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Tijs-ICT

Continuously Improving Customer Satisfaction in an ICT PSF

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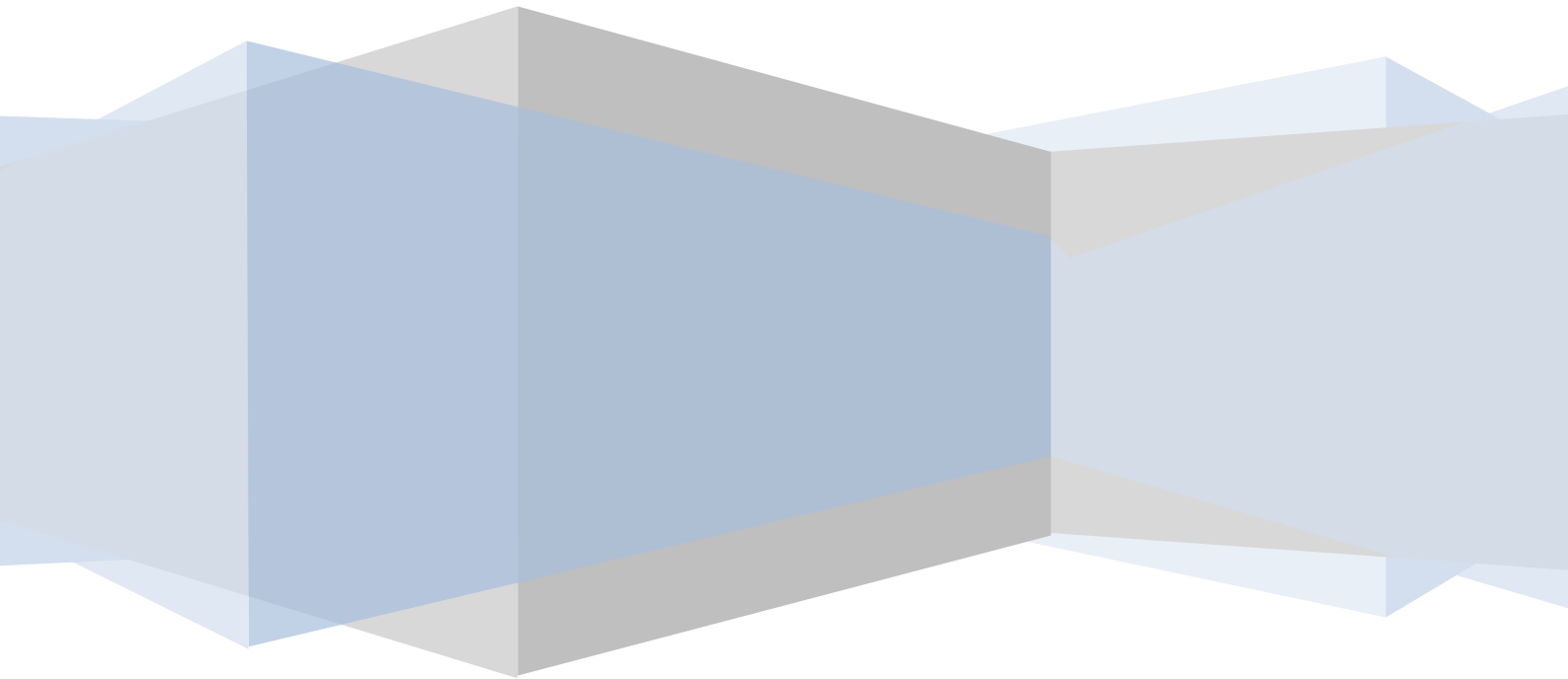

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Preface

"Quality is, if customers come back and not the products" (Müller, 1991)

These words, that are part of a former motto by Siemens Medicine Division (see Annual Report, 1988), represent how important customers are to service firms. The topic of this report is how to continuously improve customer satisfaction. For firms that are service providers it is important that its customers are satisfied and stay customers. Customer satisfaction is of paramount importance and when customers are satisfied it is an indication of quality service. I have chosen to write my master thesis about this subject, because I was interested in how (professional) service firms can improve its customer satisfaction.

This master thesis is done in order to receive the title 'Master of Science (MSc) in Business Administration' in the track Service Management, at the University of Twente. A customer satisfaction research has been carried out at an ICT firm that is operating in the Netherlands. However, on request the real business name of this ICT firm is exchanged with the fictitious business name: Tijs-ICT.

The graduation is the last phase of my study and it was a great experience for me to see how a service firm treats its customers and tries to meet their expectations.

I would not be able to finish my study without the support, help and feedback that I have received in doing this project. Thank you all! I want to thank: my supervisors from the University of Twente, Prof. Dr. Carla Millar and Dr. Michel Ehrenhard. When having difficulties in my project, you always helped me out. I also want to thank all employees of Tijs-ICT that supported me and especially my supervisor. I had a great time in your organization and I have learned a lot. Thank you for your time and for everything you wanted to share with me.

I want also to thank my family for your support and confidence in me. Especially I want to thank my parents who made me able to study, gived me motivation and being always there for me to give advice.

Tijs Keuper

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Management summary

In order to be competitive, service-oriented firms need to continuously improve their business. In this paper it is recommended to compete on superior customer value delivery. An essential question is: According to the customer what can we improve in our business to better meet their expectations? Especially in service-oriented organizations, customer satisfaction often has high priority, because customers participate in the service production process. Each service is a unique effort of an interaction process between the service provider and the customer. Therefore it is important to focus on customer expectations.

Intended as a practical case, a **customer satisfaction research** was carried out at Tijs-ICT operating as an ICT Professional Service Firm (B2B). By putting the voice of the customer into numerical scores, the customer satisfaction was mapped in a concrete way. In combination with adding some open questions as well, opportunities for improvement and priorities were identified. This customer survey helps to increase the satisfaction and with the results and feedback the service quality can be further optimized towards the point the customer expects. The formulated **Research Question** is:

How to continuously improve customer satisfaction in an ICT PSF?

It is investigated which measurement instrument could be used for this customer satisfaction research. The IT consulting SERVQUAL matched best with the context of Tijs-ICT. This model was especially designed by Yoon & Suh (2004) for service firms operating B2B in the field of IT, but it was necessary to make minor adjustments to the original instrument to align with the context of Tijs-ICT and make the tool more effective. This quantitative method has mapped in what degree customers are satisfied about their 'perceived service'. The instrument consists of scales/constructs (*reliability, assurance, responsiveness, process, price and satisfaction*) that have a strong correlation with 'customer satisfaction' and 'service quality'. The scales/dimensions are divided into items and these items directly represent the questions that were asked to the customers. The customers could assess the items by indicating to what extent they are satisfied with a particular item on a 5 point scale. With the instrument the customers view could be identified in a reliable and valid way.

Next to the questions from the instrument a few more closed and open questions were asked. For instance: what customers suggest to improve immediately in the services they purchase.

Measurements in this study were divided over different departments: Sales, Project Management and Tijs-ICT (in general). This decision was made because the goal was to formulate action plans as specific as possible and as a consequence each department will get its own results.

The most important results are:

- The overall satisfaction grade assigned to Project Management and Sales is a 7.5 (on a 10 point scale). For Tijs-ICT (in general) a 3.88 is scored on a 5 point scale. This grade is close to a '4', what means that customers are satisfied. Overall, customers were satisfied with the perceived services by Tijs-ICT. Most customers were neutral or satisfied about the ´price´ of Tijs-ICT.
- Priorities have been identified. Sales should pay more attention to the observance of appointments and deadlines. Many customers think that a more rapid succession of bids/orders should be possible. The *communication and feedback*, during customer contacts and *the communication about tasks to be performed* should be improved. Besides employees did not take care of informing the customer at any time.
- Project Management should pay more attention to the schedule/time plan. PM is not always consistent in the communication and should take care of informing the customer at any time.

The most important implications are:

- In order to accelerate the duration of bids/orders, the persons concerned must come together to determine whether this is possible. If this appears to be organisationally impossible, the salesmen must be made clear that they should not promise a deadline that is too tight. In advance it should be made clear to the customer why he may have to wait several days. Manage expectations.
- Employees have to be made aware that they should be more consistent in (proactively) informing their customers. Tijs-ICT could use an Information System for support.
- In this research a zero measurement has been carried out, be sure that the next measure is done exactly in the same way, so that a clear comparison is possible. When conducting the second measurement, be sure to evaluate the effectiveness of the action plans made between the first and second customers satisfaction research.
- Management must set a goal which grades and scores they want to achieve within the next years.
- Individual customers who scored lower than the average are a direct trigger for Tijs-ICT. Tijs-ICT should contact these customers to discuss and improve the situation and improve customer satisfaction. Tijs-ICT should be open to learning from them.
- Tijs-ICT should estimate the value and usability of the collected knowledge with each other and determine the feasibility for improvement in their business. It is important that employees involved will be informed about the most important results and that there is commitment so that employees will act according to established plans. Tijs-ICT should have the attitude to learn from evaluations. In the long run they should monitor and compare the outcomes of each new customer satisfaction research.

Chapter 1: Introduction

1.1 Relevance

Two studies by Homburg, Koschate & Hoyer (2005) reveal the existence of a strong, positive impact of *customer satisfaction* on *willingness to pay*. Loyal customers generate increasingly more profits each year they stay with a firm (Reichheld & Sasser, 1990). These two facts point out the importance of paying attention to customers and keeping them satisfied.

In order to be competitive, (service-oriented) firms need to continuously improve their business. The next major source for competitive advantage according to Woodruff (1997) will probably come from more outward orientation to customers, to compete on superior customer value delivery. The focus should be on whether customers are satisfied (enough) about their perceived services. Relevant questions are: How do customers see us? Are they satisfied with our delivered service? According to the customer what can we improve in our business process to better meet their expectations?

In short, the two main themes of this paper were mentioned above: (1) customer satisfaction and (2) improving the business where the customers expects it.

1.2 Research Goal + Research Question

Service-oriented organizations, in which customer satisfaction often has high priority, would like to have the answers on the formulated questions above. In this research 'customer satisfaction' will be measured and analyzed with the goal to continuously improve and manage the customer satisfaction. From the collected scores, feedback and action plans can be formulated for the internal service-organization. The employees must react with the aim to benefit from this valuable information. The final objective (in the long run) is monitoring and evaluating whether an improvement has been reached in the field of meeting customer expectations better. The Research Question addressing the research problem is: *How to continuously improve customer satisfaction in an ICT PSF?*

ICT stands for Information and Communication Technology and is about the exchange of information in several ways, such as the telephone, the internet, computers, software and other equipment. PSF stands for Professional Service Firm. In short it is an organization providing complex services for their customers and during the service delivery professional expertise is needed. The research question will be operationally conducted at Tijs-ICT. It is an appropriate firm to conduct the research, because Tijs-ICT is an ICT-company operating as a PSF (B2B) and the company is interested in the research question. The research question is divided into three sub questions:

1. How to measure customer satisfaction in a PSF?
2. How to respond to customer satisfaction data, for continuous improvement?

3. What action plans can be formulated for Tijs-ICT from the collected scores and analysis to continuously improve customer satisfaction? (after the empirical research has been conducted)

In order to answer the first two sub questions, mainly literature about this subject will be reviewed. Chapter 2 will answer the first sub question and chapter 3 will focus on the second. For answering the third sub question empirical research will be conducted at Tijs-ICT.

1.3 Tijs-ICT

Tijs-ICT, is an ICT partner for businesses and institutions in healthcare and education. Tijs-ICT offers products, services and solutions to other companies (B2B). Its supply consists of: (1) designing an appropriate ICT-infrastructure, (2) the delivery of ICT products, (3) the implementation and (4) the continued maintenance and control of the ICT. Customers can choose a complete path or only a component of the path. A Helpdesk is available for advice and support as well. Since September 2009 Tijs-ICT has also had an online web shop/portal where organizations can quickly find, compare and order over 80.000 products such as computer soft- and hardware, information systems, notebooks, etc. (Tijs-ICT, 2010).

1.4 Frame and context

Before starting this research the context must be framed first. The focus in this research is on firms which operate (1) B2B, (2) are active in an ICT branche and (3) can be defined as a Professional Service Firm. In the next part will be explained why it is necessary to make this distinction at this point.

B2B services

As mentioned, this research focuses on firms operating B2B (Business-to-Business). A firm in this industry offers products or services to other firms and not to private or individual customers. In this research the term *customer* will be used for a buying (external) organization that receives the service from the provider. B2B services compared to those purchased by individuals are often more complex because the demand of a whole firm is more complicated than the needs of a single person with his personal preferences (B2C). In B2B more often a complete team takes part in a service project that works for the best interest of the company. Service firms differ from firms that manufacture products. For most services, three basic characteristics can be identified (Grönroos, 2000, p. 47): '*(1) services are processes consisting of (intangible) activities or a series of activities rather than things, (2) services are at least to some extent produced and consumed simultaneously, (3) the customer participates in the service production process at least to some extent'.* Each service is a unique effort

of an interaction process between the service provider and the customer. The uncertainty in the service process can be large and services are often labor-intensive.

ICT services

Tijs-ICT is an ICT professional. Information and Communication Technology (ICT) or Information Technology (IT) are two closely related concepts. *'An IT professional service organization provides consulting services, largely to help their clients implement new IT'* (Wang & Swanson, 2007, p. 74). ICT automation is popular because with ICT business processes from other firms can be optimized. This can be complex, therefore expertise and support from ICT-professionals are required. Professional service providers act as experts for customers and assist in solving (ICT) problems and making decisions. Professional services are not only knowledge-intensive, but also customer-specific. This means ICT-professionals like Tijs-ICT deliver whatever the customer is ordering as long as it is within their area of expertise. This requires a flexible, responsive organization that acts in the best interest of the customer. Clients often outsource ICT services because they can not implement an IT infrastructure by themselves or because, by doing so, they do not need to pay a full-time employee to perform the task, although it can be very important to support their core business. By investing in ICT solutions customers can save time and reduce costs.

In this kind of sector, firms design, integrate, and deliver complex products and systems on a project basis. For instance IT equipment suppliers like IBM and Sun Microsystems responded to customer pressure in taking responsibility for supplying and installing integrated hardware and software systems, and providing support in the long run. Brady, Davies and Gann (2005)

IS (Information Systems) providers are also characterized as adding value by providing combinations of products and services that create unique benefits for each specific customer. The tasks of these providers are labeled by Brady et al (2005, p. 362): *'Not only do they take over responsibility and risk for performing activities previously carried out in-house by their customers, they develop new ways for components to work together as an integrated whole to increase the overall value of the solution for the customer. Becoming solutions-focused means that providers have to understand how value is created through the eyes of the customer. IS providers begin by thinking about the desired outcome for the customer and work backwards to the products or services required to meet those needs'.*

Brady et al (2005) describe in general the process of IS-providers. At the start of each project a contract or a first proposal will be offered. An involved project team needs to be multi-skilled and cross-functional. Expertise from commercial management, technical design, and project management are part of this executive project team. A customized solution will be provided. Once the contract has been set and agreed, the project moves to the next phase: the integration phase, where the provider establishes a project organization and implements the solution. The project team has the responsibility to ensure that the value created by the solution in the integration and operational phases of the project

meets or exceeds customers expectations. When the project is over, it does not mean the relationship is over. The provider's responsibility after the project is to manage, support and improve the delivery of the solution. Providers and customers work jointly to plan, implement the solution and monitor its ongoing performance. Creating customer value by solving problems in turn leads to a competitive advantage and that is a need in a competitive environment. Brady et al (2005)

KIBS (Knowledge-Intensive Business Services)

In literature we come across the term: "KIBS", Knowledge-Intensive Business Services, and this comes closely to what is meant in this research context. Hipp (1999, p. 94) summarizes that '*KIBS are characterized by the ability to receive information from outside the company and to transform this information together with firm specific knowledge into useful services for their customers'*. Tijs-ICT for instance gets ICT (related) products and technical information from their suppliers and as an intermediary they make this ICT knowledge useful for their customers. As an experienced provider they take care of and have knowledge about the implementation and control of ICT solutions, so that customers can improve their business process. Hipp (1999) sees KIBS as carriers of knowledge as an intermediary between science (knowledge creator) and their customers (knowledge user). His empirical analysis also shows that KIBS providers are able to improve the customers' performance and productivity and contribute to technological and structural change. KIBS combine and transform (tacit and explicit) knowledge to create new services. For that reason KIBS are integrated in the new mode of knowledge production, as kind of innovation (Hipp, 1999). Den Hertog (2000) made an analysis of this role of KIBS in innovation processes and concluded that KIBS firms may provide knowledge resources that support the innovation process in various ways. For example: providing an expert project manager with the necessary skills to implement an innovation; providing an innovative tailor-made software package; providing training or a written advice regarding product selection and implementation (Den Hertog, 2000, p. 502). For KIBS the production of services is often the result of co-production between the provider and the customer. In other words, the quality of the resulting service product largely depends on the nature of this provider-customer interaction and the quality of the mutual communication process. During this interaction process, they work together to find solutions for problems and challenges. (Den Hertog, 2000, p. 505)

'Computer and information-technology-related services' (including software services) are mentioned as an example of KIBS in the articles by Hipp (1999) and Den Hertog (2000). Den Hertog literally cites IT support services as a typical example of a business that works with their customers in highly interactive ways. This means that the characteristics of KIBS come very close to the context which is meant in this paper. However, the term 'KIBS' will not be used in this paper, because in both articles there is (too) much emphasis on the innovative role of KIBS providers as far knowledge is concerned. Not only knowledge (-intensive) services are important in the context of this paper: the services should be seen a little bit broader, such as referred to as '*Professional Services*'.

PSF (Professional Service Firm)

In literature there was a lack of a definition of the term "Professional Service Firm". A single definition is problematic because PSF's have multiple distinguishing characteristics and only a few firms meet all of those characteristics (von Nordenflycht, 2007). Law firms and Accountancies are almost universally recognized as PSF's but about other PSF's there was little consensus in literature. Now Von Nordenflycht (2007, 2010) has made an ordered analysis that contributes to both the interpretation of existing research on PSFs and the design of future PSF research. Von Nordenflycht (2010, p. 156) used fifty-two articles and books to compose a list of examples of professional services in recent studies (e.g. Accounting, Law, Management consulting; IT consulting/design, Technology consulting, Engineering consulting/design, Software development etc.). Based on his review, he defined three distinctive characteristics: *knowledge intensity*, *low capital intensity*, and a *professionalized workforce*.

Von Nordenflycht (2007, p. 42) also made a list (out of existing literature) to define distinctive PSF characteristics. The most relevant characteristics for this current research (context) are highlighted here:

- *The nature of assets:* highly educated, intellectual, creative and expert skills, human capital, complex knowledge, application of specialist technical knowledge.
- *The nature of the output*: a service (rather than a product), intangible, advisory services / expert services, customized/ non-routine problems (apply expertise to a client's specific situation), complex output, substantial client interaction (need for input from the client regarding her situation and needs).
- *The profession-intensity (institutional context)* workforce of professionals; provide professional assistance. Professionals have a responsibility to protect the interests of clients.
- *The nature of customers:* business clients.

Summary of frame and context

The term PSF has been made clear above and will be used in this research (instead of KIBS) because it best meets the context meant in this paper. The involved firm Tijs-ICT is particularly an ICT PSF and this will also be the context in which new empirical data will be collected (see chapter 4 and 5). The purpose of this research is to investigate where an ICT PSF can improve its business in the field of customer satisfaction. In cases where business standards deviate from customer needs, expectations need to be managed. Precisely this gap characterizes customized services and is why they are hard to manage. The provider has the challenge to react quickly and be flexible to fulfill customer expectations. Service delivery firms will need to continue fine-tuning the process, remove bottlenecks and learn through experiences (Wirtz & Tomlin, 2000).

1.5 Paper structure

Chapter 2 is a literature study conducted on *'customer satisfaction'*. Several related definitions will be discussed and it will be described how customer satisfaction can be measured and analyzed with existing models. These models are suitable tools to be used for understanding and knowing customers' expectations on services.

In chapter 3 a literature review is conducted as well, now focused on *'continuous improvement'*. There will be a discussion on how, in general, service firms can continuously improve their business. This chapter is related to chapter 2, because with collected data about customer satisfaction firms can use this data for (future) improvement. A lot has been written about 'continuous improvement' and 'total quality management' (TQM) and about product improvement (think of Kaizen), but less about service improvement, which is the focus in this paper. TQM is very broad: here only two elements from TQM will be highlighted: *customer focus* and *continuous improvement*.

In chapter 4 the research design will be presented, in chapter 5 the results will be presented and in chapter 6 the focus will be on the discussion and conclusion. Finally, chapter 7 contains a number of recommendations.

Chapter 2: How to measure Customer Satisfaction in a PSF?

Theory, part I

This chapter is the first part of the literature review and is answering the first sub question from this research. It starts in section 2.1 with discussing a few definitions on 'customer satisfaction'. In 2.2 a widely known measure instrument in the field of customer satisfaction: called SERVQUAL, will be introduced. This instrument will be critically examined and the strengths and weaknesses will be identified. A few mutations from the SERVQUAL model will be presented as well.

2.1 Customer Satisfaction

Szymanski & Henard (2001) argue that customer satisfaction has come to represent an important cornerstone for customer-oriented businesses. If the provider delivers what the customer needs and wants, the customer will be satisfied. The concept that is often used in literature is: *Customer Satisfaction* and it has become an important element for businesses in the B2B service industry. Parasuraman (1998) argues that customer service is especially critical in B2B markets because the core of what is exchanged between sellers and buyers is: the service. The quality of the customer service can contribute, as a consequence, to customer satisfaction.

First will be explained how 'customers satisfaction' is defined in literature and finally how to measure customer satisfaction will be discussed.

2.1.1 Customer satisfaction and related concepts

To provide further understanding of customer satisfaction a few definitions about customer satisfaction will be given. These definitions are widely used and are especially relevant for the service industry:

'*Satisfaction is defined as pleasurable fulfillment. That is, the consumer senses that consumption fulfills some need, desire, goal, and so forth and that this fulfillment is pleasurable. Thus, satisfaction is the customer's sense that consumption provides outcomes against standard of pleasure versus displeasure'.* (Oliver, 1999)

'Customer Satisfaction is a customer's positive or negative feeling about the value that was received as a result of using a particular organization's offering in specific use situations. This feeling can be a reaction to an immediate use situation or an "overall" reaction to a series of use situation experiences'. (Woodruff, 1996)

As Anderson, Fornell, & Lehmann (1994, p. 54, see also Johnson and Fornell, 1991) further explain: *'cumulative customer satisfaction is an overall evaluation based on the total purchase and consumption experience with a good or service over time'.* In other words, here customer satisfaction is not only based on the current experience but also on all past experiences.

In the literature review by Anderson et al; (1994) the authors found that service/product quality, customer expectations and price influence how satisfied the customer will be. A satisfied customer leads to loyalty and that is what providers need. Reichheld & Sasser (1990) explain that if a firm has strong customer loyalty, it should be reflected in the firm's economic returns because it ensures a steady stream of future cash flow. Besides, satisfied customers are more willing to pay for the benefits they receive and are more likely to be tolerant of increases in price. Satisfied customers are likely to buy more frequently and in greater volume and purchase other goods and services offered by the firm. (Reichheld and Sasser 1990)

A review of the literature by Taylor & Baker (1994), (using c.f. Bitner and Hubbert 1994; Cronin and Taylor 1992; Oliver 1993a; Patterson and Johnson 1993) suggests that there does appear to be relative consensus among marketing researchers that service quality and consumer satisfaction are separate (i.e., unique) constructs that share a close relationship. Taylor & Baker (1994, p. 163) found in their research that: *'Service quality and customer satisfaction are widely recognized as key influences in the formation of consumers' purchase intentions in service environments'*. This is important to indicate and is in line with figure 2 (see next page), because purchase intentions finally lead to profits.

2.1.2 Customer Satisfaction & Service Quality

In order to improve customer satisfaction, a good way (not the only way) is to improve the service quality. Parasuraman, Zeithaml & Berry (1985) developed a model for this topic, called SERVQUAL. The authors define service quality as: '*the degree to which service quality perceptions match service quality expectations'*. Starting point in this conceptual model is the **Customer Perceived Service** (in Dutch: 'door de afnemer waargenomen kwaliteit'). This model can be used to diagnose shortcomings and these shortcomings are direct points for improvement, which is the other theme of this paper. Because of the difference between expectations of service quality and actually measured perceptions of service quality, it is basically a 'gap analysis'. Originally five different gaps are identified in the conceptual model by Parasuraman et al (1985) as can be seen in appendix 1. In this study only gap 5 will be used as an element from the SERVQUAL model. This gap 5 exactly describes the goal that must be researched: customers must assess in what degree they are satisfied with the service quality they perceived from the service provider. Parasuraman et al (1985) defined his concept as follows:

Gap 5: Perceived service quality gap: this gap occurs when the perceived service quality is not consistent with the expected service quality (from the customer's perspective).

Woodruff (1997) adds that such gaps, like gap 5, create the potential for mistakes in an organization's efforts to deliver value to customers. Customer-learning processes should be aimed at reducing such gaps, so that the service quality and the customer satisfaction will increase through focus on identified improvement points.

Figure 2: *Gap 5 from the SERVQUAL model: (source based on original SERVQUAL model from Parasuraman, Zeithaml & Berry,1985)*

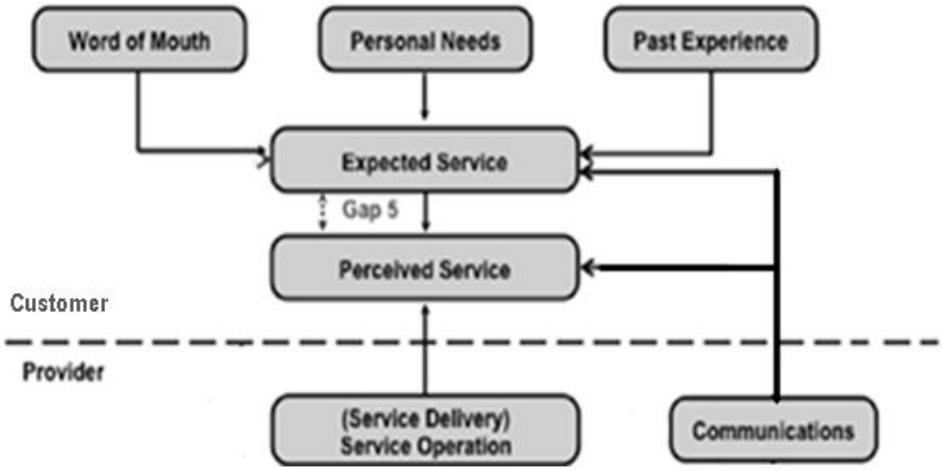

Figure 2 demonstrates a boundary in the model between the customer and the provider. A research can be carried out on both sides, internal (provider-side) or external (customer-side). Tijs-ICT is interested in information about the concepts above the boundary line. An external research will be conducted with the aim to improve customer satisfaction. The only gap Tijs-ICT likes to investigate, is Gap 5: the gap between the expected service and the perceived service the customer gets. Tijs-ICT wants to bridge this gap as good as possible. An external research will be conducted to measure and analyze information. No internal employees but (external) customers will be asked how the provider can improve the service quality Tijs-ICT is offering to them. In the figure can be seen that influences such as word of mouth (about image or experiences from others), personal needs (or business needs), past experiences and communications (promises from Sales & Marketing or project managers) lead to and influence the 'Expected Service'. There is a difference between customers' expectations and perceived/experienced service. The more a customer (in this case, a business) gets that meets his expectations, the more satisfied he will be. Oppositely, the more the offering differs from what a customer expects, the more dissatisfied he will be.

At the end of this section a few notes should be made to set things clear. Collecting (external) information about customer satisfaction is valuable and is the focus for this research. Another approach (not used here) is focusing on internal business improvement concerning issues as (human) resources, knowledge and technology-expertise. Thus, there are more approaches for improving quality. However, this research will approach quality from the customer's point of view with the aim to increase customer satisfaction. This is a more market-orientated approach.

2.2 Instruments that measure customer satisfaction in the B2B service industry

2.2.1 The original SERVQUAL model

SERVQUAL, stands for 'Service Quality' and is a model that can be used as an instrument for diagnosing how to improve the performance quality of services delivered by businesses. Next to the definitions and gaps as presented above, the SERVQUAL model also consists of different dimensions and underlying items to obtain valuable scores. Within the SERVQUAL method five generic service-quality dimensions can be distinguished that are related to service quality and customer satisfaction:

(1) *Reliability*: ability to perform the promised service dependably and accurately.
(2) *Responsiveness*: willingness to help customers and provide prompt service.
(3) *Assurance:* knowledge and courtesy of employees and their ability to inspire trust and confidence
(4) *Empathy:* caring, individualized attention the firm provides its customers.
(5) *Tangibles*: appearance of physical facilities, equipment, personnel, and communication materials.

The five dimensions are scales that exist of multiple items/attributes. These items are linked to formulated questions. The complete questionnaire can be found in appendix 2. SERVQUAL actually consists of twenty-two items that measure the *service perception* and twenty-two items that measure the *service expectation*. The difference between both scores of the twenty-two items represents the gap. In this model service quality has been defined as the degree to which customer perceptions of service quality equal customer expectations of service quality: the data will be analyzed by deducting the average expectation rate from the average perception rate. The difference or gap score can indicate if there are (too much) shortcomings in service quality or not. Besides, every dimension has its own (correction) weight-score and is measured on a 5 point Likert scale (1 = very dissatisfied; 5 = very satisfied).

2.2.2. Summary of the major criticism on SERVQUAL

SERVQUAL is an instrument that has been designed to be applicable across a broad spectrum of services in several sectors and is therefore very much generalized. SERVQUAL is frequently and widely used in the service-industry, but at the same time also criticized in literature. Both articles by Gounaris (2005) and by Van Dyke, Prybutok & Kappelman (1999) reviewed the most important theoretical and empirical difficulties found by other authors in literature. The two reviews have a lot in common. The summary by Van Dyke et al (1999) is used here and is based on secondary based references. These references can be found in a framework in appendix 3.

The difficulties associated with the SERVQUAL measurement tool are grouped in four categories:

(1) use of difference- or gap scores,
(2) poor predictive and convergent validity,
(3) ambiguous definition of the "expectations" construct, and
(4) unstable dimensionality.

(1) Use of difference- or gap scores
In general it appears that gap scores are less reliable than scores that are not based on differences. Using gap scores is a poor choice as measurements of psychological constructs. Other difficulties include low reliability, poor discriminant validity, variance restrictions and spurious correlations. For example, studies demonstrate that Cronbach's alpha (a method of estimating reliability) is inappropriate for gap scores, because the reliability of a gap score is dependent on the reliability of the component scores (the dimensions) and the correlation between them. Thus, if the correlation of the dimensions increases, the reliability of the gap scores is decreasing. As a consequence, the Cronbach's alpha tends to overestimate the reliabilities of the difference scores when the component scores are highly correlated. Also, evidence has been found that expectations about the performance of the service changes after the service has finally been used, leading to less reliability of gap scores.

(2) Poor predictive and convergent validity
Several studies show doubts about the predictive and convergent validities of the measure. Evidence has been found about the poor predictive validity of SERVQUAL, and the superior predictive and convergent validity of perception-only scores was confirmed. The perception component of the perception minus expectation (P – E) scores performs better as a predictor of perceived overall quality than the difference score itself. In other words: studies have tested a performance-only versus difference score operationalization, and most have found the performance-only model to be superior.

(3) Ambiguous definition of the "expectations" construct
The ambiguous definition of the SERVQUAL expectations construct results in a concept that is loosely defined and open to multiple interpretations. This problem leads to various definitions such as desires, wants, what a service provider should possess, and the level of service a customer hopes to receive. These various interpretations can result in potentially serious measurement validity problems.

(4) Unstable dimensionality
Several studies have claimed that the five dimensions from the SERVQUAL instrument are unstable and that this is not just a statistical curiosity. The scoring procedure for SERVQUAL calls for averaging the P - E gap scores within each dimension. That means that a high expectation coupled with a low perception for one item would be 'cancelled' by a low expectation and high perception for another item within the same dimension. This scoring method is only appropriate if all of the items in that dimension are interchangeable. However, given the unstable number and pattern of the factor structures, averaging groups of items to calculate separate scores for each dimension cannot be justified.

This summary helps being aware of the weaknesses of SERVQUAL. For instance, it is not recommended using the perception minus expectation (P-E) scores. A better alternative is using scores that are not based on differences by asking customers by asking customers their opinion only after a service has been delivered. Besides SERVQUAL will not always be useful in all kinds of branches. Mutations of SERVQUAL instruments exist that match better with the B2B PSF context and have solved the discussed weaknesses above.

2.3 Models generated out of the criticism

A few related instruments, like SERVQUAL, that are more specifically developed for B2B service firms will be discussed here. The comments are known and taken into account by other researchers, for instance by Gounaris (2005). Over the years the SERVQUAL measurement tool has been developed and customized especially for certain sectors. In the introduction was stated that there is a difference between B2C and B2B market. B2B services are more complex in comparison with B2C and because of the complexity more dimensions are needed for measuring service quality. These adjustments for the B2B sector has been a trend over the last decades. Originally the SERVQUAL model was mainly used for the B2C market.

Carman (1990) has also made an assessment of the SERVQUAL dimensions. He concluded that the wording and subject of some individual items need to be customized to each service setting. Carman (1990) argues that although the stability of the SERVQUAL dimensions is impressive, he found evidence that the original dimensions are not completely generic. He concluded that items on some dimensions should be expanded if that is necessary for reliability. Parasuraman (1998), who developed the original model, recognizes that the measure instrument can, when necessary, be adapted to fit the characteristics of a particular organization. This last sentence is an important fact and for Tijs-ICT it will be investigated if it is necessary to adapt an existing measure instrument. In literature different mutations of the SERVQUAL instrument and its dimensions can be found. Interesting for this research are scales and models developed for measuring (professional) service quality in the B2B context. Underneath an introduction of the models will be outlined:

- *INDSERV model* by Gounaris (2005) is developed especially for the B2B market. The INDSERV (Industrial Service) model of Gounaris took into account the major criticism on SERVQUAL. Gounaris evaluated the SERVQUAL scale for assessing perceived quality of software house services. His used dimensions are: potential quality, hard process quality, soft process quality and output quality. Further details of these dimensions and related items are described in appendix 4.
- *IT consulting SERVQUAL* by Yoon & Suh (2004) is a scale developed for measuring quality of consultancy service activities within the IT-industry. Consultancy services are complex and professional services that are often delivered within a long term relationship between the provider and the customer (B2B). The results of this study demonstrate that the six different

dimensions within the measure instrument significantly related with the level of customer satisfaction. Yoon & Suh (2004) conclude that their model can identify problems within the service quality and from the information of these problems plans for improvement can be formulated. Their constructed dimensions were examined by 7 experienced consultants, consultancy clients and two professors and were applied to 86 respondents of 42 different organizations. All items from the IT Consulting SERVQUAL scale can be found in appendix 5. The seven dimensions/variables are: assurance, responsiveness, reliability, empathy, process, education and satisfaction.

- *IMP INTERACTION Model* by Woo & Ennew (2005). They adopted an existing model and reexamined it in particular to investigate B2B professional service quality. This tested and transformed model identifies six dimensions in total: four dimensions of exchange: (1) product/service exchange, (2) financial exchange, (3) information exchange, and (4) social exchange in a relationship. Plus two longer term aspects of that relationship: (5) cooperation and (6) adaptation. (See appendix 7).
- *The scale of Westbrook & Peterson (1998).* In this study underlying determinants in a B2B setting are evaluated and other explored variables are added. For instance the dimension 'consultative selling': sellers who actively participate in the operations of the client to include mutual goal-setting and consulting for the improvement of the overall profitability and operations. In total they used twelve dimensions: responsiveness, competence, consultative, reliability, price, interpersonal skills, accessibility, creditability, product offering, market clout, geographic presence, tangibles (see appendix 8).
- Another similar model is the one by *Vandaele & Gemmel* (2004) which is almost totally based on the model by Westbrook & Peterson (1998). Vandaele & Gemmel tested a reliable and valid instrument (the scale of Westbrook & Peterson) with the aim to measure the perceived service quality in a B2B setting. The result of their study is called the B2B SERVQUAL scale and can be found in appendix 9.

All these discussed measurement instruments offer dimensions that are suitable for measuring the (professional) service quality in the B2B market. With these instruments the customers view can be identified in a reliable and valid way. In chapter 4 a combination of these instruments will be used to develop a customized questionnaire for Tijs-ICT for conducting a customer satisfaction research.

Before starting such a research, it is very important to keep in mind the purpose of a customer satisfaction research: to learn and benefit from customer feedback for continuous improvement. Therefore, a second literature search will be done (see chapter 3) on how to respond on customer satisfaction data for continuous improvement. The knowledge collected in chapter 3 will contribute to a good preparation of an effective customer satisfaction measurement tool. For instance, by discussing some lessons learned from experience and by generating more relevant questions.

Chapter 3: How to respond to customer satisfaction data, for continuous improvement?

Theory, part II

In chapter 2 '*customer satisfaction'* was discussed in a B2B setting in the service industry. In addition to a few definitions and the explanation of the relationship with '*service quality'*, a few models on how to measure customer satisfaction were summarized. The empirical research (on customer satisfaction at Tijs-ICT) will be developed in chapter 4, but first in chapter 3 literature will be reviewed on how firms can best benefit from collected data about their customers. The final goal of this customer satisfaction research is to benefit from and improve services after collecting data. By analyzing the results of this research, firms can better adjust to the expectations of customers. Indicated data must be transformed into operational action plans for fine-tuning the relationship with the customer. Lessons must be learned, adopted and implemented, but how can firms succeed in improving their customer services? This will be answered in this chapter. First in §3.1 'continuous improvement' will be defined, in §3.2 the goals and the benefits will be discussed and finally in §3.3 several approaches on how to respond to customer satisfaction data for continuous improvement will be presented.

3.1 Definitions

Continuous improvement in this perspective is defined here as continual change to meet customers' needs. Kuhn (2000) sees continuous improvement as a paramount concern and defines it as one of the core methodologies to sustain and guarantee quality of products and services. Issac, Rajendran & Anantharaman (2004) add: quality improvement is not a specific destination but a continuous journey on a long-term basis. Improvement should be viewed as an ongoing process in the sense that once targets are met, new ones must be set, aiming for even higher levels of service efficiency.

Changes in customer requirements and expectations should correspond with changes in the process of delivering products and services to satisfy the customer as best as possbible. These changes will act as a continuous cycle (Issac et al, 2004). Chalmeta (2006) emphasizes that it is essential for continuous improvement that value must be added to what is really important to customers, and not to the points the company thinks are important.

A link should be made between customer feedback and continuous improvement. Dawes & Rowley (1999) mention various approaches used to provide organizations with feedback on customer perceptions of their service quality. A range of tools can be used to measure service quality: customer surveys, suggestion boxes, complaints procedures, focus groups, participation and consultation, or other tools of gathering feedback from customers. The most valuable information such tools provide is often related to negative quality, and specifically to the identification of areas in which there is

scope for improvement Dawes & Rowley (1999). In this research customer surveys will be used, but also will be tried to ask customers for suggestions and give them the opportunity to complain.

The study by Phipps (2001) can be used to explain in short the relevance of continuous improvement the way it is meant in this research. His article is originally intended for measuring service quality for libraries, but it has a few general comments that can be used as a short introduction for this chapter. Phipps argues that the primary focus should be on understanding customers' needs, learning quick and clean methods of data gathering and analysis, improving critical processes, and developing internal capacity to be successful in the future. For such inquiry the organization should start with what Phipps calls: listening and acting on the voices of customers, so knowledge about customer requirements will increase. By collecting service quality data, it should be identified what is working well and what is not. Collecting data must be easy, meaningful, and clearly related to customer satisfaction for staff to commit performance measures. This data can be used to develop performance and learning goals to support continuous customer focus. Finally, the customer perspective must be integrated into planning and decision-making, practicing the disciplines of the learning organization. This will ensure the development of the organizational capacity to respond better to customer needs with the purpose to continue serving customers in the future. (Phipps, 2001)

3.2 Goals and benefits of Continuous Improvement

In this section the goals and benefits of continuous improvement in the area of customer satisfaction will be highlighted, like gathering a better competitive advantage in the market and building long-term relations with customers. Subsequently, section 3.3 elaborates on how continuous improvement can be applied to exploit these potential benefits.

Competitive advantage

Firms can achieve a competitive advantage by offering more value to customers. (Campbell, 2003; Chalmeta, 2006). Improving customer experience can differentiate firms from their competitors. Brentani & Ragot (1996) stresses that service firms must have a good understanding of their customers' problems and they must use approaches that lead to substantially better solutions than what competitors offer. Service firms must be the first to handle problems in a novel way, to apply new technologies, or incorporate innovative processes. Those points are the key for achieving a competitive advantage. According to Brentani & Ragot (1996) service providers must concentrate on all facets of the service offering. The service offering consists of providing benefits that are perceived as unique by customers, on creating a satisfactory experience for the customer.

Zairi (2000) mentions the same opportunity as well. He states that business organizations must put the customer on the first place. True competitive advantage will only be established through excellence in customer value and the ensuring relentless care and attention provided. An external customer-focused

and market-oriented approach is what firms should have (Zairi, 2000). Listening well to customers is the best way to understand customers. Results of customer feedback must be interpreted and help to build a more customer-driven organization. The organization must respond to this customer feedback and should make (little) changes and continuous service improvement will be driven through a combination of quick fixes but especially for long-term organization re-engineering. (Donovan & Samler, 1994)

Long-term Customer Policy and the role of Trust

Another benefit is explained by Rust, Zahorik and Keiningham *(1995)*: service quality improvement results in increased perceived quality and customer satisfaction and possibly also can result in reduced costs. Increased customer satisfaction in turn leads to higher levels of customer retention and positive word-of-mouth. As a consequence revenues and market share go up, driven by higher customer retention levels and new customers attracted by the positive word-of-mouth. The increased revenues, combined with the decreased costs, finally lead to greater profitability. (Rust et al, 1995)

Continuous improvement is policy based on the long run**.** Reichheld & Sasser (1990) argue that continuous improvement in service quality should not be seen as a cost, but as an (long-term) investment in customers that generates more profit than the margin on a one-time sale. By consistently providing goods and services that satisfy customers, profitability should increase by reducing failure costs (Anderson, Fornell, & Lehmann, 1994). Thus, quality has to be defined in the same way customers do. Otherwise the wrong actions may be taken and money and time may be poorly invested. Grönroos (2000)

The role of trust is related to long-term policy and building customer relationships. Montoya, Massy, Khatri (2010) explain that for a service organization, performance is ultimately about customer satisfaction and quality of service delivery. Montoya et al (2010) found in their literature review that the importance of building relationships with customers and trust is well documented in the marketing literature. Customer satisfaction research empowers the relationship with customers and is in a sense a marketing tool. Providers should not ask for feedback from the same customers too often. This can be experienced as annoying by the customer. The aim is just giving customers a signal indicating that their wants/needs are taken seriously and that the firm uses their feedback to implement improvements. Showing the customer that their feedback is seriously taken into account will strengthen the relationship and is important for trust. The end of a project does not always mean the end of a business relationship. This remark is essential because loyal customers generate increasingly more profits each year they stay with the business. Reichheld & Sasser (1990, p. 107) illustrate this: *'many people will pay more to stay in a hotel they know or go to a doctor they trust than to take a chance on a less expensive competitor. The company that has developed such a loyal following can charge a premium for the customer's confidence in the business'.*

Communication

Watson, Pitt & Kavan (1998) point to the advantage of improved communications with customers. IS (Information Systems) managers believe that their communication through newsletters, bulletin boards, etc., has paid off: customers know who they are and how to contact them. Both cases in this study by Watson et al (1998) decided that enhancing communication with their customers was critical for improving service quality. An important lesson was that service personnel must communicate honestly, so that customers' expectations and promises coincide. A second lesson is that the CIO must pay ongoing attention to service quality. Alsup (1993) sees customer-focused communication as the key to total quality success: the one universal barrier is the lack of communication skills to conduct customer-focused communication. In a high-tech world this should not be necessary according to Alsup, because modern human communication technology exists and can help.

To develop competitive advantage firms can improve the way they communicate and handle in the best interest of the customer. For the delivery of a service, interaction and dealing with customers is an essential part. The customers should make clear what kind of service they expect and the provider must react by offering a proposal what they can deliver that best matches the customers' demand. This is not as easy as is described here. It is more complex because in many cases the customer does not always know what he needs and what is in the best interest of the company. Besides, only the service provider has the professional expertise and it is a huge task to discover what is the best solution.

Finally, Chang (2005, p. 414) describes a solution how to find out customers' expectations: with a *continuous improvement cycle*. This cycle consists of (1) establishing customer requirements, (2) meeting the requirements, (3) measuring success, and (4) continue check customers' requirements to find areas in which improvements can be made. The greatest impact of such a total quality performance measurement is an increased focus on customers. Performance measurement can also be used to measure customer satisfaction. Chang indicates that customer surveys are by far the most commonly used performance measurement technique to measure customer satisfaction and benchmark competitors. Two relevant long term goals of TQM performance measurement are identified in his study. Long term goals should be (1) continuous improvement in performance and (2) maximizing customer satisfaction by adapting to change in customer requirements. (Chang, 2005)

3.3 Organizing continuous improvement; existing approaches

This section contains different approaches on how to deal with collected customer feedback. Campbell (2003) states that many firms know quite a lot about the behavior of their customers, but only a few firms know how to make good use of this knowledge. The challenge is to evaluate and manage customer relationships well and efficiently. Campbell (2003) suggests CRM (Customer Relationship Management) information technology to provide much needed bases for evaluating the current status and profitability of customers. Barnes, Fox and Morris (2004) also advise to invest in IT. Their literature review highlighted that, increasingly, technology is available that can assist firms to enhance their service levels and improve customer satisfaction. Next to suggestions as investing in IT and CRM other approaches (see table 1) and practical recommendations from literature will be discussed in more detail in this section. Some approaches have some overlap.

Table 1: *Identified approaches that organize continuous improvement in services*

Themes → Authors ↓	**Customer Satisfaction Measurements (CSM)**	**(Organizational) Learning**	**Customer Participation/Customer Relationship Management (CRM)**	**Complaints (Management)**	**Use of Information Technology(IT) / Information Systems (IS)**	**TQM * (Total Quality Management)**
Donovan & Samler (1994)	**X**	**X** (respond with Action Plans to Customer feedback)	**X** (Customer-driven)			
Hennestad (1999)	**X**	**X**	**X (**Customer-oriented)			
Phipps (2001)	**X**	**X**	**X** (Partnerships with Customers)			
Brentani & Ragot (1996)			**X** (Customer Participation)			
Zairi (2000)	**X** (measurement and statistics)	**X** (learn from complaints and Improve)		**X**		
Barnes, Fox, Morris (2004)	**X**		**X** (CRM, Customer focused)		**X**	
Campbell (2003)		**X**	**X** (CRM)		**X**	
Chalmeta (2006)	**X** (Monitoring)	**X** (Action Plans)	**X** (CRM, Trust)		**X**	
Wirtz & Tomlin (2000)	**X**	**X** (learn from customer feedback)			**X** (Customer Feedback System, IT- and Reporting system)	
Montoya, Massy, Khatri (2010)			**X** (Customer Relationship, Trust)			
Chang (2005)	**X**		**X** (Customer Focus)			**X**
Christopher, Payne and Ballantyne (1991)	**X** (Monitoring)					**X** (Service Quality Management)
Parasuraman & Zeithaml (1994)		**X** (learn and recover from complaints)	**X** (Customer focused)	**X**		
Garver (2003)	**X** (Customer Listening Tools)	**X** (Learn and improve from collected information)	**X** (Customer-driven Improvement Models, Relationship Survey)	**X**		**X** (Customer-driven Improvement Models)

***** Focuses especially on one element of TQM: performance measurement in promoting continuous improvement

3.3.1 Collect Feedback and React with action plans

This approach suggested by Donovan & Samler (1994) demonstrates that results of the collected feedback must be analyzed and interpreted into action plans that can realize improvement. Valuable feedback can help to build the organization more customer-driven. A manager or a responsible department should be responsible for the analysis and the service improvement what leads to a higher customer satisfaction level. The task of this responsible manager or department is making (little) changes happen in response to the collected customer feedback. With these adjustments continuous service improvement is driven through a combination of quick (short term) fixes and long-term organization re-engineering (Donovan & Samler, 1994). The responsible manager should monitor the developments carefully. Every period (for instance at the end of each month or quartile) the manager can discuss the results with the people involved. Together they can formulate specific action plans. For the next meeting new information can be discussed and it should also be evaluated whether improvements worked out positively.

Donovan & Samler argue that identified survey results must be credible; action oriented; and they must have operational implications. It must be understood by the people involved that it will not be possible to immediately tackle all the issues raised. Actions need to identify a number of priority issues. Tasks must be clearly assigned to individuals or responsible improvement teams, as well as the fundamental problems that require changes to business strategy or processes (or even demand significant new investment). The study by Donovan & Samler also warns that a firm should not overpromise and under-deliver in its dealings with customers, employees, or other people involved. An important (new) task for the organization is to communicate back and schedule what the organization has learned, what it is doing as a result and what the benefits are that customers can expect in the short term (little fixes) and in the long term. Online access to customers information systems and databases can be an effective way of making material available quickly and consistently to large numbers of people within or outside the organization.

Another study, by Christopher, Payne and Ballantyne (1991) also recognizes the importance of communication and how staff can cooperate to implement practical improvements. They suggest it is a marketing role. Christopher et al argue it is a marketing responsibility to take charge of collaborating in service quality management. The authors explain what service quality management is: *'planning and organizing improvement continuously, as well as monitoring customer service requirements externally and controlling the service support processes internally'*.(Christopher et al, 1991, p. 4) This collaborative role, in liaison with operations and personnel managers, is meant to get the internal 'exchange' processes right. Another aspect recognized by Christopher et al is concerned with how staff work together across functional boundaries so that work is attuned to the company's mission, strategy and goals. The importance of this is transparent in service organizations where, back up support is needed for the staff interface with the customer. All members of the staff are part of a

process which connects with the customer at the point of interface. The inclusion of people (staff) and processes (work activities) has special significance. These elements can be considered as service-quality drivers; they are elements which most underpin quality and customer service improvement. Staff should input in idea generation and problem solving. Besides, employees should always have self directed responsibility, which means having real commitment to quality and customer satisfaction during the complete service delivery. (Christopher et al, 1991)

3.3.2 Customer Feedback Systems (CFS)

The key objective of a good CFS according to Wirtz & Tomlin (2000) is to learn from customer feedback in an institutionalized, continuous manner. Key factors of (overall) satisfaction they identified are: product quality, service quality, expected values from the image / brand; and expected price/ budget factors. These key factors are typically shaped by different parts of the organization, need different management approaches for improvement, and have different time horizons of management. In other words, service quality is the result of millions of customer interactions. A CFS systematically obtains feedback and stimulates improvement. Wirtz & Tomlin summed up seven components of an effective CFS:

(1) service indicators, standards and performance targets;
(2) feedback collection tools and feedback process management;
(3) a reporting system;
(4) a service recovery system;
(5) an IT system;
(6) a team learning system;
(7) the organizational positioning of a CFS.

The components listed here, will not be discussed in detail. What can be learned from this list is, for instance, the use of an IT system allowing for speedy capture and dissemination of information. To aim at continuous improvement and learning, a reporting system should be designed to facilitate feedback to front-line staff, process owners, department managers and top management. Wirtz & Tomlin suggest a long term planning. It consists of three types of service performance reports:

- Monthly service performance update provides process owners with timely feedback on customer comments and operational process performance. Here, the feedback is provided to the process manager, who can in turn discuss them with his service staff.
- A quarterly service performance review provides process owners and branch or department managers with trends in process performance and service quality.
- Finally, an annual service performance report gives top management a representative assessment of the status and long-term trends in the satisfaction of customers with the firm's services. (Wirtz & Tomlin, 2000)

The most effective organizational structure for managing a customer feedback system is a centralized *Customer Feedback Unit* (CFU) that owns the system and encourages the various departments to provide inputs to the system and use the customer and process knowledge gained from it. For a midsize organization a complete department would be undue, but a (Service) manager can take care of such a CFS. With the contribution of a CFS valuable information can be shared, and only for people who need the information that is relevant for them. Confronting employees with valuable customer feedback makes employees think and act more customer-oriented. With a tool like CFS the prior tasks that should be improved first can easily be identified. With a priority list/report it can be checked over time if issues have been solved and any progress has been made. Customer-driven organizations understand this process. Rather than just fix the issues raised by a tool like CFS, they pro-actively research their former customers' experiences. (Wirtz & Tomlin, 2000)

Also Garver (2003) developed a CFS, but he called his system a 'customer-driven improvement model. Garver has modified traditional performance-importance analysis from literature and has expanded customer-driven improvement models. Through qualitative research, he has developed a guide for identifying continuous and breakthrough improvement opportunities (for best practice companies). His customer-driven improvement model consists of six chronological steps:

(1) examine performance-importance analysis with multiple customer listening tools;
(2) conduct complementary improvement analysis;
(3) assess firm capabilities;
(4) examine improvement costs;
(5) estimate ROI of improvements;
(6) select attributes, set goals, and monitor improvement performance.

The steps summed-up above will be explained here in more detail:

- The first step consists of analyzing performance (typically used to assess performance related to standards such as top-box performance, best competitor, and satisfaction goals) and analyzing importance (employing a variety of statistical tools). This performance-importance analysis must be conducted using data from multiple customer listening tools. The following listening tools are very useful to identify continuous improvement opportunities: critical incident survey, relationship survey, benchmark survey, customer complaints, won–lost and why survey, and customer contact employees (these listening tools are further explained by Garver, attached in this paper in appendix 3.

- Secondly, next to the performance-importance analysis for identifying continuous improvement opportunities also using complimentary improvement analysis must be conducted for each customer listening tool. Garver suggests other relevant analysis as trend analysis, verbatim analysis, and delta chart analysis. An (practice)example from an interview by Garver (2003, p. 464) suggests: *'We have a system set up now with our surveys, where we can take all of verbatim comments. We gather these up and publish them. We send them out to the key people within the company, so they can see what the*

customer is saying. Now we're about a month away from posting all these verbatim comments from customers on our Intranet'.

- Thirdly, once the data has been analyzed and improvement opportunities have been identified, firms look internally to assess their (potential) capabilities, expertise and resources to determine whether or not it is feasible to undertake the improvement initiative. Garver suggests at this point the following questions should be asked (Garver, 2003, p. 464):

- All things considered, is it currently feasible to undertake this improvement initiative?
- Do we currently have expertise in this area?
- Do we want to develop expertise in this area? (strategic level)
- Do we have the capabilities to make the necessary improvements?
- Can we outsource the necessary capabilities and expertise?

- Fourthly, the costs of each improvement initiative must be examined in order to determine whether or not the firm can afford to improve. At this point the firm needs to examine if the necessary resources are available and consider if the firm can afford (in costs) to make the improvement.

- Fifthly, over time the financial impact of improving must always be evaluated by way of assessing for example the Return on Investment (ROI) of each improvement initiative.

- Sixthly, once attributes have been selected to be improved, reasonable customer satisfaction goals must be set and in the future improvements must be monitored. With measures and scores over time it can be assessed whether they have led to success. Afterwards it allows the managers responsible to assess if initiatives have been successful or have failed. This last step is sometimes overlooked, but is particularly important for evaluation. (Garver, 2003)

An important conclusion and recommendation from this study is the importance of integrating customer performance measures with internal performance measures to identify improvement opportunities. Multiple customer listening tools can be used together for a better understanding of customers and for identifying customer service attributes for improvement (Garver, 2001, 2003).

3.3.3 Customer Relationship Management (CRM)

Another approach: CRM. First of all Chalmeta's (2006) view will be given about handling CRM, secondly the CRM-study by Campbell (2003) will be presented. Both studies have some overlap. Chalmeta (2006) defines CRM as: '*a set of business, marketing and communication strategies and technological infrastructures designed with the aim of building a lasting relationship with customers, which involves identifying, understanding and meeting their needs'*. (Chalmeta, 2006, pp. 1023-1024).

Chalmeta presents a methodology for directing the process of developing and implementing a CRM system that considers and integrates various aspects, such as defining a customer strategy, re-engineering customer-oriented business processes, HRM, the computer system, management of change and continuous improvement. Chalmeta advocates a customer focused form of organization, which maximizes the value customers can expect from the company. In this context CRM refers to a customer-focused business strategy and relational marketing. For an organization that implements CRM must dynamically integrate sales, marketing and the customer care service to create and add value for the company and its customers. As a result, the implementation of a CRM system will involve changes in the organization and operations, resulting in an improvement in its performance and competitiveness. This improvement covers for instance the corporate objective to greater customer satisfaction, by way of offering a better service. Other corporate objectives are: (1) increasing the effectiveness of providing customer service by having complete, homogeneous information and (2) improving and extending customer relationships. By offering this added value in the long term, it will be possible to improve customer satisfaction and loyalty. This competence is essential for increasing the competitiveness of companies and achieving customer objectives. For improving customer satisfaction, it is necessary to clearly identify customer needs and expectations and next ensure they are met. This requires a construction of a measurement information system fed with relevant information and stored activities. Part of this monitored information will come directly from the customer (via for instance a customer survey) and part will be extracted from the company's computer system (information the firm already has). History data within the information system will enable staff to know at all times who the customer is and what the customer has requested before. The CRM system must maintain an up-to-date record of all movements with customers (such as preferences, purchases, complaints and earlier contacts with the firm). This allows more personalized service. (Chalmeta, 2006)

A quality assurance method must be established to check if desired changes have been implemented effectively. If necessary, quick actions must be taken as any mismatches may occur. It often happens that managers clearly see that the organization has to change but do not manage to achieve this properly. A manager's task is to make sure the organization implements and develops this change. For example through developing a communication plan or the creation of working teams which are responsible for making the change happen. (Chalmeta, 2006)

Campbell (2003) studied CRM as well and found that more researchers have extolled the potential of CRM. Various researchers see CRM as an opportunity for firms to achieve a competitive advantage by offering more value to customers (Campbell, 2003). From the market, more customers expect from service firms that they implement CRM programs. However, Campbell found that little is known about the internal processes that assist organization-wide learning about CR. Besides, many firms know quite a lot about the behavior of their customers. But the problem is how can firms make good

use of this knowledge and improve their service? In his study he states that firms must create a customer knowledge competence. This can be achieved by managing CRM programs strategically. A developed framework in the study of Campbell, is based on five different case studies (Canadian financial services firms). These service firms got the challenge of how to evaluate and manage CR efficiently. To achieve better access to their customers, these firms have turned to a CRM information technology. With this technology firms provided a base for evaluating the current status and profitability of each customer. It has proven this leads to a better understanding in order to serve customers better. (Campbell, 2003)

For generating and integrating this customer knowledge competence four organizational processes identified by Campbell can contribute: (1) a customer information process; (2) marketing– IT interface; (3) senior management involvement; and (4) employee evaluation and reward systems.

In case studies by Campbell 'customer feedback loops' were utilized in the data mining process to enrich existing information and for use in strategy formulation. For continuous improvement managers: '*need to complement new CRM technologies with organizational processes that integrate customer information throughout the firm; improve the strength of ties between marketing and IT departments; signal senior management involvement; and encourage employees to adopt new customer-focused behaviours both within the firm and with external customers.* (Campbell, 2003, p. 382)

Finally Campbell concludes that gaps between customer requirements and the firm's offerings can be closed only by mutual sharing. Information, ideas, and goals of the marketing and IT departments should be shared and aligned with each other.

Viewing the customer as a partner

Brentani & Ragot (1996) view the customer as a partner and this approach corresponds widely with CRM as discussed in the section above. Brentani & Ragot argue that developing new and improved services is becoming increasingly important. Especially for firms that offer professional services. In (B2B) professional services, customers frequently form an integral part of the service offering. Here the authors go one step further than the other approaches. Brentani & Ragot say customers often participate in the development and/or production of services. Providers have the opportunity to work with customers as potential partners and create new service products that truly respond to customer needs or requirements. Brentani & Ragot see customer participation as a factor with an external orientation. This strong external orientation can be exploited. New services are superior to competitive offerings both in terms of uniqueness and innovativeness and in that they fully take into account the characteristics, concerns, and needs of customers.

For a PSF (the) customer consideration becomes a key element. Brentani & Ragot conclude what is important: firms must plan the right company-customer relationship, ensure excellent communication, and train personnel in terms of communication and interaction skills.

3.3.4 Complaints Management

A different approach from CRM is: Complaints Management. First a few remarks are needed to distinguish this approach from regular customer feedback surveys. Complaints Management is a feedback form, however, here the initiative is taken by the customer. Complaints are only about dissatisfaction, while customer feedback surveys also collect positive activities which can be taken to future-projects. The goal in complaints management is the same: detect learning opportunities, (re)act and finally improve. This topic will be discussed with studies by Garver (2003), Zairi (2000) and Berry, Parasuraman & Zeithaml (1994).

Garver (2003) found that many firms collect customer complaints, but they rarely integrate these complaint data with customer satisfaction data to identify improvement opportunities. The investigated firms in the study by Garver (best practice companies) do carefully monitor complaints successfully and track performance deficiencies that cause complaints. These firms also collect data concerning the severity or priority of the complaints and their ability to satisfy the (complaining) customers. Garver concluded that complaint data are very useful in combination with other listening tools to identify customer service attributes needing improvement. (Garver, 2003)

Zairi (2000) argues that service firms must put the customer first. The main goal must be achieving excellence in customer value and ensuing care and attention. In his study Zairi treats the issues of complaints handling and management as essential for achieving customer retention and loyalty. Zairi sees complaints as a way of receiving customer feedback, generating knowledge that can be used to put into action improvement plans to optimize products and services. Complaints are useful to measure performance and to indicate deficient areas of the business. Complaints can bring the firm closer to the customer and can provide better understanding of when and why customers are dissatisfied.

Zairi gives a few examples of best practice in complaints management. Encourage:

- proactive management of customer contacts and complaint resolution through joint teams;
- (team) handling of complaints is facilitated by a systematic management meeting process;
- that complaint management assessments are correlated with other customer satisfaction data to give teams feedback on the quality of complaint management.

Zairi demonstrates some lessons learned at the *National Roads and Motorists Association* (NRMA, in Australia). They use quality circles that consist of four principles: (1) satisfy your customers; (2)

continually improve through small steps; (3) involve everybody in improvement and (4) control through measurement and statistics. Next to these four principles, some more lessons are summarized:

- Gathering customer complaints: receive, log, and assign to a proper team. The assigned team analyses, resolves, statuses and provides feedback. Finally the team closes the problem and contacts the customer;
- The NRMA's culture of customer service is rooted in the belief that satisfying customers and continual improvement is everyone's job. Staff and management as owners of work processes learn continually from complaints and run the business with clearly defined customer objectives, reviews and reporting systems supported by the right measures;
- Set up a clear intent to reward and encourage employee involvement and participation in improving customer value and resolving problems;
- Develop a smart information infrastructure to provide easy dialogues with customers and that information can be spread to all relevant employees to eliminate the causes of complaints.
- Analyze complaints and find out which complaints have the highest priority to be solved;
- Finally, an effective complaint system should be able to convert a dissatisfied customer into a satisfied, loyal customer.
  (Zairi, 2000)

Berry, Parasuraman & Zeithaml (1994) also investigated how to deal with complaints and thus improve service quality (in the context of American firms). When a problem occurs, a firm must react. The organization can make things better with the contribution of the customer. Firms should encourage their customers to complain and firms must make it easy for them to do so. Managers can also use proactive strategies, in which the firm contacts the customer first. This is important because some customers may not complain, although there are serious problems. Questions such as 'How can we do better?' provide ideas for service improvement. Respond quickly and do not wait too long to respond to dissatisfied customers. By responding quickly, a firm conveys a sense of urgency and demonstrates that the customer's concern is taken seriously. Respond personally with a telephone call or a visit or create another dialogue-opportunity to listen, ask questions, explain, apologize, and provide a solution. In the area of HRM Berry et al (1994) also give a few suggestions. Personnel must be trained how to act in problem-resolution positions. Employees should be given the authority to solve most problems immediately. The firm should also invest in communication and information systems for assistance and knowledge about the customer, the situation, the cause of the problem and possible solutions.

3.3.5 Organizational Learning

Phipps' (2001) study deals with learning from the voices of the customers, the staff, the processes, and the organization. He recognizes that partnerships with their customers can help to improve

businesses. Phipps views this phenomenon of ‘organizational learning’ in a broad perspective, namely at the cultural level. He identifies a few aspects of cultural change: listening to the voices of the customers by developing cooperative partnerships with them; and listening to the voice of the process by learning continuous improvement methodologies to identify whether work processes are effective and efficient.

Phipps made a list as well and described that a successful process improvement study largely depends on: (1) discovering customer expectations, (2) analyzing where and why the process falls short of those expectations, (3) creating and implementing solutions so the process will meet or exceed customer expectations. Phipps advises to follow the famous ‘Plan – Do – Check – Act – cycle’ to take action after listening to the voices of customers. Responding to customer needs is essential for the purposes of organizational learning and the ability to continue serving customers in the future. During this process, personnel must adopt knowledge about how to deal best with corresponding measurements and feedback-data. The utilization of outcome data from the customers’ perception of expected service quality should lead to a wider sharing and internal use of this information. This is necessary for the purpose of improving processes and to engage in organizational learning. Further, the application of learning can be accelerated through the utilization of teamwork. The different skills and perspectives, from all parts of the organization, will lead to new ways of thinking and questioning. Therefore staff is needed that is willing to commit to continuous learning. Phipps (2001)

Barnes, Fox and Morris (2004) add to this that firms must create an environment where employees are motivated to be customer focused in their thinking. In order to achieve this, there need to be adequate systems that reward and motivate employees who significantly contribute towards enhancing the organization´s service quality. Encourage employees (with rewards) to forward ideas to help improve the operations of the organization. Barnes, Fox and Morris (2004)

The last study related to organizational learning that will be discussed is by Hennestad (1999). He confirms the previously discussed approach. His study is about infusing the organization with customer knowledge. The study explores in practice the experiences of a company that learned to become more customer oriented. It is about how a firm can generate learning opportunities as a sustainable impact on its operations. The processes of joint construction are important factors in putting the knowledge into use. Some relevant lessons from Hennestad are summarized here:

- develop quality feedback systems, allow corrections, and keep this agenda ‘hot’;
- establish reward systems to sustain the interest for staff;
- integrate the follow-up into the planning, general management and meeting systems of the company in order to secure a clear focus;
- continually report customer satisfaction measurements on a yearly basis.

Hennestad suggests an internal evaluation procedure: if a negative incident is reported, it should be included in the agenda for the next department meeting. In this meeting will be discussed what can be done to make the customer happy, why this incident happened and how to change procedures in order to avoid a reoccurrence. The presented case in this study has been tested in a real company and has had positive outcomes: knowledge was generated, it was taken into use and it did have an impact. New knowledge has been reflected in learning procedures. This case indicates that organizations can transform themselves into a more customer-oriented firm with the help from their customers. Hennestad (1999)

3.4 The use of the approaches discussed in this chapter

Organizations should not underestimate this second important step in customer satisfaction research, as has been explored in literature above. Collecting customer feedback is one step, but benefitting from the outcomes through implementing lessons is the second step an organization should take in order to make a customer satisfaction research into a success. The discussed approaches have shown many effective methods of how to deal with customer feedback. Service organizations that pursue continuous improvement in the area of customer satisfaction can use these identified general approaches. Every (ICT) PSF will have to assess for themselves which methods from literature best suit them. The theory above contains many recommendations and advices that are interesting in the phase after data collection and when action plans are formulated, but in this paper no research will be done into the phases that follow. However, a few topics discussed in this chapter 3 will come back in chapter 7: Recommendations.

It is important to realize that this current research is not set up to investigate which complete approach (like CRM, CFS, TQM, etc.) would be the best approach for Tijs-ICT. Exploring these approaches was done in order to be well prepared to start a customer satisfaction research. Chang (2005, p. 414) described a solution how to find out customers' expectations: with a *continuous improvement cycle*. This cycle consists of (1) establishing customer requirements, (2) meeting the requirements, (3) measuring success, and (4) continue checking customers' requirements to find areas in which improvements can be made. Thus, to state things clearly, for this (current) research only phase 1 of the cycle will be investigated. (The other phases will have to be investigated in further research in the future). Chang indicated that customer surveys are by far the most commonly used performance measurement technique to measure customer satisfaction.

The literature review in this chapter provided knowledge that will be used for the scope of this (current) research. To make a clear distinction what will be used and what will not here is a summing up of what will be used from chapter 3:

-Chalmeta (2006) emphasizes that it is very important for continuous improvement that value must be added to what is really important to customers, and not to the points the company thinks are important.

-Phipps argued that the primary focus should be on understanding customers' needs, learning quick and clean methods of data gathering and analysis, and improving critical processes. For such an inquiry Phipps advised to start with: listening to and acting on the voices of customers, so knowledge about customer requirements will increase. By collecting service quality data, it should be identified what is working well and what is not. Collecting data must be easy, meaningful, and clearly related to customer satisfaction for staff to commit performance measures. This data can be used to develop performance and learning goals to support continuous customer focus. (Phipps, 2001)

-Complaints management is an approach to collect bottlenecks and improvement points from customers. However, in this approach the customer takes the initiative and by that time it is/may already be too late. Therefore an approach where the organization itself takes the initiative is prefered: a customer satisfaction survey will be used for this research. Clearly show the customer that the organization is open for improvement and that it is appreciated when customers sound their voices.

-Dawes & Rowley (1999) mentioned various approaches used to provide organizations with feedback on customer perceptions of their service quality. A range of tools they have discussed in their study can be used to measure service quality. In this (current) research: customer surveys will be used, but also customers will be asked for suggestions and will be given the opportunity to complain.

-Next to a measurement tool that will be used and selected from §2.3, Berry et al (1994) advised to ask questions such as 'how can we do better?' for generating ideas for service improvement.

-The approach suggested by Donovan & Samler (1994) demonstrated that results of the collected feedback must be analyzed and interpreted into action plans that can realize improvement.

-Christopher et al (1991) advised that employees must be made aware of the importance of customer satisfaction. All members of staff are part of a process which connects with the customer at the point of interface. Employees should always have real commitment to quality and customer satisfaction during the complete service delivery. Starting to create commitment directly at the beginning of the customer satisfaction research is important for creating support at a later stage (when results and action plans have become known). Creating support (and commitment) is the next step, following awareness, to succeed in formulating plans. Creating support starts with the marketing department telling the rest of the organization that and why a customer satisfaction survey is carried out. Showing the questionnaire and asking managers for input is a first step in the right direction. At regular

intervals staff has to be informed about the progress of the customer satisfaction research. Finally, with a presentation the employees should be informed about the outcomes and follow-up plans.

Next, in chapter 4, a plan will be developed how to get customer feedback. After the results and analysis (chapter 5) and after the conclusions (chapter 6), recommendations will be given about how to implement lessons and realize continuous improvement. At that point, in chapter 7, the collected knowledge of this chapter will certainly contribute in giving an advice to Tijs-ICT.

Chapter 4: Methods

The theoretical knowledge as discussed in chapter 2 and 3 has shown that paying serious attention to customer satisfaction contributes to continuous improvement. The literature review has provided useful knowledge and serves as a strong basis for a reliable customer satisfaction research. The literature section is a descriptive method used to broaden the knowledge before the empirical research will be conducted (Babbie, 2004). Now, the methods used for this research will be explained:

In §4.1, a research approach is designed: the customers' opinion will be mapped on how satisfied they are with the perceived service. Suggestions for improving customer satisfaction will be mapped as well. §4.2 will make clear which customers are selected. Next, in §4.3, it will be illustrated how the measure instrument has been constructed and in section §4.4 will be explained which procedure has been followed to collect empirical data at Tijs-ICT (for this research Tijs-ICT can be seen as an ICT PSF test case). Finally, in §4.5, the way the data has been analyzed will be described.

4.1 Research Design

This section describes a global outline of the empirical approach on how sub question 3 will be prepared: *What action plans can be formulated for Tijs-ICT from the collected scores and analysis to continuously improve customer satisfaction?*

With the use of the theoretical knowledge of chapters 2 and 3, an instrument can be developed that is appropriate for measuring customer satisfaction in an ICT PSF, operating B2B. Existing models with existing dimensions and items will be used for creating a customized measure instrument. This quantitative method contains statements for collecting information about how satisfied customers are after a service project. For the sake of clarity: customers are not asked what state of service quality they expect at the start of a project. This means that gap scores (expected-perceived) will not be used here. As found in literature (see §2.2.2) gap scores appear to be less reliable than scores not based on differences. Besides, no double questionnaire should be filled in by the same customers (Yoon and Suh, 2004). As found in literature search, this choice does not compromise the validity. This design still recognizes that (service) quality is the result of a balance between expectations and experiences. In this research, the assessment between the customers' expectations and experiences, will be measured in one quantitative questionnaire. With the instrument will be measured in what degree customers are satisfied with the perceived service quality and points for improvement will be identified. After the empirical data will have been collected, an analysis will be done. In short, a few more objectives are summarized here:

- better understand the customers' requirements and expectations;

- collect information and scores about how satisfied customers are with the perceived service at this moment in time;
- after analyzing the results; indicate improvement opportunities and formulate action points with the aim to benefit from the valuable information;
- this first zero measurement must be the start of monitoring customer satisfaction over time. Afterwards, it can be periodically evaluated if action plans have achieved the intended results. The incentive is to continuously improve and work on enhancing customer satisfaction in the future.

4.2 Selection and sampling

4.2.1 Selection

In this research the customer is the key to improvement. Profit organizations such as Tijs-ICT depend on customers who buy their services. That is why it is important to ask the customer his point of view on how the organization is doing. Tijs-ICT wants as many satisfied customers as possible, because: satisfied customers are often long-term customers: they spend more, they complain less, and they recommend Tijs-ICT to others as ambassadors who spread their satisfaction and positive opinion in their network. This can lead to more (potential) customers in the future.

In cooperation with the Tijs-ICT Marketing department it was determined and mapped who were the current customers that could assess the service Tijs-ICT delivers to them. In this case 'the'customer as an individual client does not exist, since Tijs-ICT operates B2B. Therefore, the account managers of Tijs-ICT were asked for their most important contact that could be approached to participate in this research. All the current customers and the customers who had just finished (less than one year) a relationship or project with Tijs-ICT were selected, because this research investigates how Tijs-ICT is performing at this moment in time. The criteria were: a contact must be able and should have sufficient experience with Tijs-ICT to assess the degree of satisfaction with the Sales department, or Project Management and/or Tijs-ICT in general. In many cases a representative or a project manager who often works together with Tijs-ICT would be asked to participate in this research.

4.2.2 Sample

The customer (a company) that needs an ICT-infrastructure, ICT products and the continued maintenance, support and advice of an ICT provider, still forms a very broad population. In order to collect the empirical data, the focus is on customers of one service provider: Tijs-ICT. The target group for this empirical research are regional and national (Dutch) companies. These organizations are institutions in healthcare or education or firms in the business market. Educational institutions are clients spread all over the country. The complete group of customers consists of 437 companies, based on a turnover larger than €1500 in 2010.

4.3 Measurement and Operationalization

This paragraph will explain how the measure instrument is constructed. In section §2.3 was already mentioned which models were suitable for measuring customer satisfaction. Not every existing instrument (like SERVQUAL, the IT-consulting SERVQUAL model etc.) fits in with the context of the organization. For Tijs-ICT it was necessary to customize (from the existing models from section 2.3) a measure instrument, because otherwise some questions/items would not make sense or might be misunderstood by the respondent. With the aid of department managers (of Tijs-ICT) it was discussed which existing dimensions would correspond best with the context of Tijs-ICT. Each chosen dimension contains fixed items that must remain intact. In this way the reliability of each dimension stays intact the way the authors have tested in their study. Some items are slightly modified in their formulation, but the main meaning of each item is still the same.

4.3.1 Dimensions (from existing SERVQUAL mutations)

The dimensions (selected from §2.3) are indicators of service quality and customers will be asked to assess how satisfied they are about the items, so scores can be mapped. The first three dimensions are operationalized as follows: (defined by Parasuraman, Zeithaml and Berry, 1985):

(1) *Reliability*: ability to perform the promised service dependably and accurately.
(2) *Assurance:* knowledge and courtesy of employees and their ability to inspire trust and confidence.
(3) *Responsiveness*: willingness to help customers and provide prompt service.

The other two selected dimensions are labeled as follows:

(4) *Process:* the approach, organization and the performance of a project
(5) *Price:* The monetary allocation in return for service (Westbrook & Peterson,1998).

All five selected dimensions have been tested and developed by the original authors (see figure 3). For instance, the measurement tool by Yoon & Suh (2004) examined its own constructs and items. The reliability of ‘Assurance’, ‘Reliability’ and ‘Process’ was assured by Cronbach’s α. This was indicated in their study. (Yoon & Suh, p. 349, 2004).

A list was been set up with closed questions selected from existing models (with existing dimensions and items discussed in §2.3). The selected dimensions that were used for the questionnaire are summed up in figure 3; between brackets is stated from which model the dimension comes from:

Figure 3: *Customized measure instrument for an ICT PSF (tested at Tijs-ICT)*

1. Dimension **Reliability:** (IT consulting SERVQUAL model, Yoon & Suh, 2004):
   - Have sufficient knowledge about the industry which customer is in
   - Have sufficient knowledge about information technology
   - Have excellent presentation skills
   - Communicate well with members, practitioners, and executives in customer site
   - Solve the problems with business as well as IT perspective
   - Secure customers' information well
   - Treat customers courteously and respect their opinions
   - Have good relations with customers
   - Provide sufficient trust to customers
   - Are supported by their own consulting organization
   - Have excellent teamwork among themselves
   - Fill in the role of PM or manager perfectly
2. Dimension **Assurance:** (IT consulting SERVQUAL model, Yoon & Suh, 2004):
   - Observe the project deadline as promised
   - Suggest the practical solutions for problems and issues
   - Provide the products that meet the customers' requirements
   - Manage the quality of output during the project
3. Dimension **Responsiveness:** (SERVQUAL, Parasuraman, Zeithaml & Berry, 1985, 1994):
   - Keeping customers informed about when services will be performed
   - Prompt service to customers
   - Willingness to help customers
   - Readiness to respond to customers' requests
4. Dimension **Process:** (IT consulting SERVQUAL model, Yoon & Suh, 2004):
   - Constitute the project team well organized with clear role assignment
   - Are the chosen professionalists necessary for the project
   - Establish the specific project schedule/time plan
   - Define the target process scope clearly and accurately
   - Have best practices for benchmarking sufficiently
   - Provide the plans to drive and manage the changes
   - Test and prove the validity of to-be model
   - Mediate the conflicts effectively among the project interested people
   - Progress favorably total project processes
5. Dimension **Price:** (B2B SERVQUAL model, Vandaele & Gemmel, 2004):
   - The price of the service provider meets the clients' budget objectives
   - The price is competitive compared to other offers for similar services
   - The price of the service provider relates to the quality delivered

6. 'Overall' dimension **Satisfaction:** (IT consulting SERVQUAL model, Yoon & Suh, 2004):
   - How much are you satisfied with the received consulting service?
   - Will you choose the same consulting company in future for the other consulting project?
   - Have you received the consulting service that you expected at the time of service selection?
   - Will you recommend this service to your colleagues or friends?

The IT consulting SERVQUAL matched best with the context of Tijs-ICT. This model was especially designed by Yoon & Suh (2004) for service firms operating B2B in the field of IT. 29 out of 40 items from the IT consulting SERVQUAL were used to collect empirical data for Tijs-ICT. This is 73% of the total model. The used dimensions (see figure 3) are: ´reliability, ´assurance´, ´process´, and ´satisfaction´. Other used dimensions for collecting data were: ´responsiveness´ (from SERVQUAL, Parasuraman, Zeithaml & Berry, 1985, 1994) and ´price´ (from B2B SERVQUAL model, Vandaele & Gemmel, 2004).

Yoon & Suh (2004) developed and tested the sixth dimension: *'Satisfaction'* as well and (as shown above) it is separated from the other dimensions with a reason. In the study by Yoon & Suh (2004) 'satisfaction' was seen as a dependent variable that measures the level of customer satisfaction. They found and concluded in their study that a high-level of 'assurance', 'reliability' and 'process' (as

independent variables) will lead to a high level of (customer) satisfaction. For this current research the items of 'satisfaction' will be used as an overall assessment of Tijs-ICT. This allows measuring customer satisfaction in an efficient way, with the use of only four questions. In short: the dimension 'satisfaction' will give an overall score of customer satisfaction and the other dimensions will provide customer satisfaction scores in more detail. Five dimensions, 'satisfaction' excluded, are measured with the same numeric scale. For every item/question there were formulated answers, based on a 5 point Likert scale. The respondents could choose from:

- 1= 'strongly disagree'
- 2= 'somewhat disagree'
- 3= 'agree nor disagree' (neutral)
- 4= 'agree'
- 5= 'strongly agree'

For 'Satisfaction' the next scale was used:

- 1= 'very unsatified'
- 2= 'unsatisfied'
- 3= 'neutral' (nor unsatisfied, nor satisfied)
- 4= 'satisfied'
- 5= 'very satisfied'

In 2010 a customer satisfaction research was already conducted at Tijs-ICT, but only for the Helpdesk-department. The research was a success and provided useful information for the Helpdesk. The next step to take for Tijs-ICT is to measure customer satisfaction for more departments that have a lot of customer contact. The 'x' in table 2 shows which dimensions will be measured for which department and behind the 'x' the number of items/questions per dimension can be found.

Table 2: *Customer Satisfaction measured at different departments atTijs-ICT:*

	Department:		
Dimension ↓	Sales	Project Management	Tijs-ICT (in general)
Reliability	x (12)	x (12)	
Assurance	x (4)	x (4)	
Responsiveness	x (4)	x (4)	
Process		x (9)	
Price			x (3)
Satisfaction			x (4)
Sum of items per department:	20	29	7

As table 2 shows: the dimension 'process' is not used in the questionnaire for Sales. The reason is that the questions/items that belong to the dimension 'process' would be difficult to understand by the respondents in the context of the Sales department. Several managers at Tijs-ICT advised to delete

this dimension for Sales, because the dimension is not relevant to them and the items (see Figure 3) do not correspond with the tasks that Sales has in the organization. Sales has a role in preparing a project, but the Sales department is not responsible during a project. For Project Management the dimension 'process' was perfect, because the underlying items of 'process' were very relevant and similar to the tasks conducted by Project Management (during a project).

Scales in this study were divided over different departments. This decision was made because the goal was to formulate action plans as specific as possible and as a consequence each department will get its own results. In this way, also comparisons can be made between departments. A disadvantage of using this method is that many more questions should be asked and that some questions had to be asked twice (the same questions for Sales and for PM). This might cause a respondent to drop out earlier, before he or she has completed the questionnaire.

As mentioned, the dimension 'satisfaction' is an overall adjustment and therefore it will be asked in the context: 'Tijs-ICT in general' and not for the separated departments. 'Price' is only used for the questionnaire related to 'Tijs-ICT in general' as well, because Tijs-ICT expected that their customers can assess the item 'price' (and 'satisfaction) better after a relationship or project with Tijs-ICT has been completed.

Many questions of the customer satisfaction research in 2010 conducted for the Helpdesk were similar to the selected items of this research in 2011. However, in 2010 Tijs-ICT did not use an existing model with existing dimensions from literature. For this current research (2011) existing and valid dimensions were used because with this approach the research will be more professionally and scientifically based. Besides, afterwards comparisons can be made with findings from similar studies in literature, for instance with the study by Yoon & Suh (2004).

However, for extra questions next to the selected dimensions, other questions were added to the survey. These questions are recommended in the literature review or questions that provided useful information in 2010 (during the customer satisfaction research at the Helpdesk of Tijs-ICT) can be used again for this research. These extra questions, in addition to the questions that measure the dimensions, are displayed in table 3. In §4.3.2 – 4.3.6 will be explained in more detail how and in which order the questions were formulated for this research in 2011.

Table 3: *Summary of prepared questions for customers*

Subject of the question(s)	***closed or open question(s)***
1. Dimensions (from existing SERVQUAL mutations)	closed questions (5 point Likert scale)
2. Final grade: Satisfaction	closed question (1 to 10 scale, 1= poor; 10= excellent)
3a. Mention one point of improvement	open question
3b. Most satisfied with?	open question
4. Put 4 points in order of importance	closed question
5. Space for remarks and suggestions	open question
6a General data: Sector?	closed question
6b General data: Company size?	closed question

4.3.2 Final grade: Satisfaction

In addition to the 'overall dimension': Satisfaction, two closed questions ask participants to give a final grade (on a 10 point scale) as an overall assessment of the Sales department and Project Management:

- *How satisfied, on a scale from 1 to 10 (1=poor, 10=excellent) are you about Sales?*
- *How satisfied, on a scale from 1 to 10 (1=poor, 10=excellent) are you about Project Management?*

4.3.3 Collecting priorities

Garver (2003, p. 463) found out in his study that 'best practice companies' often ask open-ended questions i.e., 'How can we improve?' in their customer satisfaction surveys. The study confirmed reusing these questions will be useful. Also for the Helpdesk at Tijs-ICT in 2010, this question has shown to bring a lot of relevant information, such as customer priorities. Therefore the following open questions were added to the list of closed questions:

- *If you should write down one point of improvement for Sales, what would you suggest?*
- *If you should write down one point of improvement for Project Management, what would you suggest?*
- *If you have to mention one point for Sales, what are you most satisfied with?*
- *If you have to mention one point for Project Management, what are you most satisfied with?*

4.3.4 Order of importance

Another way of closed questioning, instead of a Likert scale, is asking for an order of importance: *We, as Sales, want to make improvements in our service to customers. Please, put these four points in order of importance:*

1= Good communication with my company

2= Understanding our needs and demands

3= Good interaction with each other

4= Bring up the right solutions and proposals

With this question will be investigated which order customers will choose most often and which points the customers put in the first and second place. In this way can be researched which points the customers value most of these points. With this knowledge Tijs-ICT knows where they should put focus first. The same question is asked for Project Management to collect priorities. Only option 3 deviates: *We, as Project Management, want to make improvements in our service to customers. Please put these four points in order of importance:*

1= Good communication with my company

2= Understanding our needs and demands

3= The construction and planning of the project

4= Bring up the right solutions and proposals

4.3.5 Suggestions from participants

Also, extra space is given to the open question: *Do you have any remarks or suggestions?* This question was asked three separate times: for Sales, Project Management and Tijs-ICT in general: each time at the end of the relevant department of the questionaire. This question gives the participants the opportunity to leave a remark or a suggestion.

4.3.6 General data

Finally two closed questions were asked for collecting general data about customers, to see if there are any (significant) differences between categories:

- *Sector in which your organization operates: education, healthcare, business or other?*
- *Your company size in terms of FTE (Full Time Employees) on a 7 multiple-choice scale?*

4.4 Data Collection

For the data collection the following procedure was followed. With the developed questionnaire quantitative data will be collected that deals with numbers/scales that can be measured statistically. Characteristic for quantitative approaches are the closed-ended questions. With this procedure a large group can be investigated at the same time. This method is widely used and very suitable for a customer satisfaction survey.

The complete questionnaire was made available on the Internet in a digital format. The used tool was designed by Measuremail. This tool gave the survey a professional appearance and was very useful for sending out a questionnaire. This method is a quick and easy way for participants to fill in

answers. The electronic tool is cheap and raw data can be read directly into Excel. Moreover, it is only a small step to transport the data from Excel to SPSS.

A disadvantage of this method is that it has no possibility for finding out more about individual thoughts and motives of participants, as can be done with qualitative research in interviews. As a consequence, participants are limited in their answers. This problem is slightly offset by asking some open questions as well. In this research the importance of reaching a lot of customers is greater than reaching only a few customers for in-depth interviews. In total 60 closed questions and 7 open questions were formulated for this research and were put into one integrated questionnaire.

The request to fill in the survey was sent per email on the 20th of April via the account managers of Tijs-ICT who were in contact with the respective customer. The name of the Marketing Manager was added in the e-mail to show how seriously the research was taken and how much Tijs-ICT appreciated the participation of its customers in this research. These actions were taken with the aim to increase the chance of a good response rate. Two extra e-mails were sent later on the 3rd and the 12th of May as a reminder to customers who had not opened the invitation e-mail yet, or had not (fully) completed the survey. On the 18th of May the link was removed from the internet which was communicated with the target group in advance.

510 customers received an e-mail with the invitation to participate. In this e-mail a direct link to the digital questionnaire was added. This number of customers was higher than the target group, because for some organizations more contacts were approached. Not every participant was able to assess both departments: Sales and Project Management. For that reason the following question was integrated at the end of the first list of questions related to Sales: *Have you recently / less than one and a half years ago, had experience with the department Project Management (of Tijs-ICT)?* This closed question had two options: 'yes' or 'no'. The respondents who could assess Project Management got related questions about that department as well. The participants who could not assess PM were immediately forwarded to the questions related to 'Tijs-ICT in general'. This explains the large differences between the numbers of respondents per department: the obtained response rates to the dimensions were 32% for Sales, 10-11% for Project Management and 28% for Tijs-ICT in general. Despite the large number of questions, this is a good response. For the closed questions with a 5 point scale is was checked whether the observations (more or less) followed a normal distribution. This is important because all the statistical techniques used to analyze the outcome variables assume that the relevant variables are more or less normally distributed (Twisk, 2007). The observations in the histogram were (more or less) symmetrically distributed around the average, in the form of a mountain with the average value in top. Moreover, the averages were close to the medians, which also indicates normally distributed observations.

Not all participants, but the majority filled in an answer to the open questions. This was especially the case to the questions related to Sales asking to ‘mention a point of improvement’ and ‘what are you most satisfied with’. Furthermore, 23 subjects were deleted, because these respondents did not answer more than 50 percent of the complete questionnaire.

Last, but not least: it should be noted here that these kind of surveys always have a risk that customers give socially acceptable answers.

4.5 Data analyses plan

For analyzing the collected data mainly SPSS is used to execute tests. The selected dimensions can be analyzed directly by the values depending on the 5-point Likert-scale answers. Per dimension e.g. the mean, the standard deviation and the Cronbach’s α can be analyzed.

For each department values will be analyzed on their contribution to customer satisfaction. With this approach it is expected that the probability of the success of (follow-up) action plans increases. In this way Sales, Project Management and Tijs-ICT (in general) can be advised as specific as possible. With the final satisfaction grades (on a 10 point scale) for Sales and Project Management means can be analyzed and compared (with an Independent Samples test).

With the question that asks to put four points ´in order of importance´, it will be analyzed what is the most frequently chosen order and what does the majority of the participants put first or second.

For analyzing the answers to the open questions, another analyzing approach is used. All answers are categorized and interpreted by the researcher. The most common opinions, suggestions and appreciated points will be taken out of these answers.

It is expected that the identified disappointing statistics or scores indicate points for improvements. With the outcomes, action plans can be formulated and Tijs-ICT can reuse the developed research approach for monitoring customer satisfaction in the future, with the aim to continuously improve customer satisfaction.

Next to the specific customer satisfaction questions, also a few general data questions are part of the survey to make comparisons between different customer groups or categories.

By conducting a Principal Component Analysis (with SPSS) will be tested if items can be clustered differently instead of the current scales. The aim is to improve the questionnaire for using it again in the future in a more efficient version.

Chapter 5: Results empirical research

In this chapter the collected data will be presented and it will be explained how the findings of this study are interpreted. In section 5.2 an overview of the empirical content and analysis can be found.

5.1 Data and Analysis

In 5.1.1 the results related to the collected general data will be discussed first (ANOVA). In 5.1.2 the results from the *Correlation Analysis* will be presented and in 5.1.3 the principle of the '*Central limit theorem'* will be explained.

5.1.1 ANOVA test

The first test carried out was to see if different groups could be distinguished in the sample or that the sample could be seen as one (customer) group. The aim was to look if there were significant differences between sectors (business, education, healthcare, and other) or between company sizes (number of FTE's: 1-10, 11-25, 26-50, 51-99, 100-250, 251-500, 500<). For comparing more than two conditions, the test: analysis of variance (ANOVA) is used. ANOVA tests whether three or more means are the same. In other words, it tests the null hypothesis that all group means are equal in this study. The significant level ($p < 0,05$) will give a conclusion:

For Sales:
No significant differences were found in all the measured dimensions: 'reliability', 'assurance', responsiveness' and 'process', between sectors or company sizes. As for the question: 'How satisfied are you in general about the Sales department on a 1-10 scale?': no significant differences were found between sectors.

For Project Management:
No significant differences were found either in all measured dimensions: 'reliability', 'assurance', 'responsiveness' and 'process', between sectors or company sizes. As for the question: 'How satisfied are you in general about Project Management on a 1-10 scale?': no significant differences were found between sectors or company sizes.

Tijs-ICT (in general):
No significant differences were found between sectors, by testing for the dimension 'satisfaction'. However, for the dimension 'price' there was found a significant difference between the means (per company size). A Post hoc test (called Bonferroni) was conducted to see where exactly this significance difference came from. Only the averages of 11-25 (3.06) and 51-99 (3.70) differed significantly from each other ($p = 0.011$). The other groups did not differ significantly from each other.

Evidence was found that the sample was quite united in its assessment of Tijs-ICT. In general all respondents could be seen as one group. This conclusion is based by distinguishing between sectors and company size.

5.1.2 Correlation Analysis

The dimensions are elements for measuring the parent concept: 'Customer Satisfaction'. With the collected empirical data can be measured to what extent a relationship exists between the dimensions and "Satisfaction": which represents the overall assessment of Tijs-ICT with only four items. Items which form a dimension are taken together by calculating the averages.

These are bivariate correlations, involving the relationship between two variables, irrespective of the influence of other variables. In this case the conditions of the Pearson correlation coefficient were not met, but the Spearman's test is a good alternative for data with an ordinal scale. This test is non-parametric and can be used as the variables are at least ordinal. (Huizing, 2006)

Table 4: *Correlation Coefficients between the independent dimensions (reliability, assurance and responsiveness) & the overall customer satisfaction (the dependable variable):*

Sales

Independent Dimension	Correlation Coefficients*	Sig. (1-tailed)
Reliability	,654	(p<0,001)
Assurance	,586	(p<0,001)
Responsiveness	,450	(p<0,001)

*Correlation is significant at the 0.01 level (1-tailed).

In table 4 it can be seen to what degree 'reliability', 'assurance', and 'responsiveness' from Sales correlate with the overall dimension: 'satisfaction'. All significant correlations had a positive correlation. The tests were one-tailed (instead of 2-tailed) because in the literature (see section 2.3) a relationship between the dimensions and the overall 'satisfaction' dimension was expected. Table 4 shows the results of the correlation coefficients related to Sales. The coefficients differ only a few decimals and as can be seen 'Reliability' has the highest correlation coefficient. Further, for every dimension p< 0,001. Next will be presented in what degree the independent dimensions from PM correlate with the overall dimension 'satisfaction':

Table 5: *Correlation Coefficients between the independent dimensions & the (overall) dimension Satisfaction.*

Project Management

Independent Dimension	Correlation Coefficients*	Sig. (1-tailed)
Reliability	,518	(p<0,001)
Assurance	,398	(p=0,002)
Responsiveness	,527	(p<0,001)
Process	,513	(p<0,001)

*Correlation is significant at the 0.01 level (1-tailed).

See table 5, for Project Management all correlations had a positive correlation as well. 'Responsiveness' has the highest correlation coefficient.

Table 6: *Correlation Coefficients between the independent dimension price & the (overall) dimension Satisfaction.*

Tijs-ICT (in general)

Independent Dimension	Correlation Coefficient*	Sig. (1-tailed)
Price	,500	(p<0,001)

*Correlation is significant at the 0.01 level (1-tailed).

Table 6 shows a positive correlation between 'price' and 'satisfaction'. There is a significant relationship between 'price' scores and 'satisfaction', r=0,500, p < 0,001.

5.2 Overview of empirical content

In table 7 the overview of the empirical content can be found. The table presents how this section 5.2 is constructed and is very similar to the sequence presented in 4.3. This allows looking back quickly for background information about measurement concepts, such as the operationalization in chapter 4.

Table 7: *Overview of empirical content.*

Name of analysis	*Type of data*
1a. Customer Satisfaction and underlying dimensions	Descriptive statistics
1b. Reliability Dimensions	Cronbach's *α*
1c. Comparing means per department (+ a benchmark)	Independent Samples T-test s
1d. Principal Component Analysis	Can items be clustered differently instead of the current scales?
2. Final grades: Satisfaction	On an 1 to 10 scale, 1= poor; 10= excellent
3a. Mention one point of improvement	Answers to open questions
3b. Most satisfied with?	Answers to open questions
4. Put 4 points in order of importance	Most frequent orders
5. Room for remarks and suggestions	Answers to open questions
6a. General data: per sector	Comparisons
6b. General data: per company size	Comparisons

5.2.1a Customer Satisfaction and underlying dimensions

Table 8: *Descriptives: mean scores per dimension on a 5 point Likert scale, presented per department*

	Department:		
Dimension ↓	Sales (N=161)	Project Management (N=55)	Tijs-ICT in general (N=142)
Reliability	3,82 (sd=.508)	3,86 (sd=.609)	
Assurance	3,71 (sd=.529)	3,80 (sd=.661)	
Responsiveness	3,74 (sd=.579)	3,91 (sd=.579)	
Process		3,70 (sd=.585)	
Price			3,42 (sd=.623)
Satisfaction (overall dimension)			3,88 (sd=.576)

Per dimension and for all underlying items frequencies and percentages have been calculated. In table 8 a summary of the means of all measured dimensions is given on a 5-point Likert-scale. (1 = the lowest possible score, 5 = the highest possible score). What these averages show, is that they only differ a few decimals. Except the mean of 'price' is a little bit lower. In general the standard deviations (sd) are low and do not vary much. This indicates that the sample has a very clear opinion.

5.2.1b Reliability (Cronbach's α)

Reliability means that the items of the questionnaire should consistently reflect the dimension (/ the construct) that is measured (Field, 2009). The best approach is to run separate reliability analyses for all dimensions/subscales of the used questionnaire. In this current study the statistical software application SPSS (version 18) is used to perform analysis. In general, a confidence level of $p < 0.05$ is used to test the reliability. The reliability results will be presented for each measured dimension. First the dimensions used for Sales will be demonstrated, later on for Project Management (PM) and Tijs-ICT.

Table 9: *Statistics: Dimension Reliability (Sales)*

Cronbach's Alpha	N of items	N of participants
,916	12	161

For the dimension '*reliability*' the α = 0.916. This is a very high score (1.00 is the maximum) and indicates a reliable scale using the general rule: each score above 0.7 is acceptable. As a notification here, Field (2009) warns about the following effect: if the number of items on the scale increases, α will increase.

Table 10: *Item-Total Statistics for the dimension Reliability and its underlying items (Sales)*

Dimension: Reliability (Sales)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Sales has sufficient knowledge about the branch my organization operates in	,710	,906
2. Sales has sufficient knowledge about the solutions they offer to my organization	,767	,904
3. Sales has excellent presentations skills	,657	,909
4. Sales communicates well with the representatives of my organization	,712	,906
5. Sales has good relations with the representatives of my organization	,602	,911
6. Sales solves the problems with business as well as IT perspective	,753	,904
7. Sales secure our customers' information well	,515	,914
8. Sales treats me courteously and respects my opinion	,661	,909
9. Sales provides sufficient trust to me (as a customer)	,759	,904
10. Sales is supported by their own organization (Tijs-ICT)	,541	,914
11. Salesmen in the office and field staff have excellent teamwork among themselves	,463	,917
12. The role of the salesperson or account manager meets my expectations	,739	,905

According to Field (2009) two other basic reliability analyses are important: *Cronbach's Alpha if Item Deleted* and *Corrected Item-Total Correlation:*

- The *Corrected Item-Total Correlation* is presented in the table above and is the correlation between each item and the total score from the questionnaire. It is expected that all items should correlate with the total, because that indicates whether a scale is reliable or not. Items that do not correlate enough with the overall score from the scale are items with values are lower than .3. Items with low correlations may have to be dropped. For table 10 all these data have item-total correlations above 0.3, which is a good sign for the reliability of the scale.

- The other reliability analysis is: *Cronbach's Alpha if item Deleted.* This can be found in the table above as well and it literally shows the values of the overall α if that item is not included in the calculation. In this way can be seen if the questionnaire can be improved by deleting a particular item. This is the case for the 11th item: α =.917 which is higher than the overall α (.916). However, this increase is minimal and therefore negligible. Both values reflect a good degree of reliability and it is not necessary to delete one of the items. If the research questionnaire is reliable, than it is not expected that any of the items greatly affect the overall reliability. Relevant is looking for items that dramatically increase the value of α, which is not the case here, because all values in this column are around the overall α (.916).

The discussed reliability analyses above were conducted for the other dimensions as well, but the complete details of these results are not shown in this paper. In this section only a summary of the findings related to the 'Corrected Item-Total Correlation' and the 'Cronbach's Alpha if item Deleted' will be reported. As mentioned, first the dimensions of Sales (Reliability, Assurance and Responsiveness) will be shown, secondly the dimensions of Project Management (Reliability, Assurance, Responsiveness and Process) and finally the dimensions of Tijs-ICT in general (Price and Satisfaction).

Sales:

Table 11: *Descriptive* **s***tatistics for Sales*

Dimension	Cronbach's Alpha	N of items	N of participants
Reliability	.916	12	161
Assurance	.761	4	161
Responsiveness	.783	4	161

The Cronbach's α's calculated for Sales can be found in table 11. Each dimension appears to be reliable, because their values are above 0.7 (besides, the Cronbach's α cannot be larger than 1). The results related to the *Corrected Item-Total Correlation* were calculated, but are not shown here in a table. The results related to the *Corrected Item-Total Correlation* were encouraging. For all three dimensions, all underlying items are above the boundary of .3. As mentioned earlier, these scores indicate that the reliability of each item is good.

About '*Cronbach's Alpha if Item deleted'* can be reported that all Cronbach's α's are lower, but around the overall α. This indicates no items have to be deleted based on this reliability test. (To be precise, one item from 'assurance' was actually .785, but this increase is negligible for deciding to delete this item: Sales observe the fulfillment of commitments and deadlines).

Project Management:

Table 12: *Descriptive statistics for Project Management*

Dimension	Cronbach's Alpha	N of items	N of participants
Reliability	.947	12	55
Assurance	.875	4	54
Responsiveness	.825	4	52
Process	.927	9	52

The Cronbach's α's calculated for Project Management are presented in table 12. Again, each dimension appears to be reliable (because their values are above 0.7.). The results related to the *Corrected Item-Total Correlation* are encouraging as well. For all four dimensions, all underlying items are above .3. This means the scores indicate that the reliability of each item is good. About *Cronbach's Alpha if Item deleted* can be reported that all Cronbach's α's are under .947 and around the overall α.

Tijs-ICT (in general):

Table 13: *Descriptive statistics for Tijs-ICT (in general)*

Dimension	Cronbach's Alpha	N of items	N of participants
Price	.837	3	142
Satisfaction	.900	4	142

The Cronbach's α's calculated for Tijs-ICT (in general) are presented in table 13. For both dimensions, the values are above 0.7. The results related to the *Corrected Item-Total Correlation* (for Tijs-ICT in general) are encouraging as well. For both dimensions, all underlying items are above .3. These scores indicate that the reliability of each item is good. About *Cronbach's Alpha if Item deleted* can be reported that all Cronbach's α's are around the overall α. Again, deleting a specific item will not lead to a higher Cronbach's α.

In short, the 'Cronbach's α' and the 'Corrected Item-Total Correlation indicated that all dimensions are reliable. Also, it is shown that deleting items will not lead to an increase of the overall Cronbach's α of a dimension. Next, the means of the different departments will be compared in 5.2.1c.

5.2.1c: Comparing means per department

In this section two departments will be compared to see if the average scores differ significantly. The reason to do this: suppose there might be differences, for instance Project Management scores significant better in terms of 'responsiveness' compared to Sales. In that case it is indicated that Sales

can learn from Project Management. PM can tell to Sales all about how they work on responsiveness. This gives Sales new insights and enables them to improve on the point of responsiveness.

Table 14 shows the averages for each dimension that are measured twice, one time for Sales and one time for Project Management. By performing 'Independent Samples T-tests, it will be investigated if the averages differ only by chance or not.

Table 14: *Mean per dimension on a 5 point Likert scale*

	Department:	
Dimension ↓	Sales	Project Management
Reliability	3,82	3,86
Assurance	3,71	3,80
Responsiveness	3,74	3,91

The 'Independent Samples T-tests' are conducted with SPSS which makes it possible to compare two means. The fifth column of 15 demonstrates that the significance level is above 0,05: Sig. (2-tailed) =.689. That means, it can be concluded that for the dimension 'reliability' no significant difference has been found between both departments: Sales and Project Management. In other words: the customers of Sales were equally satisfied as the customers of Project Management.

Table 15: *Outcomes Independent Samples Test (dimension: reliability)*

Dimension: **Reliability**	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	1,403	,238	-,440	211	,660	-,03750	,08516	-,20536	,13037
Equal variances not assumed			-,401	75,263	**,689**	-,03750	,09344	-,22362	,14863

In the same way the same conclusion was found for, ´assurance´ (p= .334) and ´responsiveness´ (p= .063). Both averages, comparing Sales and PM, of ´reliability´ and ´assurance´ are very close. For ´responsiveness´ both averages (Sales and PM) differ a few decimals, but still do not differ significantly. With these results can be concluded that the customers that assessed Sales are satisfied in the same degree as the customers that assessed Project Management, for the tested dimensions ´reliability´, ´assurance´ and ´responsiveness´.

5.2.1d: Principal Component Analysis

There are several ways of conducting a factor analysis. Here, the principal component analysis (PCA) is used. (Strictly speaking a PCA is not a factor analysis, however, both procedures may often yield similar results; Field, 2009). With a PCA can be investigated if items can be clustered in a different way; in new components instead of the original dimensions from existing measure instruments. A PCA is important to continue and examine the analysis of data. It can improve the questionnaire already developed. The aim is to see if it is possible to achieve a finer measurement tool that can be applied for the next customer satisfaction research for Tijs-ICT.

The output tables on the next pages show if items correlate with other items outside their fixed dimension of which the item was originally part. As a general rule, each item that scores a value under 0.5 does not correlate enough to put the item in a new component (a new created dimension). To be sure, every item with a factor loading less than 0.55 is deleted. In the matrices on the next pages the components are numbered (1,2,3,4 etc.). The components are sorted by size and ordered from the component that received the most items. Some items participate in more components, in that case the component is noted for which the variable has the highest loading. In general, values between 0.8 and 0.9 are great and it depends on the researcher where the line is drawn to create new components. Here, every item that scores above 5.5 will be selected and given a new logical name/label.

As can be seen in matrix 1, a varimax rotation is used. The results of this rotated solution were compared with the unrotated solution matrix. Before rotation, almost all variables loaded highly onto the first component. The remaining components did not get more than one or two variables and did not really create a new clear factor. However, the varimax rotation has clarified things considerably and created clear new components. Furthermore, by using varimax rotation there is the opportunity to compare the findings with the results founded by Yoon & Suh (2004). They also applied a PCA with Varimax rotation with Kaiser Normalization. In chapter 6, comparisons will be made and discussed.

Matrix 1: *Outcomes Rotated Component Matrix[a] for Sales*

Sales	Component			
	1	2	3	4
Sales has sufficient knowledge of the solutions they offer to my organization	,788			
Sales communicates well with the representatives of my organization	,767			
Sales provides sufficient trust to me (as a customer)	,750			
Sales treats me courteously and respects my opinion	,718			
Sales has sufficient knowledge of the branch which my organization operates in	,717			
Sales solves the problems with business as well as IT perspective	,713			
Sales has good relations with the representatives of my organization	,692			
The role of the salesperson or account manager meets my expectations	,680			
Sales has excellent presentations skills	,628			
Sales suggests practical solutions for problems and issues	,621			
Sales provides the products and services that meet our customers' requirements	,607		~~,563~~	
Sales provides the bids/ documents in time		,813		
Sales always answers my questions timely		,788		
Sales keeps us informed about when services will be performed		,625	~~,564~~	
Sales pays attention to the observance of appointments and deadlines		,587		
Sales is always willing to help me		,587		
Sales manages the preparation of the project in a proper way			,784	
Salesmen in the office and field staff have excellent teamwork among themselves				,828
Sales is supported by their own organization (Tijs-ICT)				,713

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

The created components can be seen as new 'dimensions'. For labeling these new factors, the next step is to look at the content of the items that load onto the same component. In this way it is tried to identify common themes for labeling the new constructed components. For Sales, four components were clustered from 20 different items:

- **Component 1**: consists of eleven items and will be labeled as **'project delivery'**. The outcomes can be compared with the original dimensions in §4.3.1. Nine of the eleven items correspond with the original dimension 'reliability' (from the IT-consulting SERVQUAL model, Yoon & Suh, 2004) and the other two items originally come from 'assurance' (from the IT-consulting SERVQUAL model).
- **Component 2**: consists of five items and will be labeled as: **'deadlines and timing'** Four items correspond with all the four items from the original dimension 'responsiveness' (SERVQUAL, Parasuraman et al, 1985). (The other item originally comes from 'reliability').
- **Component 3**: two of the three items participate in more components. In that case the general rule is to note the component for which the variable has the highest loading. This means component 3 only consists of one item: **'preparation of the project'**.

- **Component 4**: consists of two items and will be labeled as **'club/teamwork'**. Both items are related to how the staff of Tijs-ICT works together as a team, internally. (Both original items come from the original model of 'reliability').

Matrix 2: *Outcomes Rotated Component Matrix[a] for Project Management*

Project Management	Component			
	1	2	3	4
PM defines the target process scope clearly and accurately	,806			
PM establishes the specific project schedule/time plan	,759			
PM keeps us informed about the project and about when services will be performed	,737			
PM makes good considerations to achieve a suitable approach for the project to come	,731			
PM pays attention to the observance of appointments and deadlines	,722			
PM provides services timely	,717			
PM takes care of a favorable progress of the total project processes	,634			
PM sets up the project team well organized with clear role assignment	,633			
The role the project manager fills in, meets my expectations	,630	,590		
PM provides the plans to govern and manage the changes	,610			,554
PM has sufficient knowledge about the branch which my organization operates in		,802		
PM is supported by their own organization (Tijs-ICT)		,732		
PM provides sufficient trust to me (as a customer)		,665		
PM solves the problems with business as well as IT perspective		,618		
PM has sufficient knowledge about the solutions they offer to my organization		,616		
PM has excellent presentations skills		,589		
The Project Manager and engineers have excellent teamwork among themselves	,565	,581		
PM treats me courteously and respects my opinion			,710	
PM has good relations with the representatives of my organization			,705	
PM secures our customers' information well			,699	
PM is always willing to help me			,675	
PM always answers my questions timely			,576	
PM tests and proves the reliability of potential techniques that can be used				,878
PM mediates the conflicts effectively among the project interested people				,661

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

In matrix 2, for Project Management, four components were clustered from 29 different items:

- **Component 1**: consists of ten items and it can be labeled as **'Project Management tasks'**. (Six of the items are from the original 'process' dimension (IT-consulting model, Yoon & Suh, 2004). The other four items come from the other 3 original dimensions).

- **Component 2**: consists of seven items and will be labeled as **'competence and content quality'.** (Striking is that all seven items originally come from 'reliability' (IT-consulting model, Yoon & Suh, 2004).
- **Component 3**: consists of five items that are related. All five items are about how the company treats its customers. This component can be labeled as: **'dealing with customers and communication of the quality'.**
- **Component 4**: consists of two items and can be labeled as **'effectiveness'.**

Matrix 3: *Outcomes Rotated Component Matrix[a] for Tijs-ICT in general*

Tijs-ICT (in general)	Component	
	1	2
I will recommend Tijs-ICT's services to others in my network	,853	
How much are you satisfied with the received services by Tijs-ICT?	,842	
I have received the service and advice that I expected at the time of service selection	,823	
For other similar projects in the future, I will choose Tijs-ICT again	,811	
The price of Tijs-ICT meets the budget objectives of my organization		,876
The price of Tijs-ICT is competitive compared to other offers for similar services		,866
The price of Tijs-ICT relates to the quality delivered		,707

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

For Tijs-ICT (in general) two components were clustered from 7 different items. The results of this matrix is very clear. **Component 1** is labeled as: **'satisfaction'** and **Component 2** as **'Pricing'.** The two components are identical to the former dimensions: 'price' and 'satisfaction'. This finding confirms that the scales are strong and that the items belong together.

The PCA has provided new and better dimensions/components that can measure elements of customer satisfaction in a quick and effective way. It is normal that with a PCA the questionnaire is reduced in the number of items, because some items were loaded less than 0.55 to a component:

- Sales secures our customers' information well
- PM manages the quality of output during the project
- PM delivers the products and services that meet my requirements
- PM suggests the practical solutions for problems and issues
- PM communicates well with the representatives of my organization
- PM deploys the right expertise and professionals during the project

With the PCA new and better components were constructed for each department. For Tijs-ICT the ten new clustered components provided new insights in the collected data as labeled above. This means,

for Tijs-ICT, the new components are of greater value than the theoretical dimensions (like 'reliability', 'assurance', 'responsiveness', etc.).

In appendix 12 more information can be found about the PCA results. In the appendix findings were compared with findings in literature.

5.2.2 Final grades: Satisfaction

In this part the results of the assigned final grades will be presented. On a scale from 1 to 10 the customers have assessed the Sales deparment and Project Management:

Table 16: *Descriptive statistics: final grades*

	Department:	
	Sales	Project Management
Type of data		
Mean	7,53	7,50
Std. Deviation	1,096	1,276
Minimum	4	3
Maximum	10	10
N	161	52

The results indicate that customers are positive about the departments. A 7.5 is a good grade on a scale of 1 to 10. By comparing the two means, from Sales and Project Management, it can be seen that this difference is negligible. This difference is so small that it can also occur by chance. The Independent Samples Test calculated that there is no significant difference: $p > 0,05$ ($p = .863$). Besides, the standard deviations were calculated and they only differ by a few decimals. The scores are very close to each other, for a 10 point scale. It can be concluded that the customers of Sales were equally satisfied as the customers of Project Management. More details are shown in the figures demonstrated below. On the horizontal axis the grades (given by the customers) are ordered and on the vertical axis the frequencies are presented:

Figure 4: *Bar chart for Project Management: final grades*

Figure 5: *Bar chart for Sales: final grades*

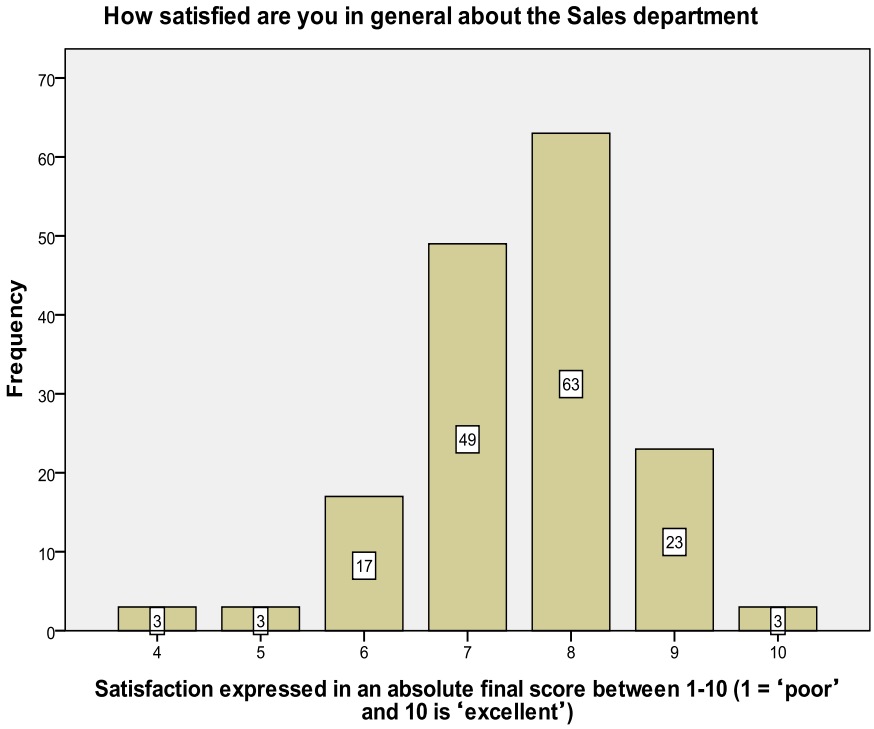

Table 17: *Descriptive statistics for Sales and Project Management: frequency and percentages*

Project Management:

	Frequency	Percentages
1	-	-
2	-	-
3	1	1,9%
4	-	-
5	2	3,8%
6	6	11,5%
7	15	28,8%
8	17	32,7%
9	10	19,2%
10	1	1,9%
Total:	52	100%

Sales:

	Frequency	Percentages
1	-	-
2	-	-
3	-	-
4	3	1,9%
5	3	1,9%
6	17	10,6%
7	49	30,4%
8	63	39,1%
9	23	14,3%
10	3	1,9%
Total:	161	100%

The figures again show the positive assessment of the customers. Many high grades are assigned, especially 7 and 8. Both figures have a lot in common. Not only the averages correspond, also the median is the same: an 8. The distribution and the proportions between the data are very similar as well (see percentages). Furthermore, customers who assigned a low final grade are a direct trigger to contact them immediately. This offers the opportunity to improve the situation and thus improve the customer satisfaction.

These final grades related to Sales and PM indicate that participants are positive and satisfied. This finding can also be compared with the collected scores of the dimension: 'satisfaction' (see 5.2.1a). This dimension collected an overall assessment of customer satisfaction as well, but was scored for Tijs-ICT (in general). A different scale was used and the dimension 'satisfaction' consisted of four items. However, both results indicate that participants are positive and satisfied.

Scientifically it is not allowed to compare both (different) scales. On a 5 point Likert scale Tijs-ICT (in general) scored 3,88. This score multiplied by 2 = 7,76. This score only differs 2 decimals from the 7,5 score from Sales and PM. It is not legitimate to multiply 3.88 by 2. In fact, with a 5 point Likert scale customers could only fill in 2,4,6,8 or 10, and not 1,3,5,7,9. Although these scales cannot be compared legitimately, both scores confirm and indicate a good overall score of (customer) satisfaction.

5.2.3 Priorities

Participants were asked to mention one point for improvement for Sales and for Project Management. Participants were also asked to mention one point they were most satisfied with. Open answers ask for another method of analysis than is used for the numeric data. A qualitative method is used to draw conclusions. All answers were clustered and categorized in groups. For example all answers from participants that were related to 'communication' were put together in one group. The categorized

groups were interpreted by the researcher. The most important opinions, suggestions and appreciated points will be discussed here:

Summary open question 1 (Sales): point for improvement for Sales
More than half of the participants have left a comment. The most important area for improvement considered by the customer is 'the communication and feedback', during customer contacts and ´the communication about tasks to be performed'. Moreover, many customers feel that the internal communication and coordination (between departments) should be better. Many customers think that a more rapid succession of bids/orders should be possible. The duration is sometimes too long. Even worse, there are customers who sometimes have to call themselves, because they did not hear anything back at the time that was promised by Sales. This result is related to the mentioned point: 'feedback'. All other answers are definitely worth looking at, but the two points mentioned above: 'communication and turnaround quotes/bids', are points for improvement most often identified. Furthermore, 13 comments were posted saying that sellers should identify themselves better with the customer and should be more proactive in their thinking.

Summary open question 2 (Sales): what are you most satisfied with?
Tijs-ICT can use the response to identify service elements which customers appreciate (very) much. The staff of Tijs-ICT should be well aware of its competences and continue with what they do best. By far the main issue is 'personal contact' which was mentioned very often. The customer specifies the seller as friendly and helpful during the cooperation. A dozen customers indicated that they often get a quick response back. In addition, the knowledge and expertise of Sales is often praised. Notable is also that, although in the previous open question 'communication' was often cited as a point for improvement, there were also customers (14) who put 'communication' here as a point they were most satisfied with.

Summary open question 1 (PM): point for improvement for Project Management?
For PM the number of respondents was much less as compared to the sales department. As a consequence, this also yielded fewer answers. It is a smaller group because the number of customers that has entered into a project recently (within one and a half years ago) is less than the number of customers that has experience with the Sales department. Actually, a few customers have written that the 'communication' should be improved. Many other answers were filled in as well, but their themes were very different and could not be clustered.

Summary open question 2 (PM): what are you most satisfied with?
There was no single point that stood out, in the answers given. However, four clear points were identified. According to the customers (1) the 'communication and feedback' by PM during a project is ok. (2) The speed of response and the speed in which issues / problems are handled is ok as well. Furthermore (3) the willingness and helpfulness of the staff is mentioned several times by several

customers. Finally, (4) the expertise of Project Management was praised. The customers were very satisfied with their solutions and support.

5.2.4 Put 4 points in order of importance

In this section the results of another question will be discussed. Both for Sales and Project Management, the participants were asked to put four points in order of importance. The most frequent orders, so not all chosen orders, are presented in table 18 (for Sales) and in table 19 (for PM).

Table 18*: Sales: order of importance, frequency and percentage:*

Order	Frequency	Percentage
2-4-1-3	29	21,3%
1-2-4-3	12	8,8%
2-4-3-1	12	8,8%
4-1-2-3	8	5,8%
4-2-1-3	8	5,8%
1-4-2-3	7	5,1%
3-2-4-1	7	5,1%
4-2-3-1	7	5,1%
2-1-4-3	6	4,4%
3-1-2-4	6	4,4%
1-3-2-4	5	3,6%
1-3-4-2	5	3,6%

Most chosen order:
2: Understanding our needs and demands
4: Bring up the right solutions and proposals
1: Good communication with my company
3: Good interaction with each other

52x '2' is put first
35x '1' is put first
26x '3' is put first
22x '4' is put first
(Total: 136)

55x '4' is put second
42x '2' is put second
24x '1' is put second
15x '3' is put second

The results indicate that: '2': *understanding our needs and demands'* and '4': *bring up the right solutions and proposals'* are seen as the two most important conditions by 30% of the customers (by summing up the percentages from the orders 2-4-1-3 and 2-4-3-1). However, 30% is not a very large group. Table 18 shows that a very concrete opinion on what is important has not been found. The conclusion is that there is much disagreement about what is important. Customers were different in their opinion about what are the most important points. This indicates that '1': *good communication with my company'* and '3': *good interaction with each other'*, are also seen as important by customers.

Table 19*: Project Management: order of importance, frequency and percentage*

Order	Frequency	Percentage
2-4-3-1	10	23,8%
1-2-4-3	3	7,1%
2-4-1-3	3	7,1%
4-3-2-1	3	7,1%
1-2-3-4	2	4,8%
1-3-4-2	2	4,8%
2-1-3-4	2	4,8%
2-1-4-3	2	4,8%
2-3-1-4	2	4,8%
3-1-2-4	2	4,8%
4-2-1-3	2	4,8%

Most chosen order:
2: Understanding our needs and demands
4: Bring up the right solutions and proposals
3: The construction and planning of the project
1: Good communication with my company

20x '2' is put first (48%)
9x '1' is put first
8x '4' is put first
5x '3' is put first
(Total: 42)

16x '4' is put second
9x '1' is put second
9x '3' is put second
8x '2' is put second
(Total: 42)

These results indicate that: '2': *understanding our needs and demands*' and '4': *bring up the right solutions and proposals'* are seen as the two most important conditions by 31% of the customers (by summing up the percentages from the orders 2-4-3-1 and 2-4-1-3). However, here in table 19 as well, 31% is not a very large group, which indicates that the other two items, '3': *the construction and planning of the project'* and '1': *good communication with my company'* are also seen as important by other customers. Furthermore, 48% put '*understanding our needs'* on the first place, which indicates that almost half of the customers (from Project Management) sees this point as an important first condition.

Overall, from the findings presented in table 19, it can be concluded that there is much disagreement on what order is most important and a very concrete opinion has not been found. Customers differ in their opinion on what are the most important points for them.

5.2.5 Space for remarks and suggestions

At the end of each questionnaire related to the specific department, three times the following question was asked: *Do you have any other comments and / or suggestions?*

These questions were not obligatory, but were asked to give the respondents the opportunity to write something if they wanted to. For Tijs-ICT it is interesting to have a look at all the answers. Not all the answers are included in this report, but a summery will given here:

Summary for Sales
The answers were quite diverse, so it is not possible to derive a clear picture. This also has to do with the low number of responses from the participants. Over twenty answers were given. Some left a reply such as 'keep it up' or had a small critical point related to the quotations. The low number of comments that were filled in for this question can be explained by the fact that the customer already had the opportunity to write down answers in the other two open questions (mention a point for improvement and what are you most satisfied with?). Furthermore, the answers can be summarized as not being negative.

Summary for Project Management
This question has yielded only five answers, which were quite diverse. Due to the lack of data here, there is nothing to summarize. For the participants it was enough that they had an earlier opportunity to answer the two open questions: 'mention a point for improvement' and 'what are you most satisfied with? There were no urgent messages and the answers given were certainly not negative.

Summary for Tijs-ICT (in general)
This question has yielded no clear picture. Nearly 20 different comments and suggestions were given. The answers are difficult to summarize, but it is definitely worth to view all the answers. For instance, there were a few suggestions related to 'the communication and feedback', which confirms in some degree the results found in §5.2.3. Also, some noted something they liked about Tijs-ICT, such as: 'the pleasant cooperation' and 'watching a match of FC Twente together'.

5.2.6 General Data

At the start of this chapter, in section 5.1.1, some results of the collected general data have already been discussed. Evidence was found that the sample was rather united in its assessment. Based on this finding, the sample can be seen as one customer group. Furthermore, in this section only some descriptive statistics will be shown related to the collected general data. The participants were asked to fill in in which sector their organization operates (education, healthcare, business or other) and the size of their company expressed in FTE's: Full Time Employee, converted into number of fulltime jobs (1-10; 11-25; 26-50; 51-99; 100-250; 251-500; 500 >).

Table 20*: descriptive statistics: general data*

Sector ↓	Total population		Sample 2011	
	Freq.	Percentages	Freq.	Percentages
Education	112	25,6%	45	31,7%
Healthcare	11	2,5%	9	6,3%
Business	314	71,8%	83	58,4%
Other	-		5	3,5%
Total:	437	100%	142	100%

Not all respondents from the sample filled in in what sector their organization operates, but 142 did. In the sample the category 'other' was filled in 5 times: these are for instance cultural organizations. The population and sample consist of customers based on a turnover larger than €1500, spent in 2010.

The proportions between the categories for the population and the sample display similarities. For both, the largest group is 'Business', the middle group is 'Education' and the smallest group is 'Healthcare'.

Table 21*: Number of companies, categorized per size (in FTE's)*

Company size	N
1-10	20
11-25	23
26-50	20
51-99	22
100-250	25
251-500	14
500 >	18
Total	142

In table 21 can be seen that groups (in frequency) do not differ from each other in terms of absolute numbers. Besides, the groups are well distributed. However, no calculations were available to compare this sample with the total customer population of Tijs-ICT.

§5.2.6. was the last section of this chapter. In this chapter the most important results were presented, analyzed and interpreted. The next chapter will integrate the empirical results with the founded literature and will summarize the essentials of this research.

Chapter 6: Discussion and Conclusion

In this chapter the discussion and conclusion of this research can be found. The essential results from the previous section will be integrated into, the literature discussed and also the research question will be answered. In this research a customer satisfaction survey was conducted to better understand the needs and expectations of customers. This form of interaction with customers helps to increase the satisfaction and with the results and feedback the service quality can be further optimized towards the point the customer expects. This goal fits in with the intended line of continuous improvement. The formulated research question in chapter one is repeated here:

How to continuously improve customer satisfaction in an ICT PSF?

The research question was divided into three sub questions and will be answered in the same order:

Sub question 1: How to measure customer satisfaction in a PSF?
For this answer a literature review was conducted in chapter 2. This exploring approach identified several existing and valid measure instruments in the PSF (B2B) context. Six instruments were identified. These quantitative instruments are structured as follows: they offer useful dimensions (such as 'reliability' or 'assurance'). These dimensions have a strong correlation with customer satisfaction and service quality. The dimensions are divided into items and these items directly represent the questions that were asked to the customers. The customers could assess the items by indicating to what extent they are satisfied with a particular item on a 5 point scale: 1= 'strongly disagree', 2= 'somewhat disagree', 3= 'agree nor disagree' (neutral), 4= 'agree', 5= 'strongly agree'.

The IT consulting SERVQUAL matched best with the context of Tijs-ICT. This model was especially designed by Yoon & Suh (2004) for service firms operating B2B in the field of IT. 29 out of 40 items from the IT consulting SERVQUAL were used to collect empirical data for Tijs-ICT. This is 73% of the total model. The used dimensions were labeled as follows: ´reliability, ´assurance´, ´process´, and ´satisfaction´. (from IT-consulting SERVQUAL model, Yoon & Suh, 2004). Other used dimensions for collecting data were: ´responsiveness´ (from SERVQUAL, Parasuraman, Zeithaml & Berry, 1985, 1994) and ´price´ (from B2B SERVQUAL model, Vandaele & Gemmel, 2004).

With a correlation analysis the relationship between the dimensions and the overall 'satisfaction' dimension was tested. A significant relationship was found between all used dimensions (reliability, assurance, responsiveness, process and price) and the overall dimension 'satisfaction'. The calculated correlation coefficients were acceptable and all had a positive correlation.

With the 'Cronbach's α' and the 'Corrected Item-Total Correlation' was indicated with SPSS that all dimensions were reliable. Also, it was shown that deleting items would not lead to an increase of the overall Cronbach's Cronbach's α' of a dimension.

Next to collecting numeric data, it was found in the literature review that it is recommended to ask some open-ended questions as well, like: How can we improve? The research at Tijs-ICT showed that the set of two open questions has proved to be very effective. Those questions were:

1) *If you should write down one point of improvement for Sales and PM, what would you suggest?*
2) *If you have to mention one point* for *Sales and PM, what are you most satisfied with*?

The first question was meant to identify which processes could be improved as the customer expects them to. With their knowledge about improvement points, Tijs-ICT can work on the identified points from the research, so that customers will be pleased with those points as well in the future. The second question was meant to identify what customers appreciate most in Tijs-ICT. By identifying these points, staff will be aware of what they are good at.

The results of these questions are elaborated at sub question 3.

In the literature review and in the case study it was found that it is important to take into account the context of the company in which the research will be conducted. Things are different if an organization operates in a particular branch (like ICT instead of Architecture), or operates B2B (instead of B2C), or only provides products instead of a complete path of services. For a PSF operating B2B it is recommended to take one of the complete models (discussed in §2.3) that best fits with the context of the organization that will be investigated. Ideally, it should be a model that already exists and has been developed by well known authors; a model that is valid, reliable and has been tested and refined by professional researchers for many years. Such theoretical model can figure as a good outline of a customer satisfaction research or a service quality research. Initially it would have been nice if a complete model could exactly be copied for using it in a customer satisfaction survey, but the literature (Parasuraman, 1998) recognizes that the measure tool can, when necessary, be adapted to fit the characteristics of a particular organization. This appeared also to be necessary for this research. It takes into account the effectiveness of the model and it ensures that customers understand all the questions correctly by selecting relevant dimensions. There is no best model, but it is important which model fits the context / branch where research is done best and it is important that customers recognize the organization in the questionnaire so they can assess the firm on those points. The IT consulting SERVQUAL model was the instrument most related to the ICT context in which Tijs-ICT operates. Therefore, most but not all dimensions (‘reliability’, ‘assurance’, ‘process’ and ‘satisfaction’) were used from the IT consulting SERVQUAL model. The dimension ‘responsiveness’ is exchanged with the ‘responsiveness’ scale from Parasuraman et al (1985) and the dimension ‘price’ (from Vandaele & Gemmel, 2004) is added. Some dimensions ('education' and 'training') did not apply to Tijs-ICT and were therefore deleted. It can be concluded that customization by the researcher is critical for the effectiveness in the implementation of a research for a specific company.

Sub question 2: How to respond to customer satisfaction data, for continuous improvement?

Chang (2005) indicated that customer surveys are by far the most commonly used performance measurement technique for measuring customer satisfaction. As recommended in the literature review and shown by this research it is effective to take as a service provider (and researcher) the initiative to collect complaints, but also compliments and points for improvement. The data was collected in the form of a (online) customer satisfaction survey. This method is chosen instead of the method of 'Complaint Management' in which the researcher waits until customers will complain by themselves.

The approach suggested by Donovan & Samler (1994) demonstrated that results of the collected feedback must be analyzed, interpreted and put into action plans that can realize improvement. An important task is evaluating what the organization has learned from initiated plans. In a (PowerPoint) presentation, results and outcomes were announced to the management and involved department managers of Tijs-ICT. During the presentation results and raised issues were discussed with the employees and a first step was taken to think on how and what improvements need to be addressed first. The agreed follow-up is that the managers will get access to all the research data and inform their own team in a conversation. In this conversation can be discussed with affected employees on how to learn from the research outcomes. This approach seemed to work, because employees were very motivated to learn. A good practical example of how to respond to customer data, is what is used by the Tijs-ICTdirect team: invite a customer at the office with the main objective to talk about their perceptions and experiences with Tijs-ICT. Experience showed that staff will be refreshed again on how customers think, what his / her expectations are and what customers value most of a service or product. Such a setting should be seen as an useful exercise or training.

Staff should also be made aware of the consequences if they overpromise more than they can deliver. If employees under-deliver or perform less than agreed in their dealings with customers or colleagues, this will have impact (Donovan & Samler, 1994). The impact on customer expectations is too often underestimated. This phenomenon is also found at Tijs-ICT. It was often argued that their customers like: a promise is a promise. If customers did not get what they expected they complain more.

Improving customer satisfaction can differentiate firms from their competitors. Firms can achieve a competitive advantage by offering more value to customers. (Campbell, 2003; Chalmeta, 2006). For instance, a customer from Tijs-ICT find it highly desirable that Tijs-ICT can deliver goods with its own delivery truck. In addition, customers liked a customer relationship-day or a visit to the football or auto sport. Furthermore, it is highly appreciated (if necessary) there is a willingness to resolve problems even on Saturday, so the company of the customer can function smoothly again as soon as possible. As a final example, customers appreciate it to have an extra after-call in which Tijs-ICT is asking and checking if the delivery was delivered as promised.

Sub question 3. What action plans can be formulated for Tijs-ICT from the collected scores and analysis to continuously improve customer satisfaction? (after the empirical research has been conducted)

Intended as a practical case, a customer satisfaction research was carried out at Tijs-ICT operating as an ICT Professional Service Firm (B2B). By putting the voice of the customer into numerical scores, the customer satisfaction was mapped in a concrete way. In combination with adding some open questions as well, opportunities for improvement and priorities were identified.

In this research was found that the sample was quite united in its assessment of Tijs-ICT. In general all respondents could be seen as one group. This conclusion is based on distinguishing customers in sectors and company size. However, for the dimension 'price' a significant difference was found between company sizes (in FTE's). Companies with 11-25 FTE's were significantly less satisfatied about the price of Tijs-ICT compared to companies with 51-99 FTE's. The other groups (1-10, 26-50, 100-250, 250-500, 500 <) did not differ significantly from each other. Tijs-ICT can take this finding into account when they are dealing with companies with 11-25 FTE's.

An attempt was made to reduce the number of items. A review was made whether the number of questions could be reduced without losing the character of the dimensions. This can provide a more efficient tool, so that with less items the same results can be achieved. This test with the Cronbach's 'Cronbach's α if item deleted' showed that is was not possible to reduce the number of items.

With the PCA new and better components were constructed. New Sales-related components are (1) 'project delivery', (2) 'deadlines and timing', (3) 'preparation of the project' and (4) 'club/teamwork'. New Project Management-related components are: (1) 'Project Management tasks', (2) 'competence and content quality', (3) 'dealing with customers and communication of the quality' and (4) 'effectiveness'. For Tijs-ICT (in general) two components were indentified: (1) 'satisfaction' and (2) 'pricing'. For Tijs-ICT the ten new clustered components provided new insights in the collected data as labeled above. This means, for Tijs-ICT, the new components are of greater value than the theoretical dimensions (like 'reliability', 'assurance', 'responsiveness', etc.).

The mean scores of all respondents were close together and standard deviations were quite small and did not vary much. This indicates that the sample has a very clear opinion. It has been made clear that a great majority is satisfied. The overall grade assigned to Project Management and Sales is a 7.5 (on a 10 point scale). For Tijs-ICT (in general) a 3.88 is scored on a 5 point scale (using the overall satisfaction dimension). This grade is close to a '4'. In this research the content of a '4' stand for: customers are satisfied.

With the use of the 'Independent Sample T-test' can be concluded that the customers that assessed Sales are satisfied in the same degree as the customers that assessed Project Management, for the

tested dimensions ´reliability´, ´assurance´ and ´responsiveness´. However, different points for improvement are identified per department (and quantitative and qualitative findings are integrated):

Sales:

- *Customers were most satisfied with*: the personal contact. The customer specifies the seller as friendly and helpful during the cooperation. In addition, the knowledge and expertise of Sales is often praised. Customers also praised:

  - The good relations with Sales
  - The way Sales treated them and respected their opinion
  - Their willingness to help.

- *Points of improvement (for Sales):*
  - Sales should pay more attention to the observance of appointments and deadlines. Many customers think that a more rapid succession of bids/orders should be possible. The duration is sometimes too long and the documentation could be better. Communicate better when a bid/order will be supplied and why it may take longer and if it takes longer, report this timely to the customer together with a valid explanation / reason.
  - The transfer and feedback to the customers on what has been agreed upon should be taken very seriously. Sales must strictly adhere to agreements, which is characteristic for what many customers demand. (a promise is a promise; an agreement is an agreement). Prevent in future that customers have to call when a deadline is not met: as registered in the research, always be proactive.
  - Sales should improve: 'the communication and feedback', during customer contacts and ´the communication about tasks to be performed'. They should take care of informing the customer at any time. Moreover, many customers feel that the internal communication and coordination (between departments) should be better. The customers feel that Salesmen in the office and field staff should cooperate better.
  - Identify better with the customer and their situation/perspective.

Project Management:

- *Customers were most satisfied with:*
  - The communication and feedback
  - The willingness and helpfulness of the staff; customers were satisfied about how PM treated them and respected their opinion.
  - The speed of response and the speed issues / problems are handled
  - The expertise of Project Management (their solutions and support)

- How PM constitutes the project team well organized with clear role assignment.

- *Points of improvement (for Project Management):*

1. PM should pay more attention to the specific schedule- time plan.
2. Although, a lot of customers indicated the communication was fine, not all customers agreed on this point and they concluded that the 'communication with the customer' should be improved. PM is not always consistent in the communication. They should take care of informing the customer at any time.
3. PM should more effectively mediate any conflicts among people involved in the project.

Tijs-ICT in general:

The most important finding is that: overall, customers were satisfied with the perceived services by Tijs-ICT. Most customers were neutral or satisfied about the ´price´ of Tijs-ICT.

Benchmarking the final grades from PM and Sales

The mean: a score of 7.5, given by customers from Sales and PM on a 10 point scale can be benchmarked with national existing scores collected by Effectory, see appendix 11. The national average score on 'general satisfaction' is a 7.7. This score is almost the same score as found for Tijs-ICT and therefore the score of Tijs-ICT is an acceptable score. A comparison with leading competitors in the specific sector in which Tijs-ICT is operating, would have been better (but average scores about data from the ICT branche in the Netherlands were not available for free). As Chalmeta (2006) states: quality is relative, and what matters is how well a company does things compared with its competitors. Also Garver (2003) calls the importance of 'relative performance': compare the organization with a best competitor. Tijs-ICT already started a new research in the field of competitor analysis, to compare their results.

The general conclusion can be that Tijs-ICT can be satisfied with the results of the customer satisfaction research. Customers are satisfied (in general) and a few points for improvement were identified specifically for different departments. The next chapter includes recommendations.

Chapter 7: Recommendations

In this chapter recommendations for further research will be distinguished from recommendations that are especially formulated for Tijs-ICT:

Recommendations formulated for further research:

In this part recommendations are given that reach further than the scope of the present study. These recommendations are also (partly) based on the theory discussed in chapter 3. Professional Service Firms can use these recommendations to support their customer satisfaction and for creating an environment within the organization that increases the chances action plans will succeed.

The cited authors in the literature review warned for the essential step after results have become known. This next step should be taken very seriously and should certainly not be underestimated. Collecting customer feedback is one step, but benefitting from the outcomes by implementing lessons is the second step before the organization can make a customer satisfaction research into a success. In this current research, that step has not yet been investigated. Future research should investigate if the following recommended steps will be effective for continuous improvement:

Take the initiative to obtain feedback

Complaints management is an approach to collect bottlenecks and improvements points from customers. However with that approach the customer takes the initiative and by that time it is already too late. Therefore an approach in which the organization itself takes the initiative is better. With a customer satisfaction survey also appreciated points can be identified (next to complaints). Clearly show to the customer that the organization is open to improvement and that it is appreciated when customers voice their opinions. For a customer the trigger to respond critically should be high. This is also possible through other communication channels. For example, at the end of each month project managers could call customers to ask if there are any issues that are currently not running as they should.

The customers must experience that they are taken seriously, which should be confirmed by the tangible and visible improvements that are made in response to their provided feedback. If Tijs-ICT claims it wants to improve, then Tijs-ICT must ensure and show that promises will clearly get picked up. Dialogue in the area of customer satisfaction strengthens the relationship with the customer and is essentially a marketing tool, because the organization signals it still is very interested in the customer. (Montoya, Massy, Khatri, 2010). Effectory (2011) outlines in its vision: organizations that are well in touch with their customers perform better.

Connect collected and available (rough) knowledge

Before being translated into action plans, outcomes should be linked to other relevant customer information, such as other multiple customer listening tools. By connecting available and consistent

resources, results from the customer satisfaction survey will additionally get confirmed which makes the data stronger. In addition to complaints management, the experience (in the minds) of the staff should also be secured into practical lessons, so colleagues can use and benefit from the knowledge that already exists within the organization. Such an information- or a customer feedback system can provide support to collect and report (customer) feedback.

Estimate value and usability of knowledge
The literature review indicates that knowledge should be pooled in a structured way, it should be saved and transferred to the right people. Before the collected knowledge is distributed, all accumulated (rough) knowledge must be valued so that useless information is filtered out. A responsible manager (e.g. a Quality Manager or Marketing Manager) has three main tasks in the analysis:

1) to identify bottlenecks with which the customers are dissatisfied and convert them into learning and improvement points;
2) to identify what the customers are (very) satisfied with and focus especially on those points;
3) to review other suggestions from customers.

Determine feasibility for improvement
When all the generated input (including other information flows) has been estimated on feasibility and priority, Garver (2003) advises that the responsible manager should take into account in the decision making the following internal issues:

- assess what is possible within the organization, in terms of expertise and capacity
- assess if it fits in with the strategy and policy of the organization
- estimate the costs / investments for implementing improvements
- forecast the expected Return On Investment (ROI).

The responsible manager reports the findings based on set conclusions and priorities. This plan also contains the necessary resources, the expected results, a risk analysis and a time schedule.

Change Management/ All employees must act according to established plans
Employees must be (made) aware of the importance of customer satisfaction. It must be clear why and how this customer focus/orientation can be optimized to deliver good services that correspond with the customers expectations. Customizable awareness applies to staff who have direct customer contact, but also applies to the rest of the organization. One has to be informed and act upon customer expectations. Employees should also be made aware of the consequences of promising more than one can deliver, or if staff under-delivers or performs less than agreed upon in their dealings with customers or colleagues (Donovan & Samler, 1994). The impact on customer expectations is too often underestimated.

After awareness creating support (and commitment) is the next step in order to succeed formulated plans. Creating support starts by telling the rest of the organization that a customer satisfaction survey is carried out and why it is carried out. Showing the questionnaire to the employees involved and asking for input, is a first step in the right direction. When the results have become known, the staff has to be informed of the outcomes and follow-up plans with a presentation. To the employees involved it should be made clear that they must always be open to learn about optimizing customer orientation. Staff must participate or bring in agenda items at meetings or through other channels. They also have customer knowledge and ideas for improvement. After such a meeting, the most up-to-date action- and attention points will be given to them by the responsible manager in order to implement improvements in their daily work. Action plans should be set up as concrete and operational as possible, so employees know immediately know where they should focus on.

Communication/Informations System as a success factor

Besides agenda item meetings, a continuous feedback loop should be created, so relevant information will not be lost. Communicate overall goals and action plans in staff magazines. Sometimes the (external) customer wants a short message of what is actually happening with their feedback. This can be personally notified by mail or telephone, but also in an article in an external information magazine. For the internal communication, Wirtz & Tomlin (2000) recommend to design an IT system. With this system feedback can be transmitted in a simple and structured way to the appropriate personnel such as process owners, departmental managers, directory management etc. The system must be ICT supported and should make a rapid intake and distribution of (customer) information possible. Wirtz and Tomlin suggest that existing Intranet support systems are available in the market, which are very handy in use. With such a system staff has direct access to important information such as: type of customer, type of feedback (compliment, suggestion or complaint), the medium through which it has entered (face-to-face, telephone, fax, email, etc.) and the need for a follow-up or repair service. This information can be exchanged in brief and agreed terms.

Learning from evaluations

Perhaps the most important task is evaluating what the organization has learned from initiated plans. How is the organization doing after having responded to identified opportunities? Did customer satisfaction increase? A good practical example of what can be used in this respect is: invite the customer to the office with the main objective to talk about their perceptions and experiences with the service provider. Experience shows that staff is refreshed again on how customers think, what his / her expectations are and what customers value most from a service or product. Such a setting should be seen as an exercise/training.

Long-term monitoring

Not every single point needs to be discussed on the agenda every month. Sometimes a quarterly review and look for trends will be enough. An annual (or biannual) performance report or overview

will give a representative assessment of the progress and long-term trends in the field of customer satisfaction. This means, the customer satisfaction research should be repeated over time and comparisons should be made to see if action plans really worked out as intended. This long-term monitoring is an important process for the continuous improvement of customer satisfaction and service quality. Clear processes are therefore necessary to periodically collect customer information, analyze it, and respond to it effectively. During this process monitoring/control is required, reports are required and an evaluation for each period is desirable. Where necessary, processes and practices are adjusted if the quality is not what the organization has agreed upon with the customer. Should this not have led to the planned improvement, action plans then should be reformulated with the personnel involved. In all these phases, a responsible manager should take the lead.

Recommendations for Tijs-ICT:

At Tijs-ICT it can also be investigated in the future whether the recommendations above, if they are taken into account, effectively contribute to succeed action plans (that are identified in a customer satisfaction research). Other specific recommendations that should acted upon by Tijs-ICT will be presented here:

1. In order to accelerate the duration of bids/orders, the persons concerned must come together to determine whether this is possible. If this appears to be organisationally impossible, the salesmen must be made clear that they should not promise a deadline that is too tight. In advance it should be made clear to the customer why he may have to wait several days. Manage expectations (that are acceptable).
2. Employees have to be made aware that they should be more consistent in (proactively) informing their customers and in the internal communication. Tijs-ICT could use an Information System for support. By implementing an IT system, the involved customers could log in as well to look for a clear overview of the agreed promises and deadlines. With such an information system, all the employees involved will be kept informed and special requirements or characteristics of the customer can be added to the system as well, so employees can better empathize with the customer. For instance, try to buy or develop a Customer Feedback System as discussed in §3.3.2.
3. Now that a zero measurement has been made, be sure that the next measure is done exactly in the same way, so that a clear comparison is possible. This means using the same dimensions, the

same general data questions and the same open ended questions. Besides, next time the ten new components can be used. As an extra: next time provide a rating of how important individual dimensions and items are to the customers. It is essential that customers indicate their priorities for improvements in order to help focus strategic planning directions.

4. For continuous improvement one measurement only is not sufficient and a follow-up measurement is needed. When conducting the second measurement, be sure to measure the effectiveness of the action plans made between the first and second customers satisfaction research. A subsequent measurement (e.g. next year) can test and evaluate whether defined targets actually lead to an increase of scores, less complaints and a better service quality (from the customer's viewpoint).
5. Try to benchmark the results of this current research at Tijs-ICT, with leading competitors in the specific sector in which Tijs-ICT is operating.
6. Management must set a goal which grades and scores they want to achieve within the next two years and five years. (For instance, at least maintain and preferably improve the grades/scores and an '8' as a final grade).
7. Individual customers who scored lower than the average are a direct trigger for Tijs-ICT. Tijs-ICT should contact these customers to discuss and improve the situation and improve customer satisfaction. Tijs-ICT should be open to learning from them.
8. Finally, this paper ends with a single comment given by a individual customer who suggests that Tijs-ICT should: *create a Service Manager function that monitors the quality of the service provided to the customers. The service manager's role consists of: coordinating cross-departmental activities within Tijs-ICT, monitoring the turnaround at service desk, escalation management, and making reports about service management and exceptions*. Since last year, Tijs-ICT has already introduced the function of Quality Manager, which is almost similar to the sketched function by the customer. The future will show whether this recommendation will lead and contribute to real improvements in customer satisfaction and service quality.

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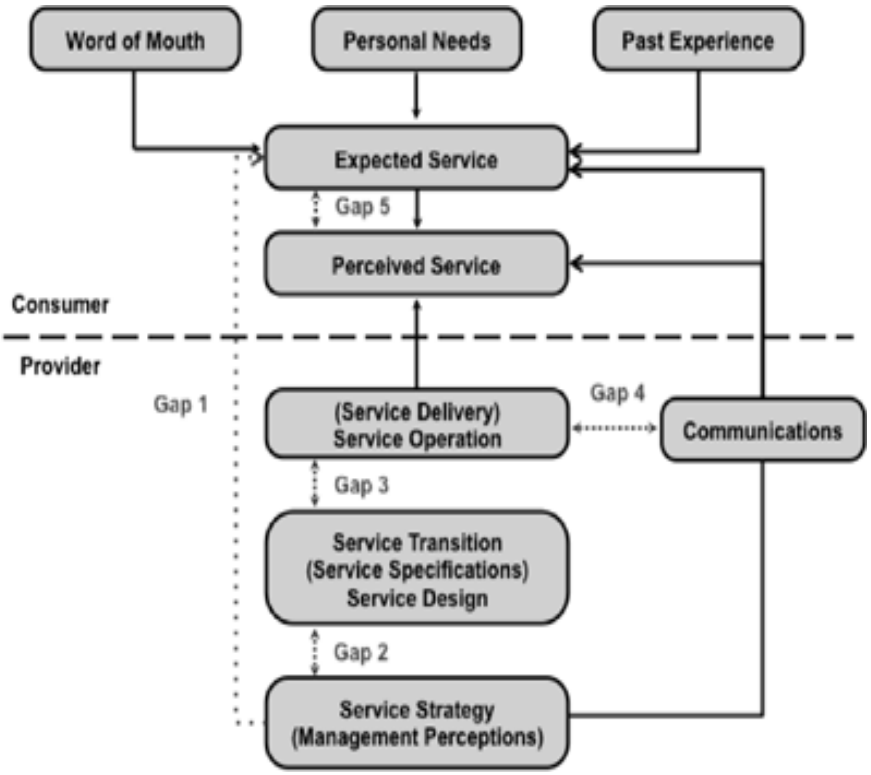
Appendix 1: *Conceptual model of SERVQUAL from Parasuraman, Zeithamel & Berry (1985)*



Appendix 2: *Parasuraman, Zeithaml & Berry, 1994, p. 207) The SERVQUAL items*

Reliability

1. Providing services as promised.
2. Dependability in handling customers' service problems.
3. Performing services right the first time.
4. Providing services at the promised time.
5. Maintaining error-free records.

Responsiveness

6. Keeping customers informed about when services will be performed.
7. Prompt service to customers.
8. Willingness to help customers.
9. Readiness to respond to customers' requests.

Assurance

10. Employees who instill confidence in customers.
11. Making customers feel safe in their transactions.
12. Employees who are consistently courteous.
13. Employees who have the knowledge to answer customer questions.

Empathy

14. Giving customers individual attention.
15. Employees who deal with customers in a caring fashion.
16. Having the customer's best interest at heart.
17. Employees who understand the needs of their customers.
18. Convenient business hours.

Tangibles

19. Modern equipment.
20. Visually appealing facilities.
21. Employees who have a neat, professional appearance.
22. Visually appealing materials associated with the service.

Appendix 3: *Problems identified in the literature by van Dyke, Prybutok & Kappelman (1999).*

Issue	Problem	Literature
Use of gap scores	Poor choice as a measure of a complex psychological construct.	Lord, 1958; Wall & Payne, 1973; Johns, 1981; Peter, Churchill, & Brown, 1993
Reliability	Cronbach's alpha overestimates the reliability of difference scores.	Lord, 1958; Wall & Payne, 1973; Johns, 1981; Prakash & Lounsbury, 1983; Peter et al., 1993
Discriminant validity	Given the high correlation between the difference score and the perception score, it is difficult to demonstrate that the difference score is measuring something unique from the perceptions component.	Cronin & Taylor, 1992; Peter et al., 1993
Spurious correlations	Correlations between gap scores and other variables are artifacts of correlations with the components.	Peter et al., 1993
Variance restrictions	"E" scores are consistently higher than "P" scores. This leads to a systematic variance restriction which is problematic for many types of statistical analyses.	Peter et al., 1993; Brown, Churchill, & Peter, 1993
Validity	The perception component of the perception-minus-expectation scores performs better as a predictor of perceived overall quality than the difference score itself.	Parasuraman et al., 1988; Cronin & Taylor, 1992, 1994; Babakus & Boller, 1992; Boulding, Kalra, Staelin, & Zeithaml, 1993; Brensinger & Lambert, 1990
Ambiguity of "expectations" construct	Multiple definitions of "expectations" result in a concept that is loosely defined and open to multiple interpretations. These various interpretations can result in serious measurement validity problems.	Teas, 1993, 1994
Unstable dimensionality	Atheoretical construction combined with the use of gap scores raise questions about the true factor structure of the service quality construct.	Babakus & Boller, 1992; Brensinger & Lambert, 1990; Finn & Lamb, 1991; Carman, 1990; Cronin & Taylor, 1992; Cronbach & Furby, 1970; Parasuraman et al., 1991

Appendix 4: *The INDSERV items from Gournaris (2005)*

Potential Quality	Offers full service
	Has required personnel
	Has required facilities
	Has required management philosophy
	Has a low personnel turn-over
	Uses network of partners/associates
Hard Process Quality	Keeps time schedules
	Honors financial agreements/stays in budgets
	Meets deadlines
	Looks at details
	Understands our needs
Soft Process Quality	Accepted enthusiastically
	Listen to our problems
	Open to suggestions/ideas
	Pleasant personality
	Argue if necessary
	Look after our interests
Output Quality	Reaches objectives
	Has a notable effect
	Contributes to our sales/image
	Is creative
	Is consistent with our strategy

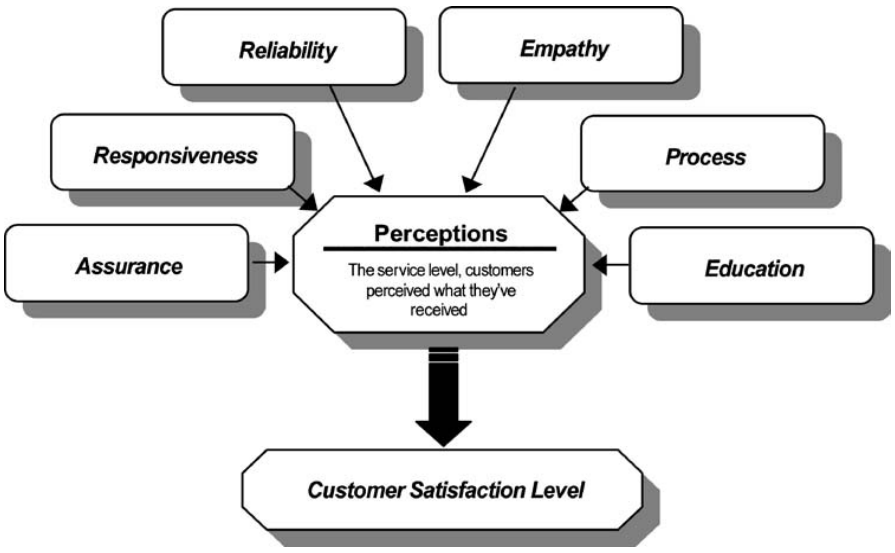
Assessing perceived quality of software house service (Gournaris, 2005, p. 823)

Appendix 5: *Variables and items of the IT consulting SERVQUAL (Yoon & Suh 2004, p.347)*

Variable	Item	Content (Consultants . . .)
Assurance	A1	Observe the Observance of project deadline as promised.
	A2	Suggest the practical solutions for problems and issues.
	A3	Provide the products that meet the customers' requirements.
	A4	Manage the quality of output during the project.
Responsibility	RS1	Lead the customers by suggesting the appropriate solutions for
	RS2	Willingly help the customers when they need
	RS3	Quickly respond to customers' requests and feedbacks.
Reliability	RE1	Have sufficient knowledge about the industry which customer is in.
	RE2	Have sufficient knowledge about information technology.
	RE3	Have excellent presentation skills.
	RE4	Communicate well with TFT members, practitioners, and executives in customer site.
	RE5	Solve the problems with business as well as IT perspective.
	RE6	Secure customers' informations well.
	RE7	Treat customers courteously and respect their opinions.
	RE8	Have good relations with customers.
	RE9	Provide sufficient trust to customers.
	RE10	Are supported by their own consulting organization.
	RE11	Have a excellent teamwork between themselves.
	RE12	Fill the role of PM or manager perfectly.
Empathy	EM1	Consider customer's core pending questions and requests.
	EM2	Understand customers vision, business goal and Process.
	EM3	Understand customer's requirements on system development & improvement.
	EM4	Build IT strategy based on business strategy..
Process	P1	Constitute the project team well organized with clear role assignment.
	P2	Are the chosen professionalists necessary for the project
	P3	Establish the specific project schedule/time plan.
	P4	Define the target process scope clearly and accurately.
	P5	Have best practices for benchmarking sufficiently.
	P6	Provide the plans to drive and manage the changes.
	P7	Test and prove the validity of to-be model.
	P8	Mediate the conflicts effectively among the project interested people.
	P9	Progress favorably total project processes.
Education	ED1	Introduce training and development program to customers.
	ED2	Educate customer sufficiently in the project outline/coverage/contents.
	ED3	Perform the necessary education and training for the execution of new process.
	ED4	Perform the extra programs for the employees though they are not directly involved to the project.
Satisfaction	S1	How much are you satisfied with the received consulting service?
	S2	Will you choose the same consulting company in future for the other consulting project?
	S3	Have you received the consulting service what you expected at the time of service selection?
	S4	Will you recommend this service to your colleagues or friends?

A(Assurance), RS (Responsibility), RE (Reliability), EM (Empathy), P (Process), ED (Education), S (Satisfaction).

Appendix 6: *Schematic of IT consulting SERVQUAL (Yoon & Suh 2004, p. 346)*



Appendix 7: *IMP INTERACTION Model Measurement items from Woo & Ennew (2005, p. 1184):*

Product/service exchange	
PE1	The consulting engineer (or CE in short) provides customized, rather than standardized, professional services to meet our needs.
PE2	The CE's services are technically sound.
PE3	The CE is able to achieve cost-effectiveness for the project.
PE4	Through its established quality control procedures, the CE provides reliable services.
PE5	The CE's design scheme meets our specific project requirement.
PE6	The CE is able to meet the time schedule for the project.
PE7	The CE is able to meet the agreed budget for the project.
Financial exchange	
FE1	The CE's payment claims are made timely.
FE2	The CE's payment claims are accurate.
FE3	The CE's payment claims are legitimate.
Information Exchange	
IE1	The CE submits technical documentation that is easily understood by our project team.
IE2	The CE submits technical documentation that meets our needs.
IE3	The technical information supplied by the CE is adequate.
Social exchange	
SE1	The CE builds up trust in the working relationship with us.
SE2	The CE has a good understanding of how our organization operates.
SE3	The CE's consultants are enthusiastic in dealing with us.
SE4	The CE's consultants are easy to make friends.
Cooperation	
CO1	The CE cooperates closely with us in project management.
CO2	The CE is able to handle our complaints.
CO3	The CE is collaborative in resolving conflicts with us.
Adaptation	
AD1	The CE constantly improves technical capabilities to keep abreast with new developments in the engineering profession.
AD2	The CE proactively offers us new technical solutions when conditions change.
AD3	The CE makes operational changes to project management when required by our project team.
AD4	The CE is able to coordinate the various engineering disciplines when required by our project team.

Appendix 8: *Underlying Determinants for Service Quality for Business-to-Business Service Encounters (Westbrook & Peterson, 1998, p. 58)*

Responsiveness is the willingness and readiness for conducting the service. It encompasses:
- reduced cycle time and delivery for service;
- being on time to scheduled meetings and events;
- meeting deadlines for projects and assignments;
- having an aggressive spirit or being proactive to unmet needs or unperceived problems before being asked to respond.

Competence is the possession of required skills and knowledge to properly perform the needed service. It entails:
- having expertise in the area of the provided service;
- possessing good problem-solving skills.

Consultative selling involves the service provider's ability to embed within the client's operations. Some of its attributes are:
- establishing partnerships with joint planning and goal setting;
- acting as an advocate with senior company executives;
- incurring risk for the client;
- absorbing duties and responsibilities for the client;
- providing profit driven alternatives;
- understanding and knowing the client's business;
- offering advice to include programs, operational procedures and processes, or training and education.

Reliability is the salesperson's accuracy, and dependability of the service performance. It includes:
- proper follow-through on projects and assignments;
- "doing it right the first time";
- consistently performing the service correctly.

Price is the monetary allocation in return for the service. It involves:
- meeting the client's budget objectives;
- securing multiple competitive bids for most cost effective options.

Interpersonal skills are the service provider's willingness to openly communicate, to show respect and courtesy, and to be likable during the encounter. This variable may be:
- promoting a highly interactive environment;
- being sociable and friendly;
- being polite and respecting the privacy of others.

Accessibility is having approachability and being easily contacted. It may entail:
- being solely dedicated to the account;
- having technical resources and other experts that can assist the client when needed;
- being available at all times to assist the client.

Credibility extends to the perceptions of a salesperson's character and integrity. This variable is:
- being believable and honest;
- having a good personal and company reputation in the market;
- demonstrating ethical conduct;
- protecting confidential and proprietary information.

Product offering extends to the scope (amount) of services available to the client. It entails:
- having multiple options and programs to choose;
- being a "one-stop-shop" vendor;
- having the ability to assemble creative packages of services from multiple providers if needed;
- providing customized and unique services.

Market clout is the service provider's ability to secure the best service offerings and the lowest prices for other suppliers in the market. This is accomplished through:
- having leverage in the market;
- having a large market share or presence in the market;
- having ability to coordinate and consolidate resources with other companies;
- acting as an advocate with other companies in the market.

Geographical presence is being able to offer services in other distal markets. It may encompass:
- having the ability to offer standardized services in other cities nationally;
- having the ability to coordinate standardized services in other countries.

Tangibles relate to provisions for offering on-line computer services or other automation for access and information. Offering idiosyncratic investments [38] may include:
- offering computer processing capabilities like hardware or software;
- offering database management systems, fax machines, order entry devices, etc.

Appendix 9*:* *Vandaele & Gemmel (2004, pp. 29-30) B2B SERVQUAL scale:*

Responsiveness

1. *The service provider tells the customer exactly when certain services will be provided*
2. *The customer is promptly served by the service provider's personnel*
3. *The service provider is on time to scheduled meetings*
4. The service provider meets deadlines for projects and assignments
5. *The service provider can be proactive to unperceived problems with service delivery*

Reliability

6. *The service provider is consistently performing the service correctly*
7. *"Doing it right the first time" applies to the service provider*
8. Projects and assignments are properly followed-through by the service provider
9. When the service provider promises to do something by a certain time, he does so
10. The service provider keeps his paperwork accurately

Tangibles

11. *The service provider has an up-to-date equipment*
12. *The service provider's employees are well dressed and appear neat*
13. The service provider provides on-line computer services or idiosyncratic investments

Competence

14. *The service provider's employees do not possess the required skills and knowledge to properly perform the needed service (-)*
15. *The service provider does not have sufficient expertise in the area of the provided service (-)*
16. *The service provider does not possess good problem-solving skills (-)*

Consultative selling

17. *The service provider understands and knows the client's business*
18. *The service provider offers advice to include programs or training and education*
19. Certain duties and responsibilities for the client are absorbed by the service provider
20. The service provider incurs risk for the client
21. *The service provider wants to establish partnerships with goal setting*

Price

22. The price of the service provider meets the client's budget objectives
23. The price is competitive compared to other offers for similar services
24. The price of the service provider relates to the quality delivered

Interpersonal skills

25. The personnel of the service provider is sociable and friendly
26. The service provider's personnel is polite and respects the privacy of others
27. The service provider's personnel can be trusted
28. *The service provider communicates openly with the customers*

Accessibility

29. The service provider is available at all times to assist the client
30. The service provider can be easily contacted
31. The service provider has technical resources that ease access and information spreading

Credibility

32. The service provider is not believable and honest (-)
33. The personnel and the service provider do not have a good reputation in the market (-)
34. The company of the service provider does not demonstrate ethical conduct (-)
35. Confidential and proprietary information of the customer is not protected by the service provider (-)

Product offering

36. *The service provided is customized and unique*
37. The customer has multiple options and programs to choose from and compose the service
38. The service provider offers an extended scope of services available (in one kind of service)
39. *The service provider is an "one-stop-shop" vendor (several kinds of services)*

Market clout (market power)

40. The service provider has leverage (power and influence) in the market
41. The service provider has a large presence (market share) in the market
42. The service provider has the ability to coordinate and consolidate resources with other companies
43. The service provider acts as a leader to other companies in the market

Geographical presence

44. The service provider is able to offer his services in other distal markets
45. The service provider is able to offer his services in other cities nationally
46. The service provider is able to offer his services in other countries

Scale is based on Westbrook and Peterson (1998). The items in italic were deleted by Vandaele & Gemmel, during their factor analysis. (-) are negatively worded items.

Appendix 10: *Examine multiple customer listening tools (Garver, 2003, pp. 462 - 463)*

Customer listening tools include: (1) critical incident survey, (2) relationship survey, (3) benchmark survey, (4) customer complaints, (5) won–lost and why survey, and (6) customer contact employees:

(1) The data revealed that **critical incident surveys** are transaction-specific surveys, administered immediately following a certain type of customer service interaction. For example, assume that ‘‘product return’’ is a critical incident from the customers’ perspective. A sample of customers who returned products would receive a survey soon after this interaction. Participants discussed that critical incident surveys are excellent at quickly identifying service problems and are used at primarily a tactical level. These surveys are used to guide continuous improvement of specific processes.

(2) **Relationship surveys** are administered on a periodic basis, and their purpose is to capture the customer’s overall perception of the supplier’s performance. These surveys gather overall perceptions, looking across many different interactions with the supplier. Relationship surveys are viewed as traditional customer satisfaction surveys and are the core foundation to any program designed to listen to customers. In contrast to critical incident surveys, relationship surveys tend to be used at more strategic levels.

(3) Data analysis revealed that **benchmark surveys** are periodic measurements that capture perceptions of performance of all major competitors in the marketplace. Whereas relationship surveys primarily sample a firm’s current, regular customers, benchmark surveys gather perceptions of performance from the entire market. These surveys usually gather customer perceptions of performance about the top competitors in an industry, allowing the firm to examine their strengths and weaknesses in the overall marketplace, not just with their customers. Benchmark surveys are used in the strategic planning process by senior management and executives and are the most effective tool to accurately identify the firm’s competitive advantage in the marketplace. While continuous improvement may be a result of this tool, the real value should be breakthrough thinking to gain a sustainable advantage.

(4) Gathering **customer complaints** is standard practice for many companies, yet integrating complaint data with customer satisfaction data to identify improvement opportunities is rarely done. Best practice companies carefully monitor complaints and track performance deficiencies that cause complaints. Additionally, they gather data concerning the severity of complaints and their ability to satisfy and fix the complaint. Most important, complaint data are used in with other listening tools to identify customer service attributes needing improvement.

(5) Data analysis revealed that **won–lost and why surveys** are an excellent tool to gather perceptions of recently won or lost customers. This tool gathers actual customer behaviors, yet the real value is the customer’s reasoning behind the behavior. For example, are we losing customers because of order accuracy, damaged product, or lead time reliability? Why are we losing strategic customers? What element of customer service is retaining or winning customers? In the last quarter, how many customers were lost due to on-time delivery?

(6) Finally, best practice companies listen to their **customer contact employees**, typically customer service representatives, service technicians, and salespeople. These employees are often in contact with customers everyday and are customers. While employee perspectives will likely be biased, outstanding representatives understand their customers and are often first to recognize important customer issues.

Appendix 11: *Benchmark the calculated mean with scores from Effectory*

The calculated mean for Sales and PM (from Tijs-ICT): a score of 7.5, can be benchmarked with national existing scores collected by Effectory, a large professional research institution in the area of customer satisfaction. The National Customer Satisfaction index (in Dutch: De Nationale Tevredenheidsindex® voor klanttevredenheid) is based on outcomes from customer satisfaction research at Dutch organizations in a wide variety in both profit and non-profit sector. The scores can be found in the figure below. (http://www.tevredenheidsindex.nl/klanttevredenheid/actuele-indexen/)

Figure: *Benchmark: De Nationale Tevredenheidsindex (Effectory B.V., 2011)*

The empirical data of the research at Tijs-ICT is collected between 20th of April and 18th of May. The best comparison can be made with those two months.

Appendix 12: *Principle Component Analysis (PCA)*

It is possible to compare the results of the PCA with the findings in literature. The IT consulting SERVQUAL dimensions: 'reliability, 'assurance', 'process' and 'satisfaction' (from Yoon & Suh, 2004) were used for this current research. On those dimensions (in 5.2.1d) the following results were found:

- for Sales: 'reliability' was more or less clustered again in a component (see component 1);
- for PM: six out of nine process-items were clustered again in one component and another new developed component consisted of seven items, all seven items were originally from the 'reliability' dimension;
- for Tijs-ICT in general: 'satisfaction' has "survived" the PCA.

This confirms a well-chosen compilation of the dimensions which were reunited again, however better and new names were given after conduction the PCA. Yoon & Suh (2004) also used the 'Extraction Method: Principal Component Analysis' and the 'Rotation Method: Varimax with Kaiser Normalization'. Relevant to tell about the findings by Yoon & Suh is that all four items of the original dimension 'assurance' were clustered together to represent its concept correctly. The original dimensions 'reliability' and 'process' were not clustered together. Those items were spread over the new created components. 'Satisfaction' was not tested, because in this study 'satisfaction' was seen as a dependent variable, and Yoon & Suh only tested the independent variables (assurance, reliability, process, etc.).

By comparing the current findings and the findings by Yoon & Suh, it can be seen that not all the dimensions "survived" the PCA completely. A possible explanation could be that the cause lies within the large number of their items. The larger the number of items per dimension, the greater the chance they get cut up. The probability that the original dimension will be split is greater for, for example 'reliability' which consists of twelve different items, or the dimension 'process' which consists of 9 different items. For this test it is recommended to have around four or five or six items per dimension. A limitation of this equation is that Yoon & Suh, next to the corresponding dimensions: 'reliability', 'assurance', 'process' and 'satisfaction', have tested other dimensions as well. Next to the 29 matching items, also 11 other items were different. Therefore this comparison is not entirely pure.

PCA-related results about the dimension 'responsiveness' from Parasuraman et al (1985) were not found in literature. However, PCA-related results about the dimension 'price' were available. The dimension 'price' came from the B2B SERVQUAL model, developed by Vandaele & Gemmel (2004): They also conducted a PCA, but used a: 'Factor Loading Following Oblique Rotation'. To make a comparison with their findings, a 'Factor Loading Following Oblique Rotation' was conducted with the data of this current research. There were many similarities found. In both studies

all three items were clustered and reunited again in a component. Vandaele & Gemmel found high factor loadings:

- Item: The price of the service provider meets the client's budget objectives: factor loading: .85
- Item: The price is competitive compared to other offers for similar services: factor loading: .91
- Item: The price of the service provider relates to the quality delivered: factor loading: .60

With the current collected data high factor loadings were found as well: (data was also tested with the 'Factor Loading Following Oblique Rotation'):

- Item: The price of Tijs-ICT meets the budget objectives of my organization: factor loading: .85
- Item: The price of Tijs-ICT is competitive compared to other offers for similar services: factor loading: .91
- Item: The price of Tijs-ICT relates to the quality delivered: factor loading: .60

These results confirm the strength of the dimension: 'price'. In this research for the dimension 'price', the scores were a little lower than the other dimensions. Unfortunately, there were no results available as to in what degree 'price' was scored on a 5 or 7 point scale in the article of Vandaele & Gemmel. Therefore it can not be seen if Vandaele & Gemmel also has lower scores on 'price' in comparison with their other used dimensions. In this current research: 'price' has slightly lower scores than the other dimensions received, but it has not a greater impact than other dimensions on the overall construct 'satisfaction'. 'Price' does not largely determine the score of the overall construct 'satisfaction'.

It is desired that a PCA will generate new, clear and better components. But with this method, Yoon and Suh warn the researcher to always be aware of the following argument: *'However this may cause the partial spoilage of the validlity of IT consulting SERVQUAL, the concrete construct of SERVQUAL validated by many previous researches and the analytic power of items would not change the items and constructs of this tool at this research. But it is important to continue and examine the analysis of data through factor technique because it can refine the tools already developed over the quality assurance processes. So that finer measurement tools can be applied to the actual project site to advance their qualities'*. (Yoon & Suh, 2004, p. 349).