Helinä Turunen

CUSTOMER SATISFACTION IN B2B CLOUD SERVICES

ABSTRACT

The aim of study is to present qualities that affect customer satisfaction in B2B cloud services and give insight on how to improve customer satisfaction. eCommerce related customer satisfaction research is used in defining qualities affecting cloud service related satisfaction. The study compares satisfaction related qualities from eCommerce satisfaction and B2B satisfaction research and includes three customer satisfaction and service models in the comparison (American Customer Satisfaction Index, SERVQUAL and SaaS-QUAL). Common factors affecting qualities in all compared research and models were found (expectations, perceived value and perceived overall quality), but cloud specific aspects were mostly limited to the offerings of the SaaS-QUAL model. Further study should be conducted in order to distinguish more possible qualities affecting customer satisfaction in cloud services.

Keywords: ACSI, business to business, B2B, cloud service, cloud service provider, customer satisfaction, service quality, software as a service, SaaS, SaaS-QUAL, SERVQUAL

TIIVISTELMÄ

Tutkimuksen tavoitteena on kirjallisuuskatsauksen kautta esitellä B2B-pilvipalveluiden asiakastyytyväisyyteen vaikuttavia seikkoja, ja kuinka näitä seikkoja tulisi ottaa huomioon asiakastyytyväisyyden parantamisessa. Tässä tutkimuksessa verkkopohjaiseen liiketoimintaan liittyvää asiakastyytyväisyyden tutkimusta käytettiin pohjana etsiessä asiakastyytyväisyyteen vaikuttavia seikkoja pilvipalveluissa. Tutkimuksessa vertaillaan asiakastyytyväisyyteen vaikuttavia seikkoja vertailemalla tyytyväisyyteen vaikuttavia seikkoja verkkopohjaisen liiketoiminnan, yritysliiketoiminnan (B2B) ja kolmen asiakastyytyväisyyden ja palvelun laadun mallin (American Customer Satisfaction Index, SERVQUAL and SaaS-QUAL) välillä. Yhteisiä tyytyväisyyteen vaikuttavia seikkoja kaikkien vertailtujen tutkimusten ja mallien välillä olivat yleiset odotukset, havaittu laatu sekä havaittu kokonaisarvo, mutta pelkästään pilvipalveluille yhteneväisiä seikkoja löytyi vain SaaS-QUAL mallista. Lisätutkimusta tulisi suorittaa, jotta erityisesti pilvipalveluissa asiakastyytyväisyyteen vaikuttavia seikkoja tunnistettaisiin lisää.

Asiasanat: ACSI, business to business, B2B, pilvipalvelu, pilvipalveluntarjoaja, asiakastyytyväisyys, palvelun laatu, software as a service, SaaS, SaaS-QUAL SERVQUAL

FIGURES

TABLES

TABLE OF CONTENTS

1 INTRODUCTION

The aim of this study is to explore what creates customer satisfaction in business to business (B2B) customers of cloud services, what aspects need more attention to provide better customer satisfaction in cloud services and to provide ideas on how Cloud Service Providers (CSPs) should improve their products and services in order to gain higher customer satisfaction and loyalty. Customer satisfaction in the business to customer (B2C) context will be partly discussed as well.

Research on cloud computing and cloud services is often concentrated on technical aspects and business model studies. Cloud computing is said to bring higher customer satisfaction and customer retention through high availability, versatility and service customisation (Armbrust et al., 2010). Businesses aim to increase the lifespan of their customers and a vital part of attaining an increased lifespan in cloud computing is high customer satisfaction, where cloud service providers are driven to focus on more and more in the future (Durkee, 2010). Identifying factors affecting customer satisfaction and customer retention in cloud computing may differ from traditional computing services, which is why this study is conducted.

Customer satisfaction research in cloud computing has not been widely published yet as studies of customer satisfaction surveys or other research. Many cloud computing businesses are sure to collect customer satisfaction information on their services, but very little or none of this information has been used for academic purposes in a wider perspective or in open academic publications. Thus, small and large cloud service providers should be encouraged to open up their discoveries in order to increase customer satisfaction knowledge related to cloud services. In this study eCommerce customer satisfaction research (B2C and B2B) is used as a base to give insight on possible qualities affecting satisfaction in B2B cloud services.

Numerous cloud service and satisfaction related studies are related to security and privacy issues in cloud computing. These issues might and will have an impact on customer satisfaction if the security issues are not apprehended in

cloud security management and planning (Popovic & Hocenski, 2010; Wang, 2011).

1.1   Research aims

The study aims to discover what aspects affect customer satisfaction in a B2B SaaS cloud service. The study started due to the commission received from an individual SaaS Company, and interest in the topic was heightened, as customer satisfaction research in cloud services is still scarce. Customer satisfaction research is vital in marketing studies and any company, but academic studies regarding cloud service customer satisfaction have not yet been conducted on a significant scale.

The customer satisfaction study in this research is focused on a small group of customers using an online-delivered, SaaS-based, 3D modelling cloud service designed for the furniture manufacturing business. It is understood that some of the research results received from this study might be related only to furniture manufacturers and their perceived problems with cloud computing and IT in general. The customer satisfaction survey was conducted as live phone interviews that included a structured survey. The main research aims are listed as follows:

- What qualities affect customer satisfaction for B2B customers in SaaS business?

Finding the main qualities behind satisfied cloud service customers for general use in SaaS cloud service providers is one of the main aims for this study. After the customer satisfaction surveys have been analysed this study also aims to create key points on what are the main aspects that affect customer satisfaction in cloud services. To increase customer satisfaction it is also important to discover key points behind dissatisfaction. Identifying some of these key points for the SaaS cloud service providers in general is also one of the aims in this study.

- How can (SaaS) cloud service providers provide better satisfaction for their B2B customers?

Highlighting the key points behind customer dissatisfaction will be important in order for cloud service providers to provide better experiences with their products and services for their (B2B) customers.

- Are qualities related to customer satisfaction in cloud services different from customer satisfaction in other traditional and eCommerce businesses and models (ACSI, SERVQUAL, SaaS-QUAL)?

Are there major differences with customer satisfaction in cloud when compared to customer satisfaction in traditional businesses ("offline businesses") or eCommerce? If there are significant differences between the results and the models presented (ACSI, SERVQUAL, SaaS-QUAL), it can provide new information and research possibilities in the area of customer satisfaction in cloud services.

1.2 Thesis outline

In the introduction the idea and basis for the study are presented. This includes the research questions and justifications for conducting the study. The Company and the Platform studied are presented later in the study.

The second chapter dives into cloud computing and what service models are commonly used in the cloud services today. This includes explaining service models such as IaaS, PaaS, SaaS and XaaS. Business to business cloud services are also introduced.

The third chapter concentrates on defining customer satisfaction and the different applications of measuring customer satisfaction. Various customer satisfaction models are presented. These models include the American Customer Satisfaction Index, ACSI, (Fornell et al., 1996) and SERVQUAL (Parasuraman, Zeithaml & Berry, 1985; 1988) and SaaS-QUAL (Benlian, Koufaris & Hess, 2010) models for measuring service quality.

In the fourth chapter the research methods used in this study are presented. This chapter explains how the data was collected and discusses the research methods used. Research aims and research questions are presented in greater details in this chapter.

The fifth chapter focuses on the customer satisfaction survey findings. The three different parts of the survey will be analysed and presented. Anonymous comments from the survey are also presented in the chapter as a part of the survey. Finally, a result validation discussion will be held and the problems related to the validation of this survey presented.

The final chapter presents the summary and conclusions for the study. It also presents possible actions for increasing customer satisfaction in cloud services. Future research topics are also discussed and outlined.

2 CLOUD SERVICES

This chapter presents cloud services and the different service models used in the business. Cloud service models include Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS) and X as a Service (XaaS). XaaS services include various services offered through an online medium, such as games and music (e.g. Spotify). Finally this chapter gives examples of B2B cloud services.

2.1 Overview to cloud services

Cloud service is a service (e.g. software, intelligence services) that is commonly offered through an online medium. These services include infrastructural resources (Infrastructure as a Service, IaaS), platforms services e.g. for software development (Platform as a Service, PaaS) and the most commonly seen approach known as Software as a Service (SaaS) (Armbrust et al., 2010). Cloud services are offered by Cloud Service Providers. In this thesis these service providers are referred to as CSPs.
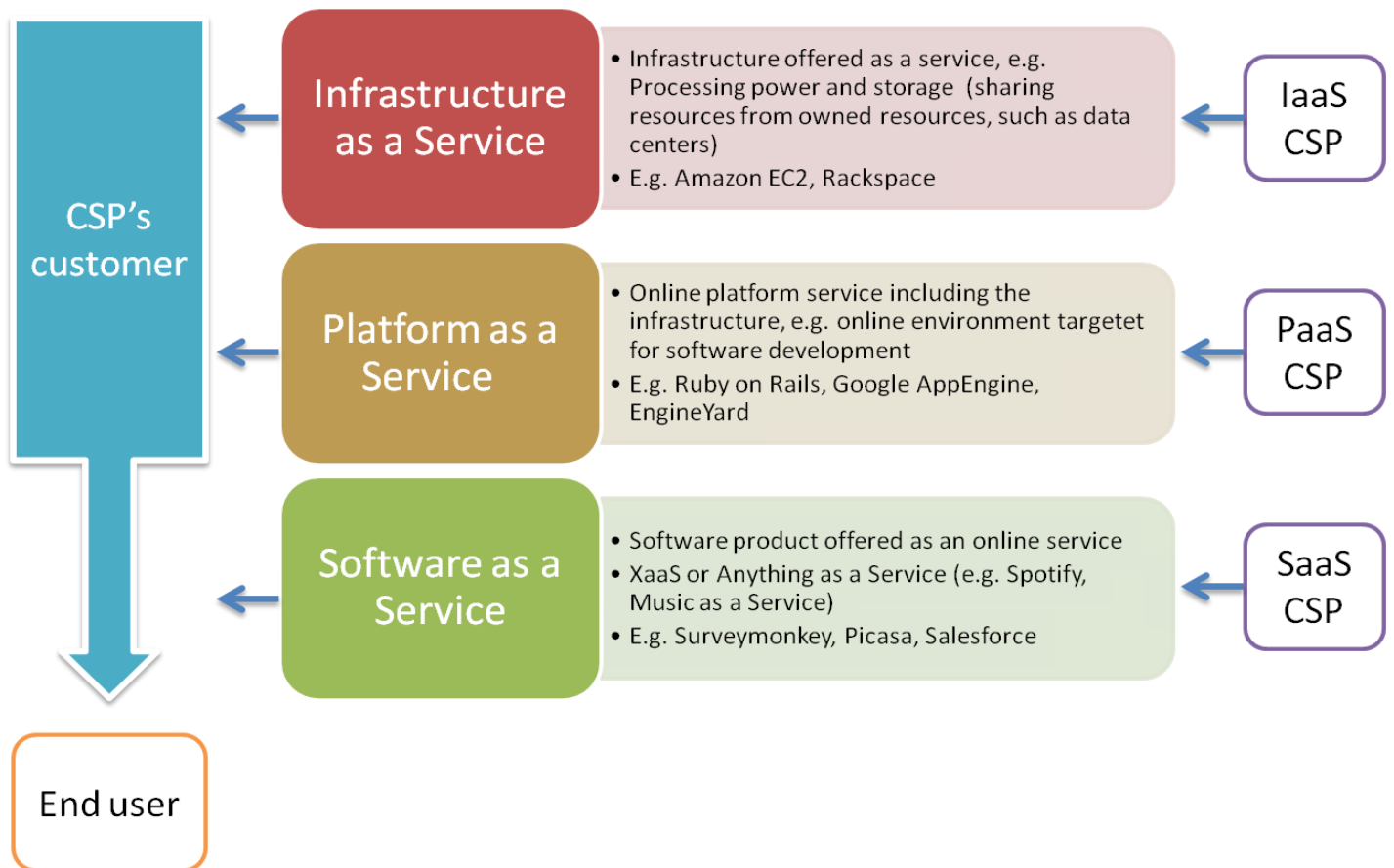
Figure 1 Cloud services from Cloud Service Provider to end-user (Armbrust et al., 2010)

The basic structure of cloud computing, as shown in Figure 1, consists of the CSPs, their offered services, their customers and the end user. The end user can also be the CSP's customer. Cloud service providers host or provide different services through online solutions (Infrastructure, Platform or Software as a Service) and customers use these services online. CSP's can also offer updates, upkeep, consulting and training regarding their services. The CSPs customer can offer the solution or service to an end user or the customer can be an end user itself. (Armbrust et al., 2010) The different services models are introduced in more detail next in this chapter.

2.2   Service models in cloud business

Cloud services can be offered through various service models. Most commonly known and used service model for consumers is the Software as a Service (SaaS) model, where consumers are offered software solutions through web-based services. Other cloud service models include Infrastructure as a Service (IaaS),

Platform as a Service (PaaS) and Anything or X as a Service (XaaS). (Armbrust et al., 2010)

2.2.1 Infrastructure as a Service

Cloud Service Providers can offer organisations or individuals rented computing resources such as processing power and storage capabilities. This service model is called Infrastructure as a Service (IaaS). The service model is possible if the CSP has a large amount of existing computing resources (e.g. data center, service resources, web hosting), which they can then share to multiple customer destinations through virtualisation. With virtualisation, the CSP will be able to provide customers solutions specialised for their needs and align more resources according to demand. The CSP generally offers a user interface (UI) for the service, so the customer can quickly and easily access their service. (Vaquero et al., 2008)

Customers can also run their own software and related services on top of an infrastructure service (Loeffler & Price, 2011). Loeffler and Price (2011) also point out that for small and medium enterprises (SMEs), renting an initial infrastructure is a cheaper way for entering the markets than acquiring their own infrastructure for the business. Various companies offer IaaS services. Some of these companies include Amazon with their Elastic Compute Cloud (EC2), Secure Storage Services (S3) (Bhardwaj, Jain & Jain, 2010) and Rackspace (Li et al., 2012).

2.2.2 Platform as a Service

Cloud Service Providers can offer a platform or platforms as services (Platform as a Service, PaaS), providing customers e.g. with software production tools and resources for online development. These platforms usually include various tools from debugging to extensive product lifecycle management. The customer can often modify the platform to some extent, but generally the CSP providing the service will determine the infrastructure used, the programming language, operation system and other tools included for the environment. Customers can achieve increased productivity, better development management and speed up product creation by using an offered PaaS platform. They can also decrease the costs of development by outsourcing the platform and infrastructure upkeep. (Lawton, 2008)

PaaS can be offered via virtualisation similar to the IaaS service. Lawton (2008) points out the similar benefits and pitfalls of virtualisation. It is important to offer a constantly up-kept service, as customer revenue may suffer from service unavailability. A good PaaS service will be beneficial, but demand peaks should be predicted, which can be difficult (Lawton, 2008). Bhardwaj, Jain & Jain (2010) have studied companies offering PaaS services, including Google with the Google AppEngine and EngineYard. Google AppEngine provides a

platform for Java and Python software developers, whereas EngineYard offers development tools known as Ruby on Rails (Bhardwaj, Jain & Jain, 2010).

2.2.3 Software as a Service

The most commonly known cloud service is the Software as a Service (SaaS) model. SaaS is the delivery model for software that is offered for users through an online environment, "cloud", and is normally accessed by an end user via an Internet browser (e.g. Chrome, Opera, Mozilla Firefox, Internet Explorer) as visualized in Figure 2. In SaaS, a product and related services are often offered together as a bundle of services. The software is provided by the CSP and most often hosted on their platform and infrastructure, making upkeep costs the CSPs customer very little or non-existent. The customer pays for the service and possible related fees (e.g. initial installation or integration with existing systems). It is commonly rented via a subscription or by demand. (Armbrust et al., 2010)

SaaS is commonly seen as an application for most of its users. The service can be built on top of a platform (PaaS) that is on a rented infrastructure (Iaas). The SaaS delivery model is possible, as the software technology industry has moved more towards faster and cost-effective ways of delivering software. This improvement in technology and networking infrastructure has created possibilities for vendors to offer applications to consumers over the Internet more efficiently than before (Waters, 2005; Weinhard et al., 2009)

Common SaaS software includes applications such as customer relationship management (CRM) by Salesforce, various other business related applications (Google Apps for Businesses) and unique applications. Unique SaaS applications can be targeted for a smaller group of customers, but are successful through finding a niche in their area. Unique SaaS applications may include services such as online survey services (Surveymonkey), online picture galleries (Picasa, Flickr) and other consumer oriented services. (Lenk et al., 2009)
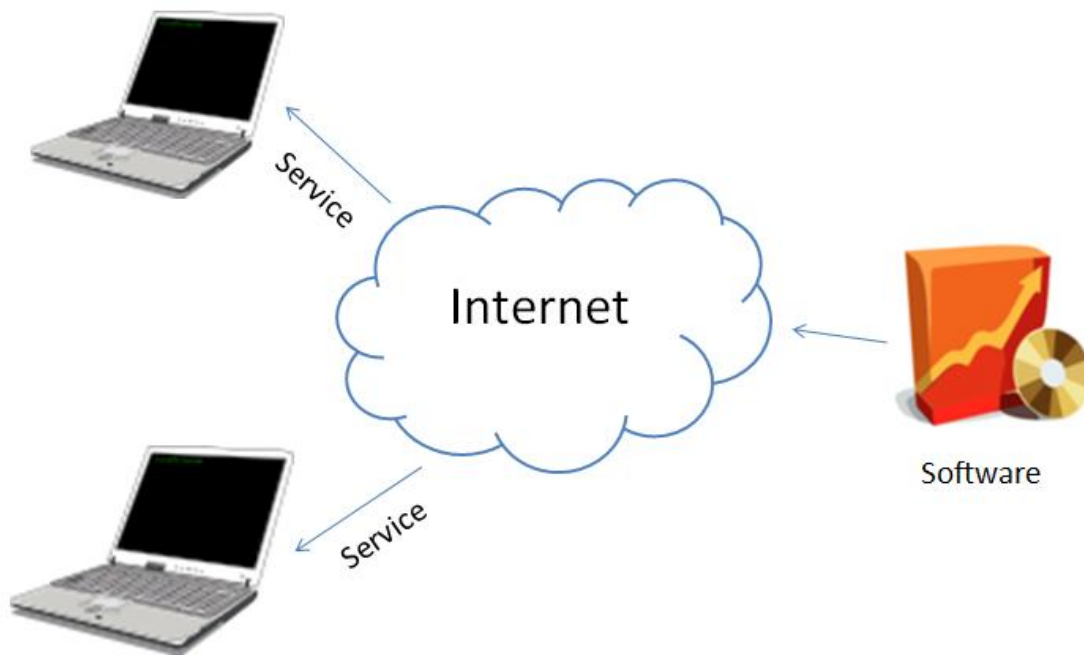
Figure 2 Software as a Service

2.2.4 X as a Service

Availability of new technology has offered the tools for providing almost any-thing as an online service. X as a Service (XaaS) or Anything as a Service are definitions for new types of services, that have been made available to custom-ers through cloud technology (Lenk, Klems, Nimis, Tai & Sandholm, 2009). In-novative new cloud services include Gaming as a Service (GaaS) (Ojala & Tyrväinen, 2011) and Content as a Service (CaaS) (Doerr et al., 2010). The reali-sation of the CaaS service model has created possibilities for various services, such as Music as as Service (MaaS).

Spotify is one of the well-known MaaS providers in the industry, offering music streaming services thought the internet together with an offline applica-tion option for subscribers (Kreitz & Niemela, 2010). The service is offered with a freemium model, so customers can choose whether they want to subscribe and receive benefits such as ad-free streaming and an offline option. Security as a Service (Maddison, 2009) and Service as a Service (e.g. Salesforce.com) (Buley, 2009) are other examples of XaaS service models.

Other "X as a service" types include services such as Data/Information as a Service (DaaS) and Business Intelligence as a Service (SaaS BI) (Truong & Dustdar, 2009). Data as a Service is still a very open term, as a data providing service can mean a service consisting of various services, such as managing a customer's online data (creating, reading, updating and deleting) or providing various existing data for consumer use (e.g. open data) (Truong & Dustdar, 2009). Liyang, Zhiwei, Zhangjun and Li (2011) describe Business Intelligence as a Service (SaaS BI) as business intelligence services offered through a SaaS ser-vice or portal online. SaaS BI consists of different layers of business intelligence

services (infrastructure, data service, business service, user interface service and operational service) (Liyang et al., 2011).

2.3   Business to business (B2B) cloud services

Business to business (B2B) is a business model, where a products or services are offered directly to another business, but the definitions and differences between B2B and business to consumers (B2C) vary (Vargo & Lusch, 2011). Online-based B2B solutions can also be known as "business to business electronic commerce" or B2B EC (Sila, 2013). As the online markets for B2B have created great interest since the early days of Internet use (Kaplan & Sawhney, 2000; Wise & Morrison, 2000), the online business environment has become increasingly easy to turn to and thus holding great potential for cloud based services. Online markets are now easier to enter especially for smaller firms, but creating a stable customer base is more challenging (Clemons, Hann, & Hitt, 1998; Marston, Li, Bandyopadhyay, Zhang & Ghalsasi, 2011).

Cloud services are often provided as business to customer (B2C) services, but B2B cloud services have a large market as well. Business to business services in cloud services are commonly related to infrastructure renting and platform solutions, and are offered by companies such as Amazon, Rackspace, Google, Salesforce and GoGrid (Lenk et al., 2009).

3   CUSTOMER SATISFACTION

Customer satisfaction research has been evolving rapidly after the early 1970s. After the beginning of the customer satisfaction survey "boom", numerous researchers have been investigating the underlying measures of customer satisfaction and the impacts of satisfaction on businesses results, public relations and other operations affecting a business (Churchill & Surprenant, 1982). This chapter will present an overview on customer satisfaction in both B2C and B2B business models. Qualities affecting satisfaction in eCommerce are also discussed. Finally, existing customer satisfaction and service quality models related to the research are introduced and a combined model presented.

3.1   Overview to customer satisfaction

Customer satisfaction can be seen as two different types of satisfaction in research: Satisfaction as a process or satisfaction as an outcome (Parker & Mathews, 2001). Churchill and Suprenant (1982)defined customer satisfaction as an action, which takes place and judges a purchase after the action has been completed (e.g. after buying a car). A commonly used model for customer satisfaction is the one by Oliver (1997), where satisfaction is highly related to disconfirmation (denying or proving something false), leading to satisfaction research in customer's expectations. The research by Oliver (1997) gave the foundation modern customer satisfaction research by discussing expectations, performance, disconfirmation and satisfaction (Caruana, Money & Berthon, 2000).

Other theories have developed from the basic customer satisfaction views of expectancy and disconfirmation. The "value-percept theory" sees customer satisfaction as a process, often emotional, that is triggered by an evaluative process of an item or a service (Parker and Mathews, 2001). In this type of process a customer is evaluating the item or service by its value to the customer (what a customer really requires) rather than by expectations. An item or services that create and meet the true value for a customer (what they truly want

or need) is the most welcome one (Parker and Mathews, 2001). Parker and Mathews (2001) also discuss the importance of emotional and fulfilling types of processes in customer satisfaction. In addition to the previous views on customer satisfaction, Westbrook and Oliver (1991) argue that human emotions and affective processes affect the overall process of customer satisfaction as well. Customer satisfaction can also be discussed as a cumulative experience with a product or a service rather than just a one-time purchasing experience (Wilton & Nicosia, 1986).

3.2   Business to business (B2B) customer satisfaction

Business to business (B2B) customer satisfaction differs from consumer markets due to the difference in the services provided (Patterson, Johnson & Spreng, 1997). Patterson, Johnson and Spreng (1997) describe B2B markets as "often technically complex and sophisticated", creating a more complicated market for clients to evaluate due to the immaterial (intangible) nature of the services (e.g. consulting).

Patterson, Johnson and Spreng (1997) presented a satisfaction model for "business professional services", illustrating the causes and qualities creating satisfaction and further purchasing intentions in the B2B markets. This model is also applicable to modern B2B situations due to its generalised variables. It is thus also applicable to be used in IT B2B customer satisfaction situations, and could be used together with the SaaS-QUAL (Benlian, Koufaris & Hess, 2010) model due to its general nature of expectations and disconfirmation approach in a B2B setting.

The satisfaction model (Figure 3) includes the following variables: novelty, importance of the purchase decision, decision complexity (the purchase situation variables), stakeholding, and uncertainty (the individual variables). Post-purchasing variables include perceived performance, disconfirmation, fairness, satisfaction evaluation, and repurchase intention. The purchase situation and individual variables affect the expectations and performance in a B2B business transaction, creating the possible disconfirmation between the expected and perceived business, affecting satisfaction and further purchasing intentions. (Patterson, Johnson & Spreng, 1997)

In the model, "novelty" ("a new or unfamiliar thing or experience") is defined as the newness of a service, product or transaction. "Importance of the purchase decision" relates to the importance of the purchase for the productivity and profitability of the organisation. "Decision complexity" is related to technical or product complexity or the complexity of the buying situation, which in the best scenario should not be affected by the offered product. "Novelty", "importance of the purchase decision" and "decision complexity" are the purchase situation variables used in the model. "Stakeholding" variable is related to the stakeholders that are put at most risk in a buying decision and "uncertainty" is related to the (lack of) information and knowledge in a buying

situations. "Stakeholding" and "uncertainty" variables are the individual variables in the model. (Patterson, Johnson & Spreng, 1997)
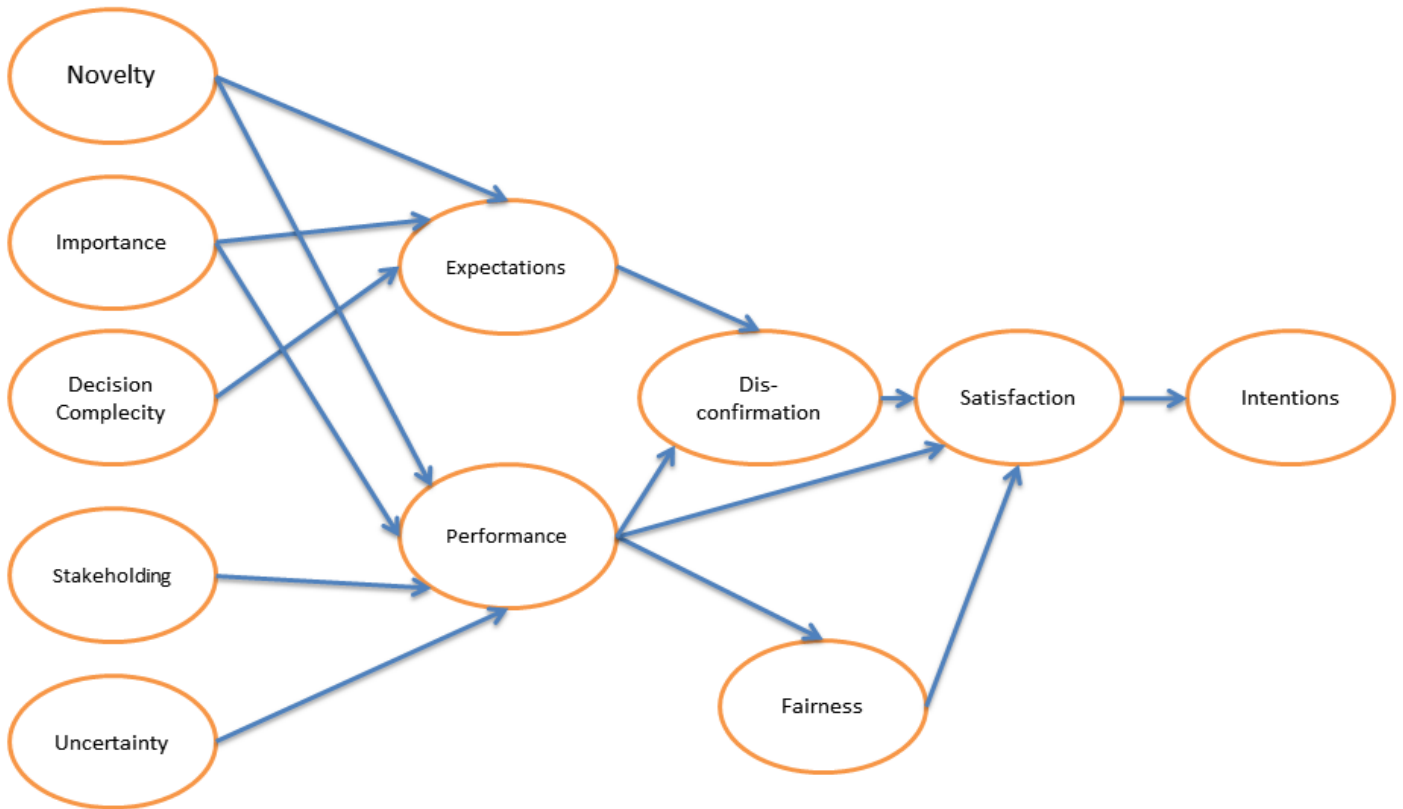
Figure 3 Model of satisfaction for business professional services (Patterson, Johnson & Spreng, 1997)

Homburg and Stock (2004) found a positive connection between personnell satisfaction and customer satisfaction in the B2B context. The effects between personnell satisfaction and B2B customer satisfaction was greater in the situation of frequent customer interactions, inclusion of customers in the value-creating process and good product and service innovation. Personnell satisfaction was not included in the model by Patterson, Johnson and Spreng (1997), as it was more focused on the pre- and post-purchase situations in B2B markets. Rauyruen and Miller (2007) studied the positive connection between relationship quality and B2B customer satisfaction, which was influenced by dimensions of trust, commitment, satisfaction and overall service quality. Only

two of the dimensions, satisfaction and service quality, influenced future purchase intentions for B2B customers (Rauyruen & Miller, 2007).

Satisfaction in the business context is different from the consumer satisfaction in purchasing situations, but shares the same dimensions in expectations and the possible disconfirmation between expectations and final outcome or performance. Purchasing in the B2B context often involves more planning, money and risks than B2C transactions. That is why uncertainty, stakeholders and decision complexity should be brought to minimum to ensure high satisfaction for B2B customers. (Patterson, Johnson & Spreng, 1997; (Caruana, Money & Berthon, 2000)

3.3 Customer satisfaction in eCommerce and cloud services

Customer satisfaction research in cloud services is closely related to eCommerce customer satisfaction, as both common eCommerce online web stores and cloud services are offered through online mediums (Armbrust et al., 2010; Murphy, 2001). However, original customer satisfaction and service quality related research in cloud computing is scarce. Research related to customer satisfaction in cloud computing discusses the features in cloud computing or cloud service related businesses that have an effect on customer satisfaction, but larger scale customer satisfaction related research are rare in openly available scientific publications.

Benefits of cloud computing services are often highlighted in research. Most notable benefits are brought up often such as the reducing of total cost of ownership (TCO) for cloud service customers by reducing up-front and upkeep fees or the customer by offering centralised services from an individual provider (Armbrust et al., 2010).

eCommerce and cloud services offer a different environment for customers and suppliers, adding the online marketplace alongside physical markets (Lin, 2003). Due to the difference between online and offline businesses benefits for suppliers and customers are also different. Lin (2003) presents major benefits for eCommerce suppliers that have been combined from the works of Kotler (2000) and Skyrme (2001):

- 24/7/365 availability,
- Lower costs,
- Efficiency gains,
- Extended market reach,
- Quick adjustments to market conditions,
- Influence customer purchases, and
- Improved customer service. (Lin, 2003)

Lin (2003) also presents a selection of major benefits for eCommerce customers combined from the works of Kotler (2000) and Skyrme (2001):

- Convenience,
- Information,
- Fewer hassles,
- Low procurement costs,
- Streamlined process,
- Private shopping, and
- Transaction can be instant. (Lin, 2003)

Online based commerce, increasing use of the Internet, mobile Internet availability and the on-going development of eCommerce have created various benefits for both customers and suppliers (Lin, 2003). However, drawbacks and disadvantages are also present in eCommerce. Lin (2003) presents five drawbacks for online-based commerce based on earlier research:

- Lack of human interaction, especially in face-to-face customer to vendor interaction (Skyrme, 2001).
- The problem of one-way communication with online commerce sites offering no possibility for feedback or conversational services for the customer (Cox & Dale, 2001).
- Difficulty of creating interest and gaining attention amongst other similar websites and eCommerce vendors
- The amount of (mis)information available can confuse customers and lead to worse experience of service
- A technical oriented online user base is more suitable for technology and electronic based commerce than mainstream or everyday products (Kotler, 2000) – this has further evolved in the 2010s to include everyday online shopping services for the major population (e.g. Amazon, Sainsbury's)

Lin (2003) presents concerns about how moving from a traditional offline business affects customer satisfaction and loyalty in online-based businesses and transactions. Online customers have access to a wide range of businesses, making them are able to easily switch between businesses in case of dissatisfaction. Creating customer satisfaction and loyalty online is one of the greatest challengers for any eCommerce business, as switching between businesses is usually quick and easy. A lack of direct communication in eCommerce services can hinder customer satisfaction as well, making quality the eCommerce of service a major factor in creating satisfaction. Customers will respond to poor quality of service in eCommerce by switching to a competitor, which is why quality and delivering great service is vital. (Lin, 2003)

3.4   Customer satisfaction and service quality models

Researchers have presented various customer satisfaction models and indexes over a long period of time. This chapter will present one commonly used customer satisfaction model (American Customer Satisfaction Index). Two service quality models, SERVQUAL (Parasuraman, Zeithaml & Berry, 1985; 1988) and SaaS-QUAL (Benlian, Koufaris & Hess, 2010), will also be presented. These models give information on qualities related to customer satisfaction and what types of measures are used in defining customer satisfaction and service quality in both online and offline businesses.

3.4.1 American Customer Satisfaction Index (ACSI)

American Customer Satisfaction Index (ACSI) was presented and researched by Fornell, Johnson, Anderson, Cha & Bryant (1996). It is one of the simplest and most widely used customer satisfaction models used in the business industry and research. The index uses a "multiple indicator approach" for measuring overall customer satisfaction (Fornell et al., 1996).

The ASCI can be used for scoring a selected organisation's performance in customer satisfaction and even in the investment industry (Fornell, Mithas, Morgeson & Krishnan, 2006; Anderson & Fornell, 2000). The ACSI model has been criticized for measuring negative causes for satisfaction for companies effectively and being closely related to the Net Promoter Score (NCS) in measuring satisfaction (East, Romaniuk & Lomax, 2011).

Other national customer satisfaction indices (NCSIs) have also been developed. For example, the European Customer Satisfaction Index (ECSI) and Swedish Customer Satisfaction Barometer (SCSB) both evaluate customer satisfaction nationwide and across industries like the ACSI (Anderson & Fornell, 2000). However, many of the NCSI models have followed the "cause and effect" way of measuring customer satisfaction, making of the models very similar in their nature and having overlapping measures such as quality and value (Johnson, Gustafsson, Andreassen, Lervik & Cha, 2001).

The ACSI consists of five main areas building and affecting overall customer satisfaction (Figure 4). These five areas include pre-purchase observations, perceived quality and value that lead to forming of customer satisfaction. It also includes the possibility of complaints and the area of customer loyalty after experiencing a product or service. The five main areas are:

- Customer expectations (pre-purchase; reliability, overall, customization),
- Perceived overall quality,
- Perceived value,
- Customer complaints and
- Customer loyalty (Fornell et al., 1996)

Customisation

Reliability   Overall

Perceived overall quality

Complaint behavior

Customer complaints

Price Given Quality

Quality Given Price

Perceived value

Customer satisfaction (ACSI)

Customer expectation

Satisfaction
Confirm/Disconfirm expectations
Comparison with ideal

Customer loyalty

Reliability   Overall

Customisation

Repurchase likelihood
Price tolerance (reservation price)

Figure 4 American Customer Satisfaction Index (ACSI) Model (Fornell et al., 1996)

Customer expectations are described as a customer's perceptions before purchasing a product (pre-purchase). Peers and the public image of a product or service created by a business or information perceived from hearsay often affect expectations. In the ACSI model customer expectations are affected by a customer's overall expectation of the quality (product, service), a customer's expectations of the possible customization of the product and how well it would fit the customer's personal style and wishes, and the expectations of the reliability of the product before purchasing it (possibility of problems). (Fornell et al., 1996)

The customer forms the actual experience of perceived quality after purchasing a product or a service (post-purchase). The customer evaluates the overall quality of their experience, how they experienced the customization of the product (was it actually fit to their intended purposes), and the actual reliability of the product (have things gone wrong and how many times). After using the product or a service and assessing the overall quality received a customer will have an image of the value created by the product for him or her. (Fornell et al., 1996)

The perceived value consists of a customer's view on how they felt the quality of a product or a service was fit concerning the price, and how the price

of the product or service was when the quality had been experienced. The customer creates an image of the value received by deciding whether the product was priced well according to the quality and whether the quality of the product was fit to the price. This creates the image of quality-price ratio for the customer, and it can be either positive (perceived quality exceeded concerning the costs) or negative (perceived quality did not meet the costs of the product of service). (Fornell et al., 1996)

Customer expectations, actual perceived quality and the perceived value of a product and a service all affect customer satisfaction. This is the main part of the ACSI, and it consists of three levels. It includes the overall customer satisfaction (affected by the expectations, perceived quality and value), how their expectations have been confirmed or disconfirmed after using the product or service, and the overall performance of the product or service compared to the customer's ideal expectations. (Fornell et al., 1996)

Negative experiences overall satisfaction may lead into customer complaints. The ACSI includes customer complaints and discusses how complaints have been received. Customers may use formal or informal channels for complaining about the used product or service, and confronting the complaints is an important part for customer satisfaction and customer retention. Successful handling of customer complaints will result in higher satisfaction and the possibility of gaining higher customer retention and loyalty. (Fornell et al., 1996)

The final area in the ACSI is customer loyalty. It concludes of the rating of how likely it is for the customer to purchase the product or service again (e.g. continuing a service agreement) and how tolerant the customers are to the increase of decrease in costs in the case of repurchase. A customer may be loyal even if the costs increase, if they feel that perceived value of the product is high enough compared to the costs. If a customer feels that the value received from the product does not match the costs, they might discontinue purchasing the product or service. (Fornell et al., 1996)

3.4.2 SERVQUAL, Gap Model of Service Quality

SERVQUAL (Figure 5) was first presented by Parasuraman, Zeitham & Berry (1985), where they identified the five major gaps that organisations will encounter when assessing how to meet customer expectations for the service provided. Parasuraman et al. (1988) developed a set of 22 items for five dimensions that were used to measure customer's expectations and perceptions on service quality. It has been a foundation to many customer satisfaction and service quality models and is used in the thesis as a "base model" for comparison regarding service quality.

The model can be used as a tool in various organisations when assessing whether the organisation has realistic views on customer expectations and how to increase their quality of service by researching and diminishing these gaps. The gaps between the dimensions are measured by comparing the expected service (E) to the perceived service (P).

The ten original components affecting service quality by Parasuraman, Zeitham & Berry (1985) are:

- Reliability (of vendor, product or service),
- Responsiveness (of vendor)
- Competence (knowledge and skills of the vendor),
- Access (to product or service),
- Courtesy (social skills of the vendor),
- Communication (between customer and vendor)
- Credibility (vendor ability to deliver),
- Security,
- Understanding/knowing the customer and
- Tangibles (e.g. offices, staff). (Parasuraman, Zeitham & Berry, 1985)

These components were later limited to five dimensions:

- Reliability (of vendor, product or service),
- Assurance (vendor confidence and output),
- Tangibles (e.g. offices, staff),
- Empathy (amount of vendor service and assistance) and
- Responsiveness. (Parasuraman, Zeithaml & Berry, 1988)

Reliability is the ability of performing to expected standards accurately, assurance relates to the knowledge of employees and the ability gain the customer's trust, tangibles are the physically visible aspects of the company as in office, marketing materials or personnel, empathy is the amount of care and individual attention given to customers and responsiveness relates to the willingness for service and the amount of time it takes to service customers. The different dimensions hold various components that can then be used in measuring service quality, creating an overall image of the service quality and possible weak points in a business affecting customer satisfaction. (Buttle, 1996; Parasuraman, Zeithaml & Berry, 1988)
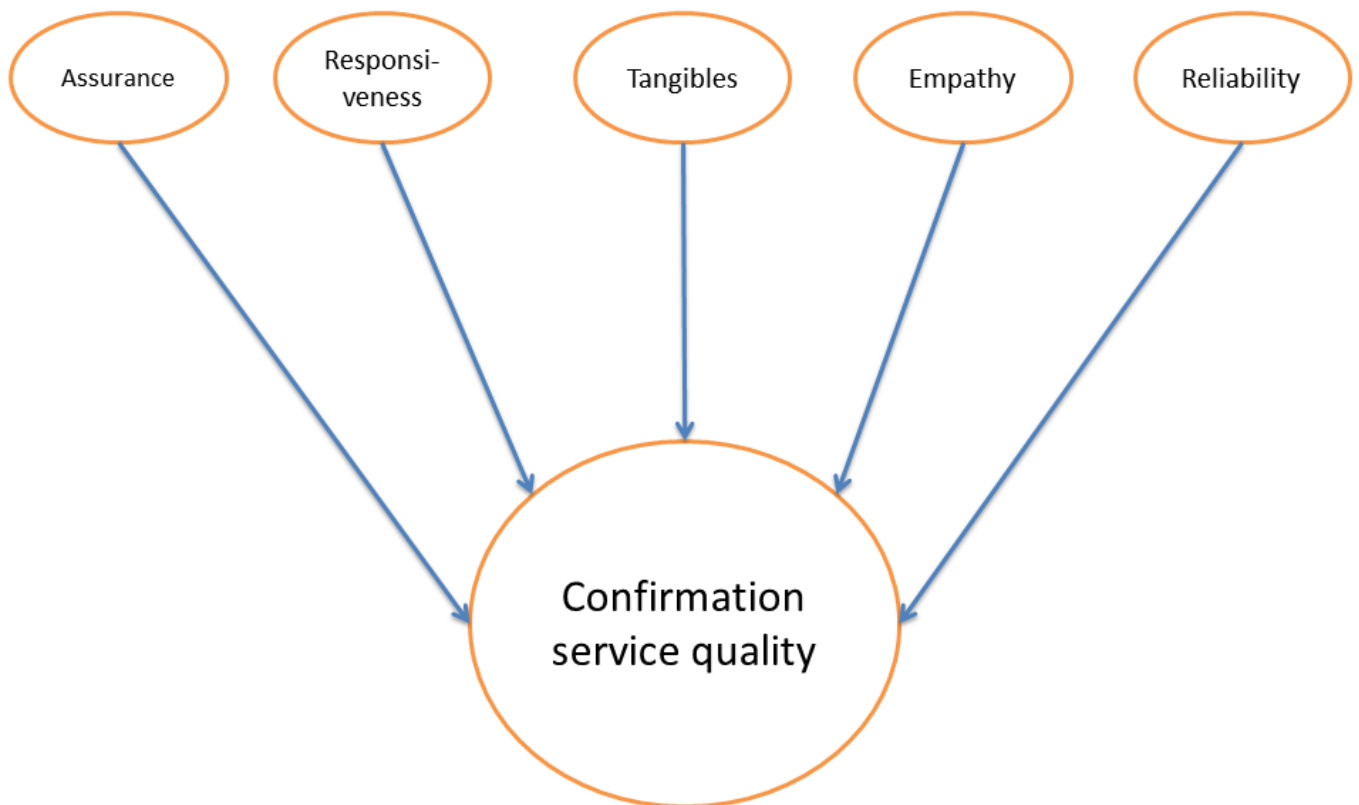
Figure 5 The SERVQUAL model (Parasuraman Zeithaml & Berry, 1988)

SERVQUAL has been critizised by various researchers from the theoretical and operational point of view. Cronin and Taylor (1994) suggest that the area of customers' expectations included in the SERVQUAL practical measurements are not highly supported by managers, creating increased stress in the data gathering and comparison. Cronin and Taylor (1994) also pointed out that consumers often do not base their decisions on service quality alone, but also include the value of the purchase in the decision making. Models have then been created to include value in customer satisfaction and service quality situations by studies such as Mattsson (1992) and Sweeney, Soutar and Johnson (1997).

The theoretical critique also points out that the dimensions are not universal, the model focuses more on the process of given service and not the outcome, the gap model for customers (assessing quality between expected and perceived) is not always universal, and the model is based on a disconfirmation model rather than an attitudes. The operational critique includes the use of expectations as standards for evaluating service quality, the small amount of items (four to five) in a dimension is inadequate for capturing all the variation within the dimension, moments of truth (MOT) customers' perceptions of

service quality can vary between MOTs, the Likert-scale used is not the best available and problems within test administration as well as variance. (Asubonteng, McCleary& Swan, 1996; Buttle, 1996)

3.4.3 SaaS-QUAL

The SaaS-QUAL model (Figure 6) is a relatively new service quality model specifically designed for the software a s a service (SaaS) cloud service model (Benlian, Koufaris, & Hess, 2010). The model is based on the original SERVQUAL model by Parasuraman, Zeitham and Berry (1985), but the SaaS-QUAL is a modernised version directed to the needs of cloud service business. SaaS-QUAL, a modernisation of the SERVQUAL model, was created by Benlian, Koufaris & Berry (2010) in order to create a model that would be compatible with modern cloud service business, as the original SERVQUAL was created to meet the service quality measuring service quality in businesses in the 1980s. SaaS-based companies can use SaaS-QUAL to evaluate their service quality, and users can make use of the model as well (Benlian, Koufaris & Hess, 2010).

Benlian, Koufaris, & Hess, (2010) divided the SaaS-QUAL model into six different dimensions instead of the six in SERVQUAL. These six dimensions are:

- Rapport (harmony between customer and CSP),
- Responsiveness (of service),
- Reliability (of service),
- Flexibility (modifiability and scalability of service),
- Features (of service) and
- Security/privacy. (Benlian, Koufaris & Hess, 2010)

All the components can be seen as significantly relative to known cloud related attributes, which can either be technical issues or security matters that have been discussed largely in relation to cloud services (Benlian, Koufaris & Hess, 2010; Armbrust et al., 2010; Popovic & Hocenski, 2012).
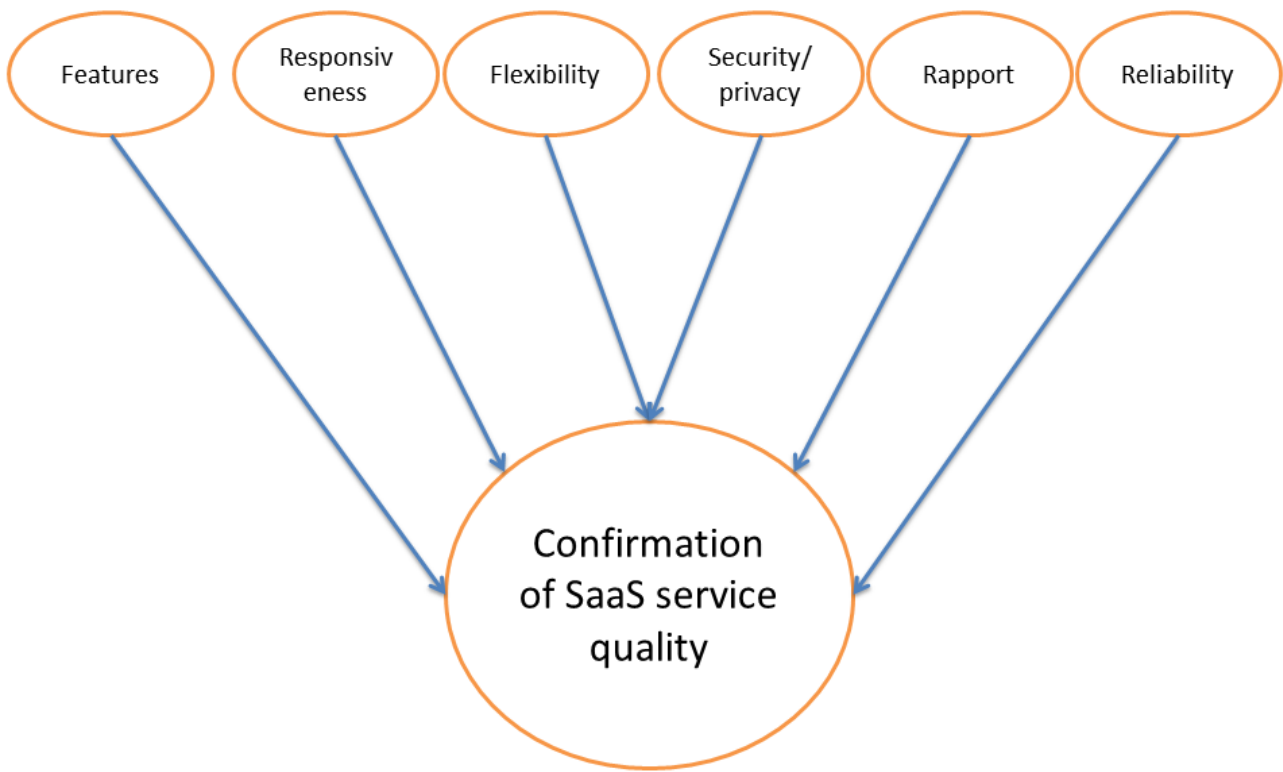
Figure 6 The SaaS-QUAL model (Benlian, Koufaris & Hess, 2010)

The SaaS-QUAL model differs from the original SERVQUAL model by having six dimensions instead of five. Two of the dimensions are same in both models (responsiveness and reliability), indicating the importance of customer vendor interaction and vendor reliability. Rapport (harmony between customer and vendor) can be seen as replacing empathy and assurance in SERVQUAL, as rapport means the level of understanding and harmony between the CSP and its customer. Online based services are less bound to tangibles, so the tangible dimension has been replaced in SaaS-QUAL by dimensions more defining to cloud computing as features, flexibility and security/privacy. (Benlian, Koufaris & Hess, 2010)

3.5   Literary review summary

This study focused on finding qualities affecting (B2B) customer satisfaction in cloud services. The increasing amount of cloud services shows the importance

of the market and thus the importance of studying qualities affecting customer satisfaction in cloud services. Customer satisfaction research unique to cloud services is scarce and hard to find. eCommerce related customer satisfaction research was used as a base for finding qualities affecting customer satisfaction in online business. B2C and B2B customer satisfaction research was also discussed and three customer satisfaction and service quality models (ACSI, SERVQUAL and SaaS-QUAL) used in comparing qualities affecting satisfaction.

A summary of important qualities impacting (negatively) on satisfaction and SQ in eCommerce/cloud services is presented in Table 1 (below). The table was created by comparing eCommerce satisfaction research (Lin, 2003), B2B satisfaction research (Patterson, Johnson & Spreng, 1997), ACSI (Fornell et al., 1996), SERVQUAL (Parasuraman, Zeithaml & Berry, 1985; 1988) and SaaS-QUAL (Benlian, Koufaris & Berry, 2010). Common shared qualities affecting customer satisfaction between all compared qualities were expectations, perceived value and perceived overall quality. Other shared qualities were human interaction or empathy, reliability, responsiveness, features and security/privacy.

	eCommerce satisfaction research	B2B satisfaction research	ACSI	SERVQUAL	SaaS-QUAL
Interaction	x	x		x (Empathy)	
Communication	x				
Information flood	x				
Expectations	x	x	x	x	x
Perceived overall quality	x	x	x	x	x
Perceived value	x	x	x	x	x
Customer complaints			x		
Reliability				x	x
Tangibles				x	
Empathy	x	x		x	
Responsiveness				x	x
Rapport					x
Flexibility					x
Features		x			x
Security/privacy		x			x

Table 1 Comparison of qualities impacting customer satisfaction in traditional business and eCommerce/cloud services

The eCommerce research results on customer satisfaction shared some qualities in common with the SaaS-QUAL (Benlian, Koufaris & Hess, 2010) model, but it cannot give a complete overlook on the aspects affecting B2B customer satisfaction in cloud services. The SaaS-QUAL (Benlian, Koufaris & Hess,

2010) model is an independently developed model from SERVQUAL
(Parasuraman, Zeithaml & Berry, 1985; 1988), and additional research should be
conducted in order to possibly distinguish more aspects affecting B2B customer
satisfaction in cloud services. The customer satisfaction and service quality
models were combined to a single model of qualities affecting satisfaction in
expectations, performance and overall quality of service and customer satisfac-
tion and retention (Figure 7).
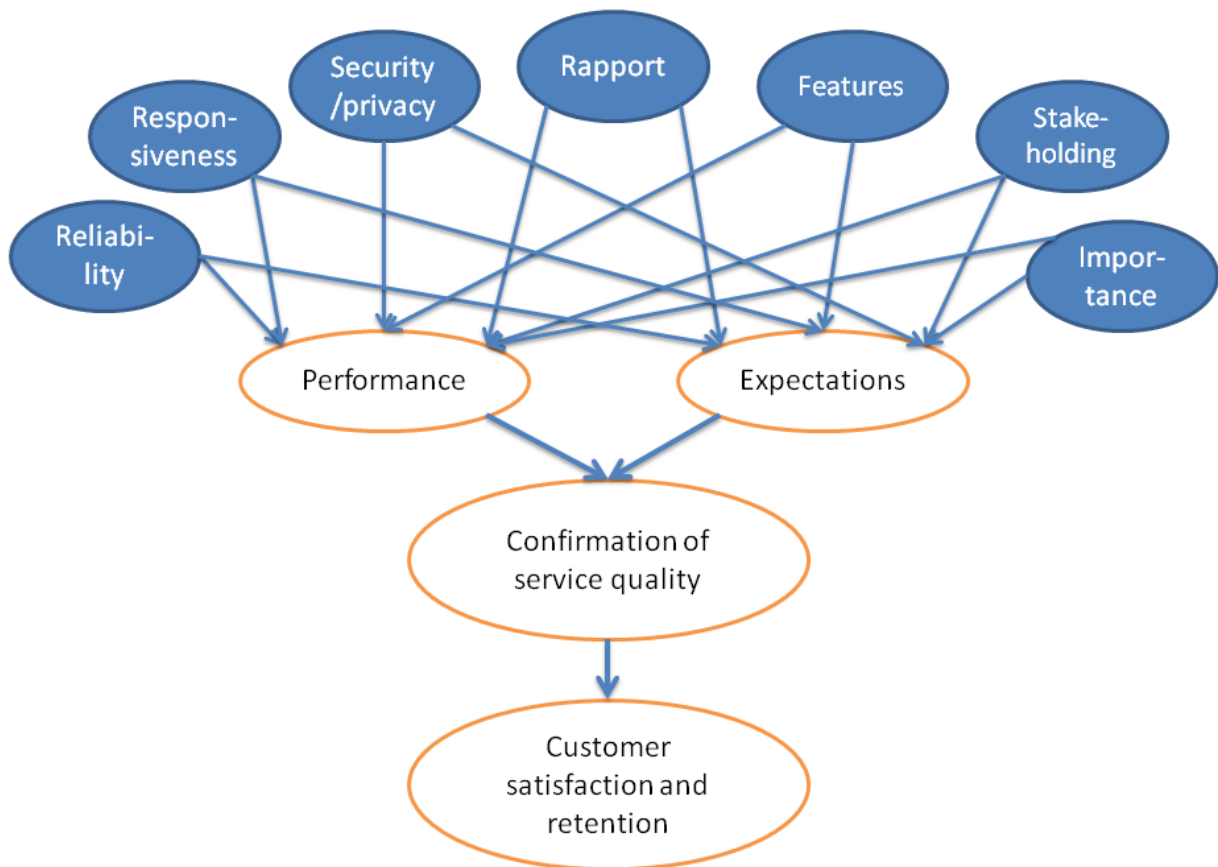
Figure 7 Combined model for B2B customer satisfaction from ACSI, SERVQUAL and SaaS-
QUAL

Expectations are affected by all features of a product or a service. Expecta-
tions are also related to responsiveness, reliability, stakeholding and im-
portance of the purchase. These qualities are then overviewed in the actual
product or service performance. This performance will then be overviewed and
either confirmed or disconfirmed when compared to expectations. The confir-
mation or disconfirmation of expectations via actual performance will affect
and create the overall customer satisfaction and affect future customer retention
and repurchasing intentions.

4   RESEARCH METHODS

This chapter focuses on the research methods used to conduct the study. First we focus on the aims of the research, and second we argue the research methods used in the data collection (literal review and structured interview). The data collection method section provides information on the structure of the customer satisfaction interview. Third, a preliminary schedule is presented. Finally discussing the data analysis, data verification and the possible problems related, concludes this chapter.

4.1   Data collection methods

The Company provided the preliminary questionnaire outline and the interviewee details for the study. The questionnaire was edited according to the interests of this study, but the modifications remained small as the interests of customer satisfaction study in cloud business was relatively same for the Company and the researcher. The data was collected from the Company's partner companies that included furniture manufacturers as well as corporate chain stores. Some of the companies were both manufacturers and retail sellers.

Data in this study was collected by a structured interview qualitative method that was conducting by phone interviews. Qualitative research aims to gather detailed information and knowledge on a specified sample or area of research, whereas quantitative research bases on large sample sizes and often mathematical data. By focusing on a limited group it is possible to create a deeper understanding of a studied subject. Qualitative research is often conducted in human environments, where both the researcher and the targets of research are humans. Qualitative research methods commonly include written questionnaires or personal interviews. (Järvinen & Järvinen, 2004)

This method was used because of its versatility and its suitability for the nature of the study. Qualitative methods are better suited for a smaller target group, and the interviewer is able to ask the interviewees clarifying questions

over a longer time of contact period (Järvinen & Järvinen, 2004). This can result in deeper understanding of the problems and advantages studied than what a purely quantitative questionnaire (e.g. online questionnaire) could possibly achieve. Even when data collection and analysis by qualitative methods can vary in results for different researchers (Attride-Stirling, 2001), it was seen as the best method for this study.

The phone interviews were conducted mobile over a longer period of time, which was best fit for the setting in this study. Interview schedules were easier to plan together with the interviewees when the data could be collected over a longer period of time. The interviews were documented by using a high quality voice recorder. The voice recorder was used in order to collect all the data in addition to the data stored by hand or in an electronic document during the interviews. The interview consisted of four different sections:

- Background information,
- General opinion/satisfaction questions about the Company,
- Opinion/satisfaction questions about the Product and
- Business related questions

The interview contained 20 questions in total, of which one question depended whether the interviewee's business was a manufacturer or a corporate chain store. Background information included the name of the customer company, name and title of the interviewee, whether the company was a manufacturer of a corporate chain store and company size (micro 1-10 persons, small 10-50, small and medium enterprise [SME] 50-250, large 250<). The interview results were analysed and similar aspects relating to customer satisfaction noted and collected.

4.1.1 Customer satisfaction survey

The customer satisfaction survey was conducted as a phone survey. The survey was conducted over a three month time period. The customer information used to conduct the survey was acquired from the Company. Elements from the ACSI (Fornell et al., 1996), SERVQUAL (Parasuraman, Zeithaml & Berry, 1985; 1988) and SaaS-QUAL (Benlian, Koufaris & Berry, 2010) models are included in the survey with questions related to overall service quality (in ACSI, SERVQUAL and SaaS-QUAL), technical expertise ("reliability" in SERVQUAL and SaaS-QUAL), problem solving ("responsiveness" in SERVQUAL and SaaS-QUAL), preferred payment options, innovativeness ("rapport" in SaaS-QUAL). With the customer satisfaction survey and the interviews it can be possible to gain an overall image of the rapport between the company and the customer, which is one of the major indicators affecting customer satisfaction in the SaaS-QUAL model (Benlian, Koufaris & Berry, 2010). Expectations, performance and disconfirmation for B2B customers (Patterson, Johnson & Spreng, 1997) were not individually measured, but the overall image that the survey creates is seen

to give an overview on customer expectations and possible disconfirmation between expectations and real experiences.

The interview questionnaire consists of four parts: *Background information*, *General opinion about the Company*, *General opinion about the product* and *Business related questions*. These four parts were used in order to find out how customers saw the Company, their product and how well the interviewee's company's business had benefited from using the product. After the four separate sections an option for anonymous feedback was given.

The questionnaire was originally designed by the company, and then modified by the researchers. The modifications were done in order to gain additional information about cloud service related questions that this study is focused on. The complete customer satisfaction questionnaire used in the interviews can be found in Appendix 1 (Finnish) and 2 (English).

The customer satisfaction survey and the interview were conducted via mobile phone and it was aimed to create an image of the state of customer satisfaction for the Company's customers and expose possible causes for satisfaction or dissatisfaction. The results were then compared with the earlier literature and customer satisfaction and service quality models presented in chapter 3 in order to distinguish similarities and differences amongst earlier research.

4.1.2 Respondents

Nine company representatives out of 20 (45%) were reached over the interviewing period. Three representatives (15%) out of all the company representatives did not want to participate in the interviews. Majority of the interviewees (44%) were in a Chief Executive Officer (CEO) position, while other people interviewed held positions such as Marketing Director and Product Manager.

One interviewee out of nine did not provide information about their position in the company during the interview, as the interview was conducted under a strict schedule. All the interviewed individuals were male. One respondent was only reached for a brief discussion and these comments are available in 5.5 "Anonymous comments". The respondents are listed in Table 2.

#	Interviewee position	Business type	Company size	Interview length
1	Marketing director	Manufacturer	Small	15 min
2	Product manager	Manufacturer/retail chain	Small	15 min
3	Chief executive officer	Manufacturer	SME	15 min
4	Marketing director	Manufacturer	Micro	15 min
5	Chief executive officer	Supplier	Micro	40 min
6	Chief executive officer	Manufacturer/export	Small	25 min
7	Chief executive officer	Manufacturer	Small	5 min
8	Position unknown	Manufacturer	Unknown	15 min
9	Chief executive officer	Manufacturer	Small	15 min

Table 2 Customer satisfaction survey respondent information

Majority of the interviewees were company representatives working in the furniture manufacturing business and had been using the Product and the Company's services for a longer period of time. No larger retail chain store companies were reached for the interview. One interviewed company was also doing export business to China and other countries. One company was solely based on supplying various furnishing products through their online store, and was one of the first customers to obtain the 3D modelling service that the customer satisfaction questionnaire was focused on.

Over half of the companies at five out of nine (56%) were small businesses (from 10 to 50 employees). Two (at 22%) were micro companies (1 to 10 employees). One company was an SME business (50 to 250 employees) and one business did not give information about their size of operation due to unknown reasons. Larger companies could not be reached over the interviewing period, which makes this study more focused on smaller business customer satisfaction on the Company and their cloud computing based 3D modelling Product.

The interviews were compact, as the interviewees were often in a higher management position and had only a limited amount of time for the interview conducted over the phone. The average interview length was slightly short of 18 minutes (17 minutes and 40 second), with the median length of 15 minutes. The longest interview conducted lasted for 40 minutes and shortest recorded interview with useful information related to the study lasted only for five (5) minutes.

The median of 15 minutes was enough to create a general image of satisfaction in the interviewees company about the Company and the Product in question. Longer interview time might have resulted in additional results and deeper insights, but taking into account the busy schedules of the interviewees the achieved median of 15 minutes was good. Additional feedback related to the Company and their Product was provided openly, which enhanced the image created by the four main sections of the questionnaire.

4.2 Schedule

The schedule for this study was planned to be as efficient as possible as seen in Table 3. The interview questions had been composed according to the instructions given by the Company. The company also provided the interviewee information for the study, which consisted of the common users of their product and whose feedback they were mostly interested in.

The achieved schedule shows that the preliminary schedule was not met due to several delays. The delays were mostly related to personal reasons, e.g. increased workload in the researcher's daytime job. The preliminary deadline for the interview results were also postponed from June to September, which allowed more time for conducting interviews and analysing the results.

Better results could have been obtained through more careful schedule planning, where the issuing Company would have planned the schedule to-

gether with the researcher conducting the study. Contacting the interviewees before conducting the study and creating a schedule over a longer period of time might have helped with acquiring better results from more companies over the planned period of time, which in this study was two months. This was however not possible as the research material obtained from the study wanted to be acquired as soon as possible.

Task	Preliminary schedule	Achieved schedule
Data collection	1.3.-31.5.2012	1.4.-19.6.2012
Data verification	1.6.-20.6.2012	1.7.-20.7.2012
Data analysis	1.6.-20.6.2012	1.7.-20.12.2012
Literary review and related studies	1.7.-1.8.2012	23.7.2012-31.5.2013
Summary and conclusions	1.9.-1.10.2012	1.6.-1.9.2013

Table 3 Preliminary task schedule and achieved schedule

4.3   Result validation

Validating a qualitative research is difficult, as the researcher is often consumed by the amount of data and the analysing process (Pyett, 2003). All the interviews were recorded using a handheld recording device together with a mobile phone used on the speaker mode. When the recording was unavailable due to lack of power, the interviews were transcribed on the spot by writing the complete interview on paper.

Most of the interviews were done on the spot and the respondents did not have a lot of time to think before answering. It is hard to determine afterwards whether the answers to the interview were true and just from the respondent's point of view. The questions were repeated if requested and clarified further if the respondent was not sure how to respond.

Suddenly conducted interviews and less time to think for answers often resulted in quick responses. This might have resulted in less deep answers to important questions and the interviews should have been conducted with more time for the respondents to think. Many of the respondents were busy with their business during the survey, thus reducing the time used for the interview. Respondents who were interviewed on an agreed schedule had more time to think for their answers and were therefore often more informative in their answers.

The researcher has a great role when discussing the validation of data in a quantitative research, as personal characteristics also affect the analysing process (Finlay, 2002). In this research, the researcher analysed the answers based on the interviews and the recordings. The interviews were conducted in Finnish and later translated into English during the analysis and for the written thesis. Some detailed information can be lost in a translation process as the researcher was not an experienced translator between Finnish and English. Careful work, use of language dictionaries and the support from native language speakers

were used to translate the interviews as accurately as possible. The main points of the conducted survey and the different nuances were made clear in both languages during the translating and analysing process by comparing the translated answers to the original Finnish answers. Still the room of error exists, and more interviews in the area of customer satisfaction in cloud services should be conducted in order to validate the gathered information further. Possible problems related to the results validation are presented in Table 4 (below).

Action	Researcher	Outcome	Possible problems
Interviewing for the survey	Interviews respondents and records interviews	Raw interview data	Lost data due to recording failure or other
Transcribing	Listens to recordings and transcribes the most vital comments received	Transcripts of main points received in from the interviews	Information loss in transcribing (lost words or sentences)
Translation from Finnish to English	Translates by using available knowledge, dictionaries and native speakers	Translated comments for the English thesis report	Limited experience and knowledge in English and translating
Analysing the interviews	Analyses the interview results based transcribed interviews bringing up the relevant results related to the study	Relevant results related to the study	Personal capability of pointing out the most important aspects and relevant topics for the research
Validating the results	Confirming that the analysed comments and the points are relevant to the study	Validating, that the results received from the study are relevant and properly perceived by the researcher	Limits of personal validation skills, limits of qualitative research validation

Table 4 Study process and possible problems with data validation

Each main task in the study was presented together with the researcher's actions and the outcome. Then the possible problems related to validation and each action is presented, as they might have an effect on the outcome of the study. Major problems were not encountered during the study, but challenges were always present. One example of a challenge while conducting the research was a power failure of the recording device during an interview, resulting in hand written transcribing on the spot. Main issues in qualitative research result validation come from the personal limits and skills in researching and finding out the main points, comments and issues that are relevant for the study. These problems were faced constantly, and it resulted in analysing the data again over a long period of time.

5   FINDINGS

This chapter presents the results and analysis of the customer satisfaction questionnaire. First, the Company studied in this research is introduced. Then, the results of the customer satisfaction survey are presented. The results of the customer satisfaction questionnaire are also compared to the results found from previous research literature in chapter.

5.1 The Company

The Company this research was conducted with is a Finnish business founded in Oulu in 2006. This company was founded as an increased interest and demand in 3D modelling had risen in the furniture industry. They offer SaaS-based 3D visualization and sales management tools for furniture manufacturers and retail chains. The Product is their SaaS-based tool for online furniture modelling and sales management. Businesses with this Product can visualize their products on an online platform, making it easier for traditional consumers to explore and find furniture products by various manufacturers.

Various innovative products and supporting services have been created to support the original idea, and their innovativeness in browser-based cloud services has led them into a niche. Their products are also sold outside Finland to Europe and their customers include furniture businesses from countries such as Sweden, Estonia, Poland, Italy and Greece.

The Company offers various SaaS-based products and services to support their main product platform. The main product is an online platform for 3D furniture modelling. The platform is sold to business customers, through which the customers can showcase their furniture models and let consumers plan their own interior design using the customer's furniture designs. The Product is sold to a variety of businesses in Finland, and is widely used in the furniture business for increased sales and marketing online and offline. Some businesses use the Product for showcasing their products in retail stores.

The Product is offered together with additional services. Customers can use additional services to e.g. integrate information for the Product from their own systems and manage customer orders. These services are used as an enhancement and a newer way for ordering, manufacturing and delivering furniture products for consumers and other businesses.

5.2 Customer satisfaction questionnaire

5.2.1 General opinion about the Company

In the first section of the customer satisfaction questionnaire the interviewees were asked to grade six individual aspects related to the general opinion about the Company from one (1) to five (5). The aim of this section was to see how the interviewees felt about the company and how the Company could improve itself in general. The aspects measured were related to the Company's functions in their business, how well they reacted to problems and how they performed overall. Those who responded in this section felt that the Company functioned well in general, but also saw that there was still room for improvement. The responses are summarised in Table 5.

The response rate for this section was good, as eight out of nine of the interviewees reached for this study agreed to grade these features (89%). One interviewee did not answer any of the four main sections, but is still included in the results as the open feedback received from the interviewee was important for the study. This feedback is available amongst others in 5.2.4 Anonymous comments.

#	Technical expertise	Quality of service	Reaction time	Expertise in furniture business	Innovativeness	Overall	Avg.
1	4	5	5	3	4	4	4.17
2	5	4	4	4	4	4	4.17
3	4	4		3	4	4	3.80
4	5	5	4	5	5	5	4.83
5	4	3	2	(null, expertise not expected)	3	4	3.20
6	4	5	4	5	5	5	4.67
8	4	4	3	5	4	4	4.00

9	4	4	3.5		4	4	3.90
Avg.	**4.25**	**4.25**	**3.64**	**4.17**	**4.13**	**4.25**	

Table 5 Grades regarding general opinion about the Company

The results, as shown in Table 5, indicate that the strongest aspects and the most positive responses in this section of the interview questionnaire were given to technical expertise, quality of service and the overall grade of the Company at 4,25 out of 5 (grade 1 to 5). The lowest grades were given to the reaction time at an average of 3,64. The Company's expertise in the furniture business and their innovativeness were also seen as good with average grades of 4,17 and 4,13.

One interviewee commented the technical expertise: "… [Technical] expertise is also seen as service and is thus an important part of it". As cloud computing is often offered as a large bundle of various services (source), all aspects of the service should be delivered with equal excellence. Another interviewee had positive and less positive comments about the quality of service: "I am satisfied [with the quality of service] … it is sometimes good, but at other times there is apparently a lot of workload and other priorities [at the Company]". The interviewee was concerned, that larger companies using the Company's services were given more attention and time than the smaller companies, increasing the waiting time on promised repairs and service appointments for smaller clients.

Majority of the interviewees saw the reaction time to problems and updating schedules from the company to be too low with an average grade of 3,64 out of 5, with the lowest grade at 2 out of 5. In this interview "reaction time" refers to the amount of time that the company took to acknowledge and process problems in their products after being contacted by a customer. Respondents commented how "the promised schedules are not held" and that "keeping to the schedules is important … or at least communicating about possible schedule changes and delays". Another respondent commented that the reaction time was okay, as "the problems have usually been dealt with within a week".

The Company's expertise in the furniture business and the innovativeness of the Company were rated as good with an average grade of 4,17 for expertise and 4,13 for innovativeness. One respondent did not give the Company a grade in expertise, as the respondent did not expect furniture industry expertise from a cloud service provider. Other respondents were pleased with the Company's expertise and had nothing further to comment on the subject. The innovativeness of the Company and the Product was seen as a positive factor, and one respondent commented that the Product "exceeded their needs [in innovativeness]".

5.2.2 General opinion about the Product

In the second part of the customer satisfaction survey the respondents were presented with open questions as well as specific questions about the Product. The aim of this section was to see how the respondents felt about the product and find out what they felt lacking and what could be improved further. The respondents were asked to grade the usability and the gained benefits of the Product on a 1 to 5 scale. The responses are summarised in Table 6.

The open questions were related to how the customers were first introduced to the Product, what deficiencies they felt the Product had and what feature(s) could be improved further in the Product. The last two questions were often merged as one in discussion during the interviews, so for some of the respondents the answers are not clearly specified between the two questions. Open comments were encouraged in all sections, and some of the development related comments were also moved to the anonymous comment section (5.2.4).

#	Introduced to the Product	Usability (1-4)	Benefits from use (1-4)	Deficiencies	To be improved
1	Unknown	Expert user 4, customer 2	4	None specified	User interface, "..easier access for first time users.."
2	"From a competitor (10 years ago)"	4	4	None specified	Better screen-shot quality ("..could use as marketing material.")
3	"Offered by the Company"	4	2 (.."target audience elderly people..")	None specified	
4	"Was presented at different locations, fairs and competitors"	3-4 ("..not all clients have the required add-on and are afraid to install it..")	3 ("..some retailers do not have the technology to use the Product.")	None specified	Higher quality 3D modelling ("..better representation of the actual products..")
5	"Demonstrated at an expo and an article in a national magazine"	4 ("..first time users require help, e.g. hover-on..")	3 ("..benefits not as significant as originally expected..")	"Tag recognition could be better on the AR-side, software fail proof, interior space design to be developed further."	See previous question.
6	"Contacted from the Company, a long history with using the Product"	4 (.."best but not perfect, not functional on all devices and customers can com-	5 ("..brings credibility in the area of IT, fear of IT dependency, service required	"Always developed easier and more versatile (1.0->). A setup can only be saved as a picture and	See previous question.

	plain.")		for displaying large variety of products..")	not as an entity inside the pro- gram."	
8	"Marketed and sold by the Company"	4 (.."good guidance received.")	3	"Always room for development."	
9	"Most likely from a competi- tor"	4 ("small quirks")	4 ("beneficial, expectations and wishes have been ful- filled..")	None specified	Reporting within the ser- vice, not speci- fied further

Table 6 Grades and responses regarding general opinion about the Product

Three out of eight (37,5%) respondents found out about the Product by hearing about it from a competitor or seeing it used by a competitor. Three out of eight (37,5%) were contacted directly from the Company and sold the product through a direct channel of communication. The Product had also been demon- strated in various locations, expos and other meetings where two respondents had also heard about the product. One respondent had seen a demonstration about the Product in an expo and also read about in a national magazine, thus kindling interested which lead to obtaining the Product for the company. A single respondent felt that the product had been "forced to them by the Com- pany" without them really requiring any of the offered services.

Respondents felt that the usability of the Product was good at an average grade of 3,9 out of 5. Two out of five (22.2%) respondents commented that the Product could be more "usable and easier to access for first time users", as some customers had had trouble with installing the required add-on or they were afraid of installing new software on their personal devices. One respondent gave the first-time usability a grade of 2 out of 5 because of these problems they had encountered with customers. One respondent suggested "hover-on helps windows for first time users" as more guidance for beginners would make the initial Product experience more enjoyable. Now some of the respondents felt that the initial learning barrier might be too high or intimidating for some of the customers. However, most users that were already proficient with the Product felt that it was very usable after the initial learning curve had been passed and the Product had been customized for the needs of their use and company.

Seven out of eight (87,5%) respondents felt that their business had bene- fited from using the Product, giving the benefits received an average grade of 3,5 out of 5. One respondent graded the benefits received smaller at 2 out of 5, considering their customers were "mostly elderly people who are not in the main target group for using an online based service". Two others respondents commented that all the expectations had not been met, as the benefits had "not been as significant as originally expected". Their customers were either not in the main target group for the online service or their retail stores did not have the necessary equipment to use the online platform for displaying products. Another respondent brought up "IT credibility", stating that using the Product

brings credibility to the company that's "industry is suffering from a severe lack of IT credibility".

Five out of eight respondents (62,5%) could not specify or had not experienced clear deficiencies in the Product, but all the respondents agreed that development of the Product should never stop. One respondent commented on the AR (augmented reality) functionality where "tag recognition could be developed further". The respondent also saw that the Product should be fail proof for higher satisfaction and the interior space design used in the Product could be even higher in quality. Another respondent wished for a feature, where a product setup could be saved as an entity in the Product, as at the moment a setup could only be saved and downloaded as an image. This feature "would be useful for later use" and "when you want to come back to an entity and improve it".

Four out of five respondents who did or could not specify deficiencies in the previous section pointed out features that could be improved in the fifth section in this part of the survey. Two respondents pointed out a need for better graphical quality in the Product, as "higher quality screenshots could be used as marketing material" and "higher quality 3D modelling would give a more realistic view of the products represented by the Product". Respondents also wished for further development on the user interface and better reporting functionalities from the Product.

5.2.3 Business related questions

The third and final part of the customer satisfaction survey focused on business related questions. The respondents were presented with four open questions related to return on investment (ROI), saved man-hours, license fees and usage of the Product in their retails stores or by customers. Question 4 was presented to respondents working in a retail chain business, and question 5 was presented to privately run businesses. None of the respondents answered the fifth question, but gave more details in the fourth question that was related to the use of the Product in retails stores.

These questions were used to find out whether the customers received financial benefits from using the Product. The aim was also to find out how they felt about the license fee used by the Company and if they would like to have any alternative methods for paying for the product (e.g. pay-per-use, pay for life). The results of this part of the survey have been described in detail below (Table 7).

#	Good ROI?	Does it save man hours?	Opinion about license fee	How much do retail stores use the Product in sales?	Private consumer contacts?
1	Hard to determine	Yes, it does	"Current license fee is good, pay-per-use would be hard to estimate."	Daily, "..orders come straight from retail stores via the Product.."	-
2	Hard to determine	Yes	"License is good, especially when the program is available globally for anyone.."	Daily, "..it is the 2nd most important tool for a salesperson after personal expertise.."	-
3	"Absurdly" long (expensive license)	No, can even increase required hours	"License expensive, but no possibility to negotiate."	"Used especially with younger clients, also interior planners use the Product often.."	-
4	ROI is "ok", should be more active [myself] in marketing and promoting	Most likely yes, no need to calculate dimensions manually for customers	"[Monthly] license has been good."	"About 80% of the customers use, older generations do not have the skills or the equipment"	-
5	No ROI target, longer scale target, ROI not the most important criteria	"Does not save, does not affect, web-based service is different from the real world. Might save in the future, when personal designing can happen from your home computer and the designs can be sent straight to the manufacturers.."	"Good, but expensive for a small company." Does not like pay-per-use or user models.	-	
6	Very hard to determine.	"Maybe slightly, mostly in retail stores when showing products, customer can plan their design at home and go to the store with a plan ready. Saves time, when the manufacturer receives an order for the right parts immediately [on the first try]."	"Various options should be presented (cheaper and more versatile)."	"Orders sent, and retail companies using the Product get discounts when ordering via the Product, less work when handling orders received via the Product."	
7	Difficult to determine, mediocre (grade 3 on 1-5 scale)	"Yes it does" (grade 3 on 1-5 scale)	Yes, plus hourly rate	Graded 2 on a 1-5 scale, .."some stores are better guided in the use of the Product.."	-
8	Difficult to determine, "..other companies use the Product as well."	"Increases man hours when new models are added, practical inside the company, handy for making offers."	"License the best, just like you have an Internet connection with a static fee."	"Most likely yes, especially by the salespersons, not much through the Internet, contact mostly from the retail stores.."	-

Table 7 Results for open business related questions

Five out of eight respondents (62,5%) saw it "difficult to determine" whether the return on investment (ROI) was good for this product or not. One respondent commented that "it's difficult to determine [the ROI] and there are no clear indicators [in our use] for defining it". A single respondent still noted that the ROI was "mediocre", but not significant for them. Another respondent saw that in their situation the ROI was "absurdly long because of expensive license costs" and was related significantly to the small size of their company. A single-man company representative commented that "we have no ROI target, as we have longer scale targets … [the ROI] is not the most important criteria … as the Product supports the [company's] web service as a whole". Finally, a respondent commented that the ROI was difficult to determine as "other companies use the Product as well". The relation of ROI and other companies using the same product was not clarified in this question, but the respondent most likely saw that the effects received from the Product were not as significant because it was widely used in the furniture industry by other companies as well.

5.2.4 Anonymous comments

The respondents were given a possibility to give anonymous feedback about the Company, their Product and everything related. Five respondents out of nine (55.6%) decided to give anonymous feedback when the opportunity was given towards the end of the survey. The feedback was mostly positive, as many of the respondents wished the Company to "keep up the good work" and "improve even further" with their Product and its related services.

Respondents also criticized the Company and asked for "more resources to be used on customers", as some respondents wished "projects to be conducted faster and more correctly". Communication was seen as an issue by some respondents, as one respondent asked for better communication on schedules and delays, as "lack of communication creates dissatisfaction and bad experiences for a small company regarding service and reaction times".

The graphical quality of the Product was also mentioned in the anonymous comments. An individual respondent wished for "better quality when comparing the real world with the web world version". Other respondents saw the graphical quality as good or sufficient.

Two respondents mentioned the service (license) fees. One respondent commented that they saw the license and service fees as too high and that the "information about the expenses of the license fee has been made clear to the Company earlier as well". An individual respondent had a very negative view of the license fee, stating, "It is too expensive to ask for any advice or help from the Company, as everything costs money…". Another respondent felt that the service had been good when compared to the price, and the "pricing has been good, as the Company does not exercise hair-spilling pricing". Very similar respondents in business size, but with very different target groups presented these opposite opinions.

6   SUMMARY AND CONCLUSIONS

This chapter provides a summary of the research. Conclusions and suggestions for management in the area of customer satisfaction in cloud services are also included. Finally, future research possibilities are discussed.

6.1   Research summary

Cloud services are online-based solutions offered by cloud service providers (CSPs) (Armbrust et al,, 2010). These services include offering infrastructure (Infrastructure as a Service, IaaS), platform (Platform as a Service, PaaS), software (Software as a Service, SaaS) and other (X as a Service, XaaS) service solutions to B2C and B2B customers (Armbrust et al., 2010). Some of the well-known CSPs include Amazon, Google, Rackspace and Salesforce (Lenk et al., 2009).

Customer satisfaction can be viewed either as a process or as an outcome. Satisfaction can be an action judging the complete purchase (Churchill and Suprenant, 1992) or an action of disconfirming an item or a service (Olive, 1997). Oliver (1997) discussed the connections between expectations, performance, disconfirmation and satisfaction. In the "value-percept theory" by Parker and Mathews (2001) satisfaction comes from an evaluative process of received and fulfilled value. Westbrook and Oliver (1991) highlight human emotions and affective experiences in the customer satisfaction process, and Wilton & Nicosia (1986) regard customer satisfaction more as a cumulative experience than a one-time purchasing experience. B2B customer satisfaction differs from B2C satisfaction with the focus more on bigger investments, stakeholders at risk and complexity of the purchase (Patterson, Johnson & Spreng, 1997). B2B customer satisfaction can also be affected by personnel satisfaction (Homburg & Stock, 2004) and the quality of relationships between the B2B vendor and customer (Rauyruen & Miller, 2007). eCommerce customer satisfaction is affected by the

lack of human interaction, quality of communication, amount of information, expectations and perceived quality and overall value (Lin, 2003).

The customer satisfaction survey for the Company and the Product was conducted together with the University of Jyväskylä (Department of Computer Science and Information Systems). The survey was conducted as a personal phone survey. Nine out of twenty (45%) company representatives were reached and interviewed successfully over the interviewing period. Three representatives (15%) out of all the contacted company representatives did not wish to participate in the interviews. Majority of the interviewees (44%) were in a Chief Executive Officer (CEO) position, while other customers interviewed held positions such as Marketing Director   and Product Manager.

The overall average grade given to the Company was 4.25 out of 5. The lowest individual grade was given to reaction time at 3.64 out of 5, and the highest individual grades to technical expertise and overall quality of service at 4.25 out of 5. All respondents saw the Product as a usable and innovative product, but all respondents also agreed that the product should be developed continuously towards a more usable and easily accessible service.

Respondents saw it difficult to assess the business related impact of the product (ROI, saved man hours), but they all agreed that the current license payment method was suited for their needs. Some smaller company respondents felt that the license fees together with other service fees sometimes felt large when compared to the benefits received. One respondent said it was too expensive to ask for support from the company as a small business.

Respondents were not fully aware of how the Product was used by their customers or salespersons in retail chain stores, but believed that the platform most likely helped consumers in finding the right products for their needs quicker. Also salespersons could illustrate products easily through the visualization offered by the Product, reducing the amount of traditional manual work.

The customer satisfaction survey gave insight on how the company could improve their quality of service and their product in general. Respondents rated different aspects of the company and the results are shown in Figure 8. Aspects moving clockwise from the top red circle should be focused on and improved more inside the company. Customers wanted the company to especially focus on improving their reaction time to problems and the scheduling related to problem solving and updates. Customers also wanted better communication (also related to customer service) from the company, as good communication is vital for information flow between the company and the customer.

Aspects listed towards the green circle were seen as good, excellent and/or already functional. In particular, the company's technical expertise and knowledge about the industry were praised. Customers saw the Product as a usable product in general, but commented that the UI could be improved to be more beginner friendly e.g. with "helpful popup-hints".

Figure 8 Quality of service and related features

Respondents also gave future suggestions to the studied Company and how they could improve their SaaS product even further (Figure 9). Respondents mentioned the need for a more accessible and usable UI design for first time Product users. Adding helpful tips and hints were thought to improve experience for first-time program users. Some users were also intimidated by the additional plug-in required for the program to run. The users were not concerned about security or privacy, both problems often discussed in the area of cloud services (Armbrust et al., 2010).
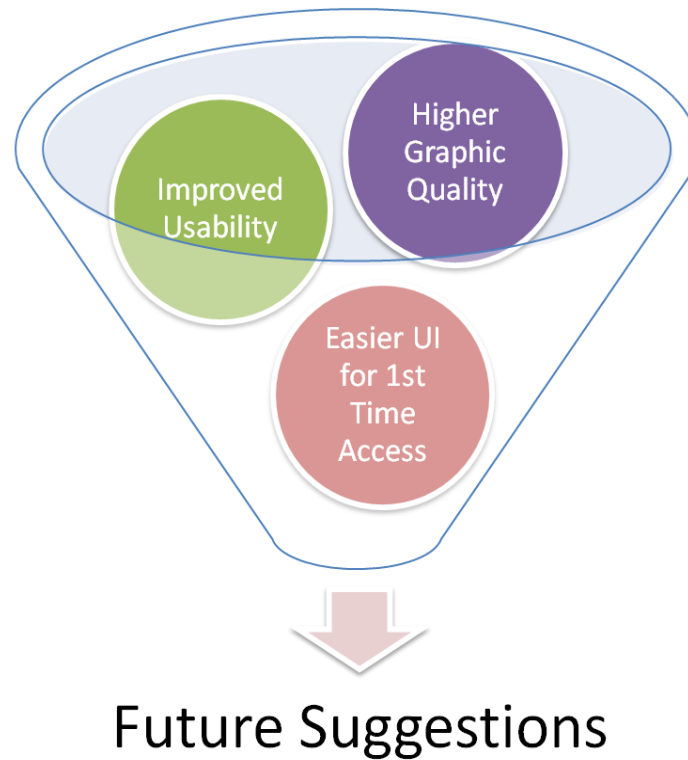
Figure 9 Future suggestions for the Product

Customers were pleased with the overall graphic quality in the Product, but were also interested in higher quality rendered images. The respondents suggested higher quality images, as these images could then also be used as marketing material in the customer's company. Some customers also mentioned the need for higher quality screenshots with the same additional marketing opportunity in mind. The most important factor was pointed to be better usability and easy setup for first-time users. Overall, users wanted to learn to use the product quicker and wished for a more user-friendly experience for first-time users.

6.2 Comparing results with previous research

The results show that the B2B customers of the Company were most concerned about the price of the service, business-to-business interaction and communication, personal service and repair schedules and the reaction time of the CSP for support request. In the B2B satisfaction model by Patterson, Johnson & Spreng (1997) stakeholder impact and decision importance are related to the cost of the

purchased service of profuct. Cost is also mentioned by Lin (2003) as affecting satisfaction in eCommerce business. Problems related to customer relations and communication were most frequently mentioned and seen as the most important ones in improving customer satisfaction.

Communication has been discussed in both the SERVQUAL (Parasuraman, Zeithaml & Berry, 1985; 1988) and SaaS-QUAL (Benlian, Koufaris & Hess, 2010) models as "responsiveness", which is related to the amount of communication and feedback from the business or service provider. The communication problems can also be linked to "rapport", the mutual understanding between a customer and a business, as a lack of mutual understanding regarding the amount or standards of communication. The specific communication related qualities are illustrated in Figure 10.

Figure 10 Communication related qualities affecting customer satisfaction derived from the interviews

The customers were expecting a higher amount of overall communication, which then resulted in disconfirmation while working together with the Company. Expectations affect the overall experience, and this chain of actions is also visible in all three models – ACSI (Fornell et al., 1996), SERVQUAL (Parasuraman, Zeithaml & Berry, 1985; 1988) and SaaS-QUAL (Benlian, Koufaris & Hess, 2010). Thus the emphases derived from the interviews were

related to "responsiveness" and "rapport" as described in the service quality models. The results do not deviate significantly from earlier customer satisfaction studies and models, but the importance of customer relations and communication was emphasised.

6.3 Suggestions for management

Based on the customer satisfaction survey and interviews conducted for this thesis, some general suggestions for CSP management have emerged from the results. The suggestions are points-of-interest that were constantly brought up in the customer satisfaction interview discussions with customers. Some of the points are highly related to technical aspects and cloud services, whereas some are more universal for every industry. The focus on the questionnaire and the interviews was to find customer satisfaction problems specifically related to IT services and companies offering cloud solutions. The suggested points-of-interest for CSP managers are:

- **Communication** – Better upkeep of customer relations and communication (e.g. technical changes, planned schedules and their changes, new products, deals and offers) can increase customer satisfaction and retention.
- **Affordability** – More diverse and customisable options for different sized companies may increase customer satisfaction.
- **Technical design** - UI, usability and approachability - make your product/service easy to use for users on all experience levels, including first-time users.
- **Service quality** - The cloud consists of services and the business relies on value and overall *service quality* - Maintaining the quality of your service equal in every aspect (customer support, software launch, upgrades, initial launch, and retention) will create more satisfied customers.

Companies and managers working in sales and business related positions should pay more attention to the "rapport" and possible problems related when interacting with current and future customers. Misunderstood expectations and the realisation of these expectations can lead into disconfirmation regarding service expectations and quality. Mutual understanding regarding expectations and the realisation of these expectations should be established between the customer and the service provider in order to create higher satisfaction.

6.4   Future research

Larger scale customer satisfaction surveys could be conducted in specific areas of cloud computing in small, medium and large companies. Companies may have their own internal customer satisfaction databases, and these databases could be opened for academic studies in order to improve the general customer satisfaction further in the cloud computing market. Achieving larger cloud computing companies to co-operate in large-scale academic customer satisfaction surveys might not be easy, but it should definitely be pursued.

Smaller and medium sized companies could be brought together in a united customer satisfaction project, where customer satisfaction survey data would be observed in unison. This data could then be used in education and marketing in order to improve customer satisfaction on a larger scale in cloud computing and other IT related businesses. Service quality and customer satisfaction studies in the area of cloud computing should be continued and focused on more in order to find plausible models that could be realized in the business.

The use of ACSI (Fornell et al., 1996), SERVQUAL (Parasuraman, Zeithaml & Berry, 1985; 1988) and SaaS-QUAL (Benlian, Koufaris & Hess, 2010) should be observed in cloud related businesses in order to determine their value to the business and in order to create a larger overview on aspects related to customer satisfaction in the area cloud business. Whether there are individual of universal differences in qualities affecting customer satisfaction in cloud services should be studied further. The "rapport", which is used in the SaaS-QUAL model (Benlian, Koufaris & Hess, 2010), and its affects in customer satisfaction could be studied in more detail in order to understand the deeper impact of mutual understanding in cloud service business.

Another possible approach raised from the study is the cultural differences in offered customer services. Different types of customers look for higher service quality (Donthu & Yoo, 1998) and delivering high customer satisfaction through excellent service quality is a key point in customer retention. Country differences in service quality might wary, as different cultures may focus more on technical expertise than focusing on delivering an excellent service.

REFERENCES

Anderson, E. W. & Fornell, C. (2000). Foundations of the American customer satisfaction index. *Total Quality Management , 11* (7), 869-882.

Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R. & Konwinski, A. e. (2010). A view of cloud computing. *Commun. ACM , 53* (4), 50-58.

Asubonteng, P., McCleary, K. J. & Swan, J. E. (1996). SERVQUAL revisited: a critical review of service quality. *Journal of Services marketing , 10* (6), 62-81.

Attride-Stirling, J. (2001). Thematic networks: an analytic tool for qualitative research. *Qualitative research , 1* (3), 385-405.

Benlian, A., Koufaris, M. & Hess, T. (2010). THE ROLE OF SAAS SERVICE QUALITY FOR CONTINUED SAAS USE: EMPIRICAL INSIGHTS FROM SAAS USING FIRMS. *ICIS 2010 Proceedings. Paper 26.*

Bhardwaj, S., Jain, L. & Jain, S. (2010). A study of infrastructure as a service (IAAS). *International Journal of Engineering and Information Technology , 2* (1), 60-63.

Buley, T. (2009, 09 09). *Salesforce.com's Service-as-a-Service - Forbes.com*. Retrieved 11 05, 2012, from Forbes.com: http://www.forbes.com/2009/09/08/software-service-cloud-technology-cio-network-salesforce.html

Buttle, F. (1996). SERVQUAL: review, critique, research agenda. *European Journal of Marketing , 30*, 8-32.

Caruana, A., Money, A. & Berthon, P. (2000). Service quality and satisfaction – the moderating role of value. *European Journal of Marketing , 34* (11/12), 1338-53.

Churchill, J. G. & Surprenant, C. (1982). An Investigation into the Determinants of Customer Satisfaction. *Journal of Marketing Research , 19* (4), 491-504.

Clemons, E. K., Hann, I. H. & Hitt, L. M. (1998). *The nature of competition in electronic markets: An empirical investigation of online travel agent offerings.* Philadelphia, PA, USA: The Wharton School of the University of Pennsylvania.

Cox, J. & Dale, B. (2001). Service quality and e-commerce: an exploratory analysis. *Managing Service Quality , 11* (2), 121-131.

Cronin Jr, J. J. & Taylor, S. A. (1994). SERVPERF versus SERVQUAL: reconciling performance-based and perceptions-minus-expectations measurement of service quality. *The Journal of Marketing , 58*, 125-131.

Doerr, J., Benlian, A., Vetter, J. & Hess, T. (2010). Pricing of Content Services – An Empirical Investigation of Music as a Service. *AMCIS 2010 Proceedings*, 13-24.

Donthu, N. & Yoo, B. (1998). Cultural influences on service quality expectations. *Journal of Service Research , 1* (2), 178-186.

Durkee, D. (2010). Why Cloud Computing Will Never Be Free. *Queue Emulators , 8* (4), 20-30.

East, R. R. (2011). The NPS and the ACSI: a critique and an alternative metric. *International Journal of Market Research , 53* (3), 327-346.

Finlay, L. (2002). "Outing" the researcher: The provenance, process, and practice of reflexivity. *Qualitative , 12* (4), 531-545.

Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J. & Bryant, B. E. (1996). The American customer satisfaction index: nature, purpose, and findings. *The Journal of Marketing , 60* (4), 7-18.

Fornell, C., Mithas, S., Morgeson, F. & Krishnan, M. (2006). Customer satisfaction and stock prices: high returns, low risks. *Journal of Marketing , 70* (1), 3-14.

Homburg, C. & Stock, R. M. (2004). The link between salespeople's job satisfaction and customer satisfaction in a business-to-business context: A dyadic analysis. *Journal of the Academy of Marketing Science , 32* (2), 144-158.

Johnson, M. D., Gustafsson, A., Andreassen, T. W., Lervik, L. & Cha, J. (2001). The evolution and future of national customer satisfaction index models. *Journal of economic Psychology , 22* (2), 217-245.

Järvinen, P. & Järvinen, A. (2004). *Tutkimustyön metodeista.* Opinpajan kirja.

Kaplan, S. & Sawhney, M. (2000). E-hubs: the new B2B marketplaces. *Harvard Business Review , 78* (3), 97-106.

Kotler, P. (2000). *Marketing Management, International Edition.* Englewood Cliffs, NJ: Prentice Hall.

Kreitz, G. & Niemela, F. (2010). Spotify -- Large Scale, Low Latency, P2P Music-on-Demand Streaming. *Peer-to-Peer Computing (P2P), 2010 IEEE Tenth International Conference on* (pp. 25-27). Delft: IEEE.

Lawton, G. (2008). Developing Software Online With Platform-as-a-Service Technology. *Computer , 41* (6), 13-15.

Lenk, A., Klems, M., Nimis, J., Tai, S. & Sandholm, T. (2009). What's inside the Cloud? An architectural map of the Cloud landscape. *Software Engineering Challenges of Cloud Computing, 2009. CLOUD '09. ICSE Workshop on* (pp. 23-31). Vancouver, BC: IEEE.

Li, A., Yang, X., Kandula, S. & Zhang, M. (2012). CloudCmp: comparing public cloud providers. *Proceedings of the 10th annual conference on Internet measurement (IMC '10)* (pp. 1-14). New York, NY, USA: ACM.

Lin, C. C. (2003). A critical appraisal of customer satisfaction and e-commerce. *Managerial Auditing Journal , 18* (3), 202-212.

Liyang, T., Zhiwei, N., Zhangjun, W. & Li, W. (2011). A conceptual framework for business intelligence as a service (saas bi). *In Intelligent Computation Technology and Automation (ICICTA), 2011 International Conference on* (pp. 1025-1028). IEEE.

Loeffler, B. & Price, E. (2011, 10. 27.). *What is Infrastructure as a Service.* Retrieved 11.4.2012, from Microsoft | TechNet Wiki: http://social.technet.microsoft.com/wiki/contents/articles/what-is-infrastructure-as-a-service.aspx

Maddison, J. (2009, 09 29). *Trend Cloud Security Blog*. Retrieved 11.05.2012, from Cloud Computing Experts: http://cloudsecurity.trendmicro.com/the-security-as-a-service-model/

Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J. & Ghalsasi, A. (2011). Cloud computing—The business perspective. *Decision Support Systems , 51* (1), 176-189.

Mattsson, J. (1992). A service quality model based on ideal value standard. *International Journal of Service Industry Management , 3* (3), 18-33.

Murphy, R. (2001). *Shopping online: motivating the consumer to buy.* London: University of North London, Business School.

Ojala, A. & Tyrväinen, P. (2011). Developing Cloud Business Models: A Case Study on Cloud Computing. *IEEE Software , 28* (4), 42-47.

Parasuraman, A., Zeitham, V. & Berry, L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing , 49* (4), 41-50.

Parasuraman, A., Zeithaml, V. & Berry, L. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing , 64*, 12-40.

Parker, C. & Mathews, B. (2001). Customer satisfaction: contrasting academic and consumers' interpretations. *Marketing Intelligence & Planning , 19* (1), 38-44.

Patterson, P. G. (1997). Modeling the determinants of customer satisfaction for business-to-business professional services. *Journal of the Academy of Marketing Science , 25* (1), 4-17.

Popovic, K. & Hocenski, Z. (2012). Cloud computing security issues and challenges. *Proceedings of the 33rd International Convention*, 344 - 349. IEEE MIPRO.

Pyett, P. (2003). Validation of Qualitative Research in the "Real World". *QUALITATIVE HEALTH RESEARCH , 13* (8), 1170-1179.

Rauyruen, P. & Miller, K. E. (2007). Relationship quality as a predictor of B2B customer loyalty. *Journal of Business Research , 60* (1), 21-31.

Sila, I. (2013). Factors affecting the adoption of B2B e-commerce technologies. *Electronic Commerce Research , 13* (2), 199-236.

Skyrme, D. (2001). *Capitalizing on Knowledge From E-commerce to K-business.* Oxford: Butterworth-Heinemann.

Sweeney, J., Soutar, G. & Johnson, L. (1997). Retail service quality and perceived value. *Journal of Consumer Services , 4* (1), 39-48.

Truong, H.-L. & Dustdar, S. (2009). On analyzing and specifying concerns for data as a service. *Services Computing Conference, 2009. APSCC 2009. IEEE Asia-Pacific*, 87-94.

Wang, Y.-H. (2011). The role of SaaS privacy and security compliance for contin-ued SaaS use. *Networked Computing and Advanced Information Management (NCM), 2011 7th International Conference on*, 303-306.

Vaquero, M., Rodero-Merino, L., Caceres, J., & Lindner, M. (2008). A break in the clouds: towards a cloud definition. *ACM SIGCOMM Computer Communication Review , 35* (1), 50-55.

Vargo, S. L. & Lusch, R. F. (2011). It's all B2B… and beyond: Toward a systems perspective of the market. *Industrial Marketing Management , 40* (2), 181-187.

Waters, B. (2005). Software as a service: A look at the customer benefits. *Journal of Digital Asset Management , 1* (1), 32-39.

Weinhardt, C., Anandasivam, A., Blau, B. & Stosser, J. (2009). Business Models in the Service World. *IT Professional , 11* (2), 28-33.

Westbrook, R. & Oliver, R. (1991). The dimensionality of consumption emotion patterns and consumer satisfaction. *Journal of Consumer Research , 18*, 84-91.

Wilton, P. & Nicosia, M. (1986). Emerging paradigms for the study of customer satisfaction. *European Research , 14*, 4-11.

Wise, R. & Morrison, D. (2000). Beyond the exchange--the future of B2B. *Harvard Business Review , 78* (6), 86-96.

APPENDIX 1 CUSTOMER SATISFACTION FORM (FINNISH)

Taustatiedot

1. Yrityksen nimi:
2. Haastateltava / asema:
3. Valmistaja, ketju, vai kumpikin:
4. Yrityksen koko (henkilökunnan määrä):

Mielipide Yrityksestä

Arvioi asteikolla yhdestä viiteen (1-5) Yrityksen seuraavia piirteitä. Perustele.

1. Tekninen asiantuntijuus   **1 2 3 4 5 + per.**
2. Palvelun laatu   **1 2 3 4 5 + per.**
3. Reagointiaika ongelmiin   **1 2 3 4 5 + per.**
4. Asiantuntevuus huonekalualalla   **1 2 3 4 5 + per.**
5. Innovatiivisuus   **1 2 3 4 5 + per.**
6. Yleisarvosana   **1 2 3 4 5 + per.**

Mielipide Tuotteesta

1. Mitä kautta saitte tietää järjestelmästä?
2. Mitä pakettia käytätte?
3. Arvioi Tuotteen käytettävyyttä asteikolla   **1 2 3 4 5 + per.**
4. Arvioi Tuotteen hyödyt asteikolla   **1 2 3 4 5 + per.**
5. Mitä Tuotteesta mielestänne puuttuu?
6. Mitä kehityskohteita näette Tuotteessa

Liiketoimintaan liittyvät kysymykset

1. Onko tuotteen ROI (takaisinmaksuaika) mielestänne hyvä (aika-arvio)?
2. Säästääkö Tuotteen käyttö mielestänne henkilötyötunteja?
3. Onko Tuotteen nykyinen palvelumaksu mielestänne hyvä, vai haluaisitteko käyttää jotain muuta maksutapaa (lisenssi, käytön mukainen veloitus)?
4. **Valmistajille:** Kuinka paljon ketjut/yksityiset myyjät hyödyntävät Tuotetta?
   Ketjut: Ovatko kuluttajat ottaneet yhteyttä käytettyään Tuotetta?

APPENDIX 2 CUSTOMER SATISFACTION FORM (ENGLISH)

Background information

1. Company name:
2. Interviewee / position:
3. Manufacturer, retail chain or both:
4. Company size (number of employees):

General opinion about the Company

Grade the following features related to the Company on a scale of 1 to 5. Please elaborate.

5. Technical expertise   **1 2 3 4 5 + comm.**
6. Quality of Service   **1 2 3 4 5 + comm.**
7. Reaction time to problems   **1 2 3 4 5 + comm.**
8. Expertise on the furniture industry   **1 2 3 4 5 + comm.**
9. Innovativeness   **1 2 3 4 5 + comm.**
10. General grade   **1 2 3 4 5 + comm.**

General opinion about the Product

11. How did you initially found out about the Product?
12. What Product package are you using?
13. Asses the usability of the Product   **1 2 3 4 5 + comm.**
14. Assess the received benefits of the Product   **1 2 3 4 5 + comm.**
15. What do you think the Product is lacking?
16. What development points do you see in the Product?

Business related questions

17. Do you think the ROI (Return on Investment) for the Product is good (estimated time)?
18. Do you think the Product saves man hours?
19. Are you pleased with the current license model or would you prefer a different model (e.g. pay per use)?
20. **Manufacturers:** To what extent do retail stores / salespersons make us of the Product?
    Retail chains: Have consumers contacted you after using the Product?