the Empirical Findings and discussed and agreed with the company.

Efficacy: The company is trying to use in a correct way all the resources available and perform the shipping.

Effectiveness: The company uses an advanced delivery system combined with advanced IT technology.

Efficiency: The cost of the service is reduced to the minimum.

Availability: The service is available world-wide.

Acceptability: Well recognized brand.

Equity: Large customer obtains good trades and negotiations. Also small customers can obtain special offers.

Accessibility of shipping information: The customer can have access to the tracking system information.

Delivery times: The customer agrees with the times that the company will deliver the package.

Courtesy: The relation between personnel and customer is warm and the customer feels pleased with them.

STEP 2 Competitive Comparison

These are the current and likely future strengths and weaknesses in order to identify threats and opportunities. Graph SWOT. See figure 7.

Competitive offering: the main competitors were identified. They are also worldwide Express Logistics companies with a similar origin.

They all offer a similar service: express, Freight Services, storage, business solutions, tracking system, on-line booking, tools for estimate price and time. About the tracking system, they offer plenty of similar alternatives, from web-based to SMS or telephone. Also they offer several software applications for tools, like booking, estimating cost and time. Perhaps the other companies are very focused on offer accounts since this is the first step you make.

- Strengths: Great experience, large logistic network over several countries
- Opportunities: Good share of market, contracts with big companies e.g. Volvo
- Threats: Diversity of customers, increasing number of competitors
- Weaknesses: Difficult to measure the customer satisfaction, unknown the right expectation

Figure 7. SWOT Chart

STEP 3 Service Characteristics (HOW)

This is the list of service characteristics that according with the company will take in account:

-Picking up
-Shipping
-Flexibility in the system
-Storage
-Delivering
-Offices and sell points
-Web Customer Center
-Tracking System
-Software tools

STEP 4 Correlation Matrix

According the empirical findings, critical observations and discussions with the company we agree with some relationships among the Customer Expectations and the Technical Characteristics. We establish three levels or relationships: Weak, Moderate and Strong; with the values 1, 3 and 9 respectively. We also identified the correlations between the Technical Characteristics and classified them among strong positive, positive, negative and strong negative. See Appendix I - House of Service Quality.

STEP 5 Importance Ratings

Based on our analysis, house of Quality Service (See Appendix I) we can observe some results about where the company should put more effort. According to the weight/importance, the most sensitive Quality Characteristics are:

In first place: The shipping: It can seem obvious but the analysis confirms that.

In second place: Delivering is pointed as a very sensitive part of the process

Third and forth places: The tracking system and flexibility in the system. These characteristics add a very important value to the service and they should be taken in account.

6^{th} and 7^{th} places: Offices and sell points and Web Customer Center. These are the important meeting point with the customer together with the delivering and the picking up. The relationship with the customer uses to start through an office, sell point or web page and during the process the customers only have contact through the Customer center, via web or via office.

6. Results

This chapter explains the results obtained in this paper, they are based on our analysis therefore they are connected with the theory and empirical findings.

After several visits to the company, interviews, and gathering of information; we have a wide perspective of how the case company is trying to measure the customer satisfaction in order to improve the quality of service, and the tools that they are using to accomplish their purpose. Their main target is to measure and analyze their customer behavior, expectations and needs in order to gain a better perspective of the provided service. For this, we tried to mix our knowledge, company information and our observations done during the company visits in order to have a better understanding of what they want.

The company continuous improvement is based on the seven attributes mentioned in chapter five (efficacy, effectiveness, efficiency, optimality, acceptability, legitimacy and equity). These attributes are helping them with the current work structure to cover system aspects and updates, employees' expectations, company goals and customer expectations and needs. With these well established attributes, they are avoiding obstacles like lack of quality in work and the lack of the business idea. The business idea is based on TQM philosophy founded on customer satisfaction, and in a tool of quality improvement DMAIC, better known as Six Sigma methodology.

The earliest result that we obtained is that they are applying the TQM philosophy and the Six Sigma methodology effectively; due to their focus on the service of the customer, their needs and expectations. All the employees are aware of the errors and the quality improvement and they have a *Quality Assurance Systems* to report the errors and learn from them, for example. Based on our analysis we can state that the company is using these two methods properly in a continuous improvement environment. We consider that they are capable (based on their resources) of improving their quality of service. However these methods don't provide any information about the current quality or the customer satisfaction. In regards to the empirical findings and the theory gathered, it is difficult to have the TQM principle and a Six Sigma methodology as a part of measuring the customer satisfaction. Some factors that involve other techniques will be the appropriate ones to have the right methodology to measure the customer satisfaction.

CSM is an approach barely used by them. This means that they are not using the complete methodology, but rather just some steps they are taking into consideration. The ones used by them are gathering background data and the tracking system, for example. Even when they are using these steps the information is not enough and must be clarified in order to analyze the customers and how to measure the customers' satisfaction. For instance, one of the steps mentioned in CSM and not applied by the company is the problem of having heterogeneous customers; for example by segmenting the customers will provide the best result and with this they will avoid having mixed group of customers. Finding the right scale and the right way to measure the customer satisfaction has been a problem for them. Based on our analysis we think that once they find how to use the complete methodology, they will be able to measure the customer satisfaction and they will have the right way to scale the surveys; or how to get the right feedback from the phone calls.

In order to measure the customer satisfaction, the case company is using different approaches with different scales. The main method that they are using is SERVQUAL. This is a good method to find and measure the potential gaps in the internal service quality. The commitments that they are using in the SERVQUAL method are: tangibles, reliability, responsiveness, assurance and empathy. Based on our analysis, the main gap that they have is that they actually don't know at what level the customer expectations and needs are fulfilled. Nevertheless, our case company has clearly identified the customer requirements and expectations and the right attributes to be measured.

In our analysis QFD is a tool used to link the customer needs and the service characteristics, it relates the What's and the How's, in other words, QFD says which service characteristics should be improved to satisfy better the customer. The result obtained from the QFD analysis is that the most influential service characteristic in the customer satisfaction is the Shipping, followed by the delivering. These results should be taken in consideration by the company in order to improve the process, therefore improving the customer satisfaction.

The combination of SERVQUAL and QFD gives them a lot of new information. SERVQUAL gives them the measurement of the quality of service, the customer satisfaction, the attributes, needs and expectations. The other, QFD, based on the customer needs identified previously by SERVQUAL, gives the information about the service characteristics that they should improve because some of them are most influential in the customer satisfaction.

7. Conclusions

This chapter answers our problem formulation

Which tools should be combined to measure the customer satisfaction in a service company in order to improve the Quality of Service?

SERVQUAL and QFD should be combined to get different perspectives about the customer behavior, segmentation and homogeneity; factors to measure in the customer satisfaction and in the service quality, and different approaches of how a service company can measure the customer satisfaction. We believe and state that, based on the theoretical background described, the empirical findings gathered and the later analysis, these tools combined offer a new very interesting point of view. They present the customer satisfaction and the factors that customers find more relevant to improve the quality of service. SERVQUAL gives this measurement and good knowledge about the Quality of Service and the attributes, customer needs and expectations, after QFD provides the relation between these needs and the service characteristic that result in an accurate list of points to improve upon. Combining the best of each tool it becomes easier to retrieve the necessary information and then applying all the information gathered into a method to measure the customer satisfaction. By implementing the right scale, the right group selection and the right tools to combine customer satisfaction it will be easier to measure and later on in the methodology CSM can work as a parameter to improve the quality of service.

This approach that we presented has several benefits for the company. Both methods are always focused on the customer and they work well in their areas. Together they provide a powerful tool that not only is going to tell if the customer is satisfied or not, but also how good the quality of the service is and how well the company works. Aside from that, it is telling us where we should act to improve the quality of service and therefore the customer satisfaction.

8. Recommendation

Based in the results, the theory and the empirical findings gathered, some recommendations are placed.

Based on the interviews and observations during our company visits, our recommendations will focus on which method should be use to measure the customer satisfaction and the tools that should be combined. We defined method as the tool that may help them to have the data in scales; this can be surveys or phone calls. We recommend that they use phone calls for medium and large companies, and surveys for single customers. The single customer will have a survey that will be delivered immediately when they receive the package, even more the delivery tracking system will include some on-line surveys even though the product hasn't arrived. With these and with the combination of the SERVQUAL and the QFD, it will be a reliable way for them to accomplish the CSM methodology proposed by Chakrapani, and fulfill all the expectations from the people inside and outside the company.

We also recommend following the reinforce loop. See figure 8.

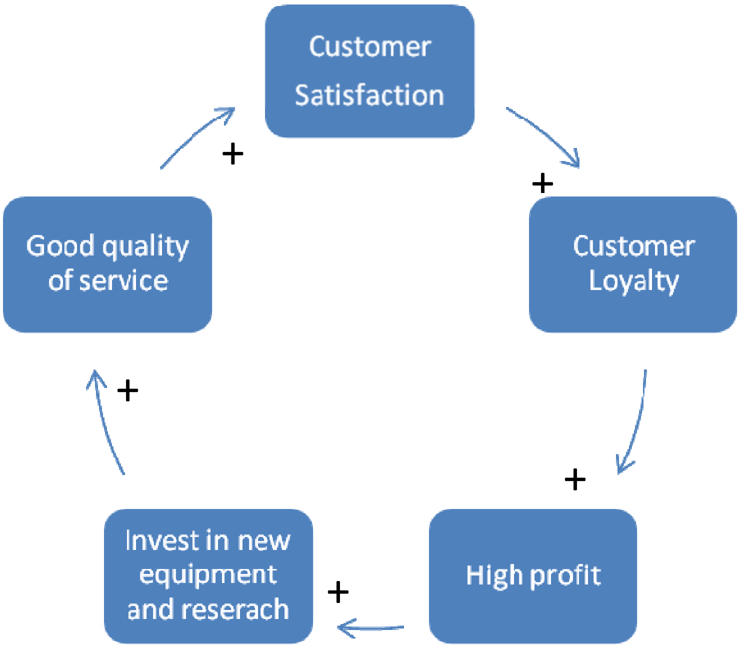

Figure 8. Reinforce loop.

Represented in this loop are customer satisfactions, customer loyalty, high profit, investment in new equipment and research and good quality of service. The reinforcement loop works like this: if they have more customer satisfaction they will gain more loyal customers, either the more loyal customers more profit will be expected because more people will use the service. Having high profit should be expected and this will be sourced to invest, improve salaries, machinery, etc; and it will rise into better working conditions. So if the case company has good working conditions they will have a good quality of service that will result in better customer satisfaction. The loop looks to be easy but if they are not measuring the customer satisfaction according to our recommendations it will be difficult for them to have a high profit, customer loyalty, etc.

8.1 Future Work

To develop a better understanding of how to measure the customer satisfaction, the implementation of this case study will help our service company to measure the customer satisfaction. Surveys to single customers and phone calls to the big and medium companies will be useful to prove that the customer segmentation and the combination of the tools are trustworthy. Different perspectives of the service should be measured in order to gather information to understand the customer behavior, for these several techniques will be suited as customer behavior in service operations for example.

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Title: QFD model in the case company

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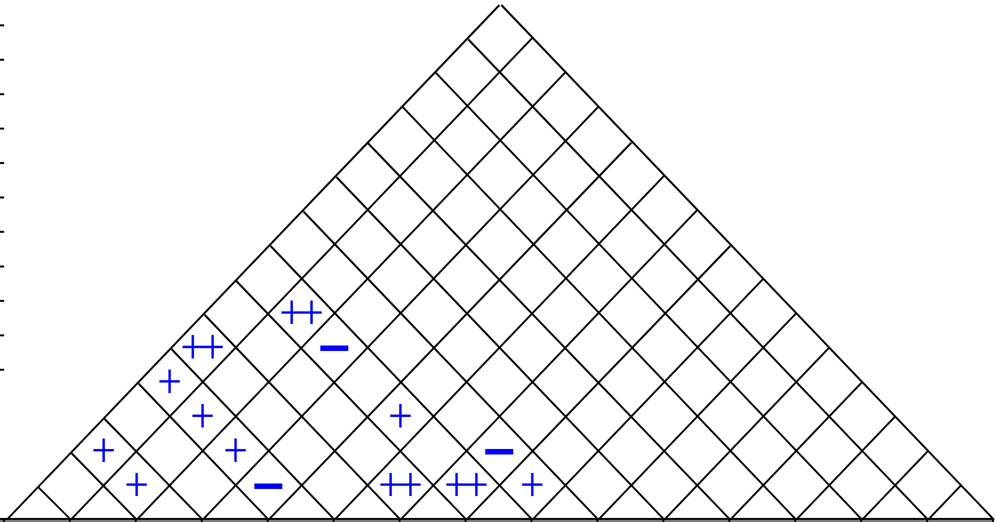
Date: 25/03/2008

Notes:



				Column #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				Direction of Improvement: Minimize (▼), Maximize (▲), or Target (x)	▲	x	▲	▲	x	▼	▲	x	▲						
Row #	**Max Relationship Value in Row**	**Relative Weight**	**Weight / Importance**	**Quality Characteristics** (a.k.a. "Functional Requirements" or "Hows") / **Demanded Quality** (a.k.a. "Customer Requirements" or "Whats")	Picking up	Shipping	Flexibility in the system	Storage	Delivering	Offices and sell points	Web Customer Center	Tracking System	Software tools						
1	9	15,2	5,0	Efficacy	▲	Θ	▲	▲	O										
2	9	9,1	3,0	Effectiveness		Θ	O		O			Θ							
3	9	12,1	4,0	Efficiency	▲	Θ	O	O	Θ	▲		▲							
4	9	12,1	4,0	Availability	▲		Θ		▲	O									
5	3	6,1	2,0	Acceptability						O	O								
6	3	6,1	2,0	Equity						O	O		O						
7	9	12,1	4,0	Accessibility of shipping information							O	Θ	▲						
8	9	15,2	5,0	Delivery times		O	▲		Θ			▲							
9	9	12,1	4,0	Courtesy	O				O	Θ	Θ								
10																			
				Target or Limit Value															
				Difficulty (0=Easy to Accomplish, 10=Extremely Difficult)	5	5	8	3	6	2	4	3	5						
				Max Relationship Value in Column	3	9	9	3	9	9	9	9	3						
				Weight / Importance	75,8	372,7	203,0	51,5	366,7	193,9	181,8	218,2	30,3						
				Relative Weight	4,5	22,0	12,0	3,0	21,6	11,4	10,7	12,9	1,8						

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