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Perceived Value and Customer Satisfaction of IT Services in ERP Maintenance and Support Service

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Tiivistelmä/Referat – Abstract

Tutkimus tarkastelee ERP-järjestelmän tuki- ja ylläpitopalvelun asiakastyytyväisyyteen ja arvokokemukseen vaikuttavia tekijöitä. Tutkimuksen strategia on laadullinen tutkimus, jonka toteutustapa on teemahaastattelu. Tutkimuksessa haastatellaan 12:a ERP-järjestelmiin liittyvien tuki- ja ylläpitopalvelujen parissa työskentelevää asiantuntijaa. Haastatellut asiantuntijat edustavat IT-palvelutoimittajan myyntiorganisaatiota ja palvelupäälliköitä sekä tuki- ja ylläpitopalvelua käyttävien yritysten IT-johtoa, palvelupäälliköitä ja sovellusasiantuntijoita. Tutkimuksen teoreettinen viitekehys perustuu pääosin DeLonen ja McLeanin (2003) teoriaan tietojärjestelmien menestystekijöistä, sekä Lawin, Chenin ja Wun (2009) ERP-järjestelmien tuki- ja ylläpitopalvelujen kriittisten menestystekijöiden viitekehykseen. Teoreettinen viitekehys on edelleen johdettu kymmeneksi teemaksi jotka muodostavat tutkimuksen rungon.

Tutkimuksen tarkoitus on selvittää, mitkä tekijät tutkittavan kohderyhmän mielestä vaikuttavat tuki- ja ylläpitopalvelua käyttävien yritysten asiakastyytyväisyyteen ja arvokokemukseen sekä tutkimusteemojen merkitystä näiden toteutumiselle. Tutkimuksen otanta on rajallinen, mutta se tarjoaa syvällistä tietoa palvelutuotannon eri rooleissa toimivien henkilöiden näkemyksistä sekä niiden yhtäläisyyksistä ja eroista. Tutkimus lisäksi tarkastelee miten näkemykset eroavat, kun haastateltava henkilö työskentelee IT-palvelutoimittajalla tai tuki- ja ylläpitopalvelua käyttävän yrityksen IT-organisaatiossa.

Tutkimuksen johtopäätös on, että haastateltujen näkemykset vastaavat heidän asiakkaalla tai toimittajalla työskentelevien vastinpariensa näkemyksiä. Asiakastyytyväisyyden parantamiseksi IT-toimittajien tulisi paremmin huomioida liiketoimintaa ja loppukäyttäjiä edustavat tahot palvelunhallinnassa ja palvelun vaatimusten määrittelyssä, eikä tyytyä vain kanssakäymiseen IT-organisaatioiden välillä. Sopimuksellisten ja kirjallisesti määriteltyjen vaatimusten täyttäminen on palvelun arvokokemuksen toteutumiselle kriittinen minimiehto. IT-toimittajien tulisi pystyä joustamaan ja mukauttamaan palvelutuotantoaan asiakastarpeiden mukaan riippumatta siitä, onko kyseisiä tarpeita tai vaatimuksia määritelty sopimuksissa tai palvelutasodokumenteissa. Lisäksi asiakkaat pitävät toimittajan teknistä osaamista kriittisenä tekijänä palvelun laadulle, minkä lisäksi asiakkaan liiketoiminnan ja prosessien tuntemus on olennainen tekijä palvelun lisäarvon toteutumiselle. Palvelutoimituksen fyysinen sijainti ei ole asiakkaan maksuhalukkuutta lisäävä tekijä. Toimittajan tulisi tehokkaiden prosessien avulla minimoida palvelutoimituksen sijainnin ja henkilöstön vaihtuvuuden vaikutukset palvelun laatuun.

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Tiivistelmä/Referat – Abstract

This research considers factors affecting customer satisfaction and value perception of ERP maintenance and support service. The research strategy is qualitative and it is carried out as a semi-structured interview study. In the study 12 experts working with maintenance and support services for ERP systems are interviewed. The interviewees represent IT vendor sales organization and service managers and the customer-side IT management, service managers and application experts. The theoretical framework of the research is primarily based on DeLone and McLean (2003) IS Success theory and framework of Critical Success Factors for ERP Maintenance Support by Law, Chen and Wu (2009). The theoretical framework is subsequently converted to ten themes which comprise the core of this research.

The purpose of the research is to find out what factors affect the satisfaction and value perception of companies using ERP maintenance and support services and what is the effect of the research themes. The research sample is limited; however it provides in-depth insights into similarities and differences between viewpoints of people working in different roles related maintenance and support service. The study also considers how the viewpoints differ when the interviewee is working for an IT vendor or for a customer company IT organization.

The conclusion of the research is that the interviewee viewpoints match with that of their counterpart at the customer or the vendor. To improve customer satisfaction, IT vendors should better involve parties representing customer business and end users in management of the service and in definition of service requirements, and not satisfied to collaborate between IT organizations only. Fulfilling contractual and written obligations is critical for realizing service value. IT vendors should be able to be flexible and adjust their service delivery according to customer requirements, regardless of if these requirements are captured in contracts or service level documents. Customers consider the vendor technical competence to be critical for service quality, in addition to which competence in customer business and processes is essential for realizing added value in the service. The physical location of service delivery does not increase the customer's willingness to pay. The vendor should use efficient processes to minimize the effect of service delivery location and personnel turnover for service quality.

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1 Introduction

Enterprise resource planning (ERP) software is one of the most widespread types of software used by companies regardless of size, revenue or industry. ERP systems have evolved since 1950s from the original manufacturing requirement planning applications to robust, integrated software solutions that cover the essential business processes of a company.

According to Forbes (2014), the worldwide market for ERP software in 2013 was $25.4 billion. SAP, a German software company, was the market leader with a 24% market share. The market grew by 3.8% compared to 2012, with top 5 ERP software vendors together capturing 53% of the 2013 market (Forbes 2014). This demonstrates that the global ERP market is a competitive, albeit concentrated, and growing market and an important business for the vendor offering such software and related services.

1.1 Previous research

Much of the research related to ERP systems before has focused on for example critical success factors and other issues that affect if an implementation of an ERP system is successful or not. There are several examples of notable studies well cited by peers (over 100 citations in Web of Science on October 13 2015) who all have identified critical success factors of ERP implementation. E.g. Hong and Kim (2002) studied why ERP projects fail from an organizational fit perspective, Holland and Light (1999) grouped strategic and tactical critical success factors of ERP projects whereas Akkermans and Van Helden (2002) concluded that critical success factors are interlinked and can together have a cumulative impact to project success.

However, much less research has been conducted regarding the success of ERP systems after implementation projects. (Bernroider, 2008; Ifinedo, Rapp, Ifinedo and Sundberg 2010). As a result, the usefulness and operation of the ERP systems is compromised (Law, Chen & Wu

2009). This demonstrates there is a general research gap related to ERP systems in their post-implementation phase.

This master's thesis topic is an assignment from a global IT services company. The purpose of the study is to determine factors affecting perceived value and customer satisfaction of ERP application management services.

1.2 Research problem, method and scope

This research studies what is the perceived value of an IT service such as an application management service for an ERP system and what is the significance of different factors for its customer satisfaction.

The main frameworks for this study are the DeLone and McLean (2003) model of Information System success and the critical success factors (CSF) model for ERP maintenance and support by Law et al. (2009). A series of themes are derived to form a framework for this research and their significance is evaluated

The research is carried out in a form of an exploratory study by interviewing IT service and ERP experts from both IT industry and companies who are customers of ERP maintenance and support service. The selection of interviewees was defined by the nature of the assignment and time constraints. The selected research method was semi-structured interview.

The interviewees of the research consist of twelve experts, six working for an IT service provider and six working for two companies that are purchasing ERP maintenance and support service. The persons who were interviewed, were selected based on their roles in managing and delivering the IT service.

The goal of the study is to understand how interviewees define the value of ERP maintenance and support service, as well as what is the effect of several factors for the customer satisfaction of such service.

The research question this study therefore attempts to answer is the following:

- What affects customer satisfaction and perceived value of ERP maintenance and support service?

The goal of this research is to apply the framework by Law et al. (2009) to find out how stakeholders working in different roles in IT vendor and customer organizations view the importance of different factors for customer satisfaction and value creation of IT service.

The success of the ERP system in this study is defined to compose of the quality of implementation and outcome of the maintenance and support services. This work focuses especially on factors that enable these services to be valuable to the customer. To determine this, this study takes the Bernroider's (2008, 258) definition of organizational benefits as a starting point. These organizational benefits are here connected to the net benefit dimension of DeLone and McLean's (2003) model. The CSF model of Law, Chen and Wu (2009) is used to provide a list of factors whose importance in achieving the benefits outlined by Bernroider is probed and observed in the actual research.

The scope of research is delimited to cover application management, or support and maintenance services for ERP systems in their post-implementation usage stage. This is justified since although there have a lot of studied related to ERP systems in the recent decade, Law et al. (2009, 307) highlighted that there is still a substantial lack of research about ERP issues after it has been implemented. Therefore, it is important to enrich understanding of these issues, and how to address them by focusing in the maintenance and support services for ERP.

1.3 Research structure

This chapter introduces the research problem, outlining the previous research and the identified research gap, together with defining the research question and its qualifiers.

Chapter 2 defines the theoretical background of the research, consisting of literature overview covering definitions ERP, ERP lifecycle and concepts related to IT service such as ITIL and perspectives on service quality and value perception of professional services. Additionally

chapter 2 introduces the more precise theoretical frameworks of information system success, maintenance and support service critical success factors (CSFs) that set the baseline for this exploratory study.

Chapter 3 contains the research framework formed based on theoretical overview provided in chapter 2.

Chapter 4 covers research methods and data analysis, such as stakeholders who were interviewed, description of interview method and the structure that was followed in the interviews. It also contains key statistics of the interviews conducted.

Chapter 5 is the description of interview data. It is a broad summarization of interview output, grouped according to interviewee stakeholder groups. The purpose of chapter 5 is to provide the reader a raw-like access to interview output, in an unaltered form.

Chapter 6 contains the analysis of the results, with the output organized per theme and linked to theory and research framework presented in chapters 2 and 3.

The seventh and final chapter contains discussion and conclusion of the results, containing managerial implications, detailing limitations of the study, considering the reliability and validity of the work as well as providing suggestions for future research.

1.4 Key concepts and their definitions

Below are detailed key concepts and their definitions that are used in this study.

Account Management

Sales and account management. Organization layer and people responsible for management of customer relationship and contract between client and vendor.

AMS

Outsourced maintenance and support service of an information system such as ERP. Here refers to ERP maintenance and support service.

End user

A person who uses an information system as a part of their primary job role.

ERP

Enterprise resource planning software (ERP) is an integrated business application that is used to carry out and manage critical business activities of a company.

Go live

An information system becomes operational after e.g. an implementation or upgrade project.

ITIL

A framework for IT service management, developed originally by UK government in 1980s.

Key user

A type of user with a deeper understanding of the information system and related business processes. Sometimes called as super user.

Production environment

Version of the information system that the end users directly interact with.

Release management

Practice in software development that manages development, testing, deployment and support of software solutions.

Service management

Organization layer and people responsible for managing a service such as ERP maintenance and support.

Service Level Agreement

A document that defines time-based obligations for contractual counterparts of an IT service, such as classification of incidents and problems and their allowed resolution times.

Super user

A user with extensive administrative rights and in-depth knowledge of an information system. Can be interchangeable with key user.

2 Theoretical background

2.1 Defining ERP

Enterprise resource planning or ERP software has been around for decades. To understand the nature of the system that is subject of this research, it is important to understand what ERP is.

Over the years there have been several attempts to define the concept of ERP. Norris, Hurtley, Hartley, Dunleavy and Balls (2000, 12-13) suggested in their book "E-Business and ERP" that ERP is a structured approach to optimizing a company's internal value chain. It is a software product that organizes, codifies and standardizes an enterprise's business processes and transactional data, allowing the company to use that data to support business decisions.

In their review of ERP in academic context "What is ERP?", Helmut, Rosemann and Gable (2000) presented several definitions and characteristics of enterprise resource planning or ERP systems. ERP can be defined as a configurable software that comprises of a complete set of integrated software modules, such as production, logistics, finance and human resources. The integration of different functions of the company, usage of best practice models, an enterprise-wide database system and a common user interface are other key characteristics of ERP.

Klaus, Rosemann and Gable (2000, 141) defined ERP as a comprehensive packaged software solution that seek to integrate the complete range of a business's processes and functions in order to present a holistic view of the business from a single information and IT architecture.

In the heart of these various definitions is the concept of ERP as an integrated software solution, containing diverse functionality and which provides an end-to-end view of the most fundamental business processes and transactions of the company. This is the definition of ERP used for this master's thesis.

2.2 Lifecycle of ERP systems

The stated topic of this thesis touches upon application management service or AMS related to an ERP system. An ERP system has an extensive life cycle that spans several stages.

Law, Chen and Wu (2009, 298) describe the life cycle of an ERP system implementation to consist of adaption, acceptance, routinization and infusion. Accordingly, routinization and infusion take place after the implementation project of the system is complete. Routinization is the stage where the ERP system is in use, supporting the regular activities of the organization. According to Law et al. (2009, 298), the infusion phase involves developing the system and resolving disordered situations such as "bugs, outdated, drivers, incompatible hardware and software and unfamiliarity of new users with the system." In other words, the maintenance and support service takes place during post-implementation stage, which consists of routinization and infusion.

The scope of this research is delimited to cover post-implementation stage of ERP system, as defined by Hustad and Olsen (2011, 291) to start "when the system goes live and has been rolled out to the end users." After implementation, an information system such as ERP is maintained, supported and upgraded to serve defined business requirements over its lifecycle. These activities are here called the application management service.

ERP systems are complex, according to Hustad and Olsen (2011, 290) they are technically complex and difficult to configure. This configuration work continues during the post-implementation stage of the ERP lifecycle and is an activity carried out as a part of maintenance and support service.

Application management as a concept is defined by the 2007 edition of IT Infrastructure Library (ITIL) as a function that "…supports and maintains operational applications and also plays an important role in the design, testing and improvement of applications that form part of IT services." (The Stationery Office 2007a, 128). It is a service offered by numerous IT companies covering a wide range of different IT applications and solutions areas. This is the definition for application management service or AMS used for the purposes of this study.

2.3 ITIL

IT Infrastructure Library or ITIL is a collection of best practices in IT Service Management, originally developed by the UK government in late 1980s and early 1990s (The Stationery Office 2007b, 3). It evolved originally due to needs of the UK government to find more efficient ways and approaches to managing IT services. This thesis refers to the 2007 version of ITIL.

ITIL has since developed into a widely accepted framework of best practices in IT Service Management, forming a baseline for organizing IT service management across industries (Jelliti, Sibilla, Jamoussi & Ghezala 2010, 209). This ubiquity is the reason why it is selected as one of the theoretical backdrops of this study.

The 2007 version of ITIL, so-called ITIL3, consists of five core books, Service Strategy, Service Design, Service Transition, Service Operation and Continual Service Improvement. Service Strategy "provides guidance on how to view service management not only as an organizational capability but as a strategic asset" (The Stationery Office 2007b, 11). Service Design addresses the design and development of services and service management, covering design principles and methods for converting strategic objectives of the company into portfolios of services and service assets (The Stationery Office 2007b, 11). Service Transition covers development and improvement of capabilities for transitioning new and changed services into live service operation. It specifically deals with guidance on "how the requirements of Service Strategy encoded in Service Design are effectively realized in Service Operation while controlling the risks of failure and disruption." (The Stationery Office 2007b, 12). Service Operation contains guidelines on practices in management of the day-to-day operation of services, including but not limited to, achieving effectiveness and efficiency in the delivery and support of services to ensure value for the customer and the service provider (The Stationery Office 2007b, 12). Continual Service Improvement finally covers "principles, practices and methods from quality management, change management, capability improvement" (The Stationery Office 2007b, 12).

From ITIL perspective the IT service, ERP application management service, examined in this thesis is composed as illustrated by figure 1 below. ITIL3 Service Design defines IT service to consist of following components (The Stationery Office 2007c, 36):

- **Business process:** to define the functional needs of the service being provided, e.g. telesales, invoicing, orders, credit checking.

- **Service:** the service itself that is being delivered to the customers and business by the service provider, e.g. email, billing. ERP application management service in the scope of this study.

- **SLAs/SLRs:** Service Level Agreements/Service Level Requirements, the documents agreed with the customers that specify the level, scope and quality of service to be provided.

- **Infrastructure:** all of the IT equipment necessary to deliver the service to the customers and users, including servers, network circuits, switches, PCs, telephones.

- **Environment:** the environment required to secure and operate the infrastructure, e.g. data centers, power, air conditioning.

- **Data:** the data necessary to support the service and provide the information required by the business processes, e.g. customer records, accounts ledger.

- **Applications:** all of the software applications required to manipulate the data and provide the functional requirements of the business processes.

- **Support Services:** any services that are necessary to support the operation of the delivered service, e.g. shared service, a managed network service.

- **Operational Level Agreements (OLAs) and contracts**: any underpinning agreements necessary to deliver the quality of service agreed within the SLA.

- **Support teams:** any internal support teams providing second- and third-line support for any of the components required to provide the service, e.g. Unix, mainframe, networks.

- **Suppliers:** any external third parties necessary to provide third- and fourth- line support for any of the components required to provide the service, e.g. networks, hardware, software.

Validity and effects of frameworks such as ITIL to customer satisfaction and perceived value are one of the topics considered in this study. (The Stationery Office 2007b, 5).

This statement can be expressed in other words, essentially, that the purpose of IT service such as AMS is to take away the workload for providing and managing that service from the customer and allowing them focus on their core business.

DeLone and McLean IS Success model (2003) forms alongside ITIL the core theoretical framework of this study. It is used to identify factors affecting perceived value and customer satisfaction of IT service. It is a widely cited and used construct of information system success models that was originally created in 1992. The model and its applications are described in depth later in this chapter 2.
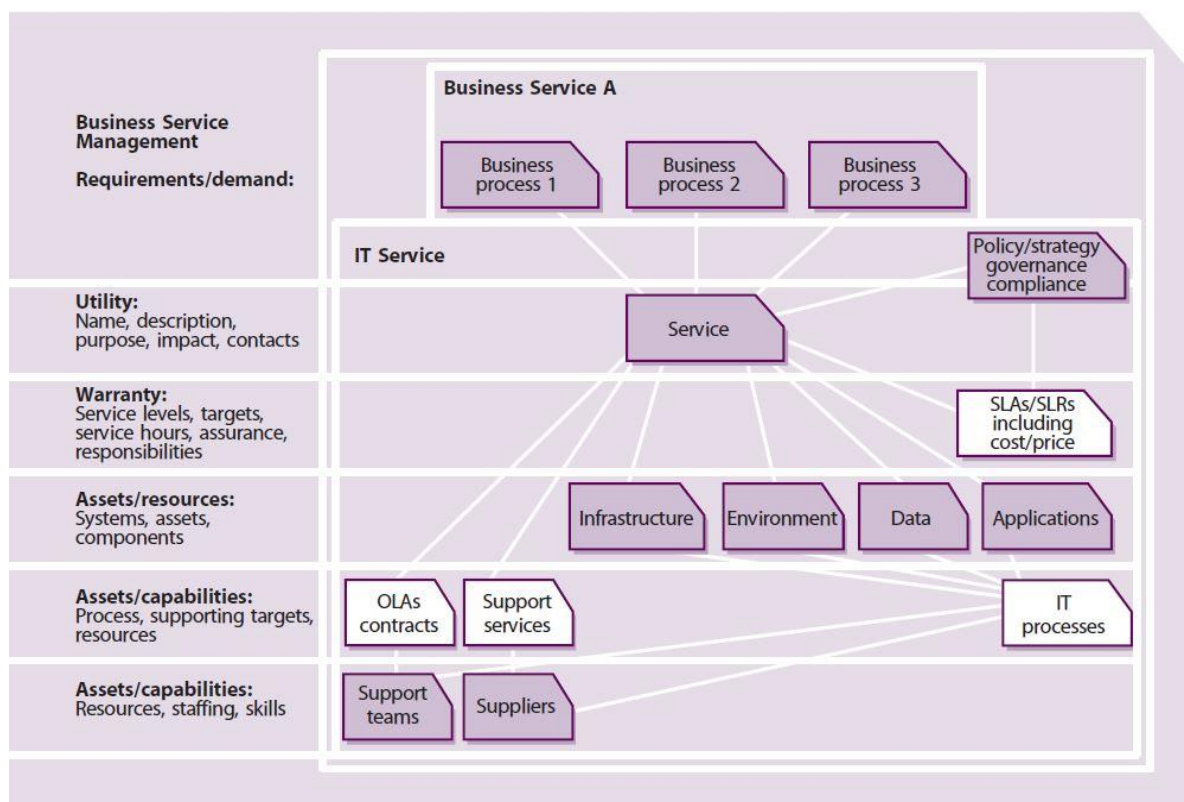

Figure 1. The composition of a service according to ITIL3 Service Design (The Stationery Office 2007c, 36).

2.4 Service quality and customer satisfaction

2.4.1 Service quality in professional services

There are various definitions for related to service quality and customer satisfaction. A recognized author on managing and marketing services, Christian Grönroos (1982; according to Grönroos 2009, 99) introduced the concept of perceived service quality. This concept was based on researching consumer behavior and its relationship with pre-use expectations and post-use evaluation of a consumed product or service.

Summarizing relevant marketing literature, Kettinger and Lee (1994, 743) built on this original definition by Grönroos. They divide perceived service quality into two sub-processes; technical performance and functional performance. Technical quality is necessary, but not always sufficient condition to achieve customer satisfaction and that overall perceived service quality involves attaining functional quality as well. In the context of services technical quality can be said to be the output that the customer is left with after the service has been delivered. Technical performance is evaluated based on assessment of whether the actual service product meets both service specifications and customer needs/expectations. Service is produced in interaction with its consumer, so this technical performance dimension may not equate to a total assessment of the perceived quality, but rather may be influenced by the way in which the technical quality is conveyed functionally.

According to Kettinger and Lee (1994, 743), functional performance corresponds with the expressive performance of the service and is related to service provider/customer interaction. It involves how services are received by customers in relation to various personnel, resources, and activities of the service provider during the service delivery.

A connection between ITIL and Kettinger and Lee's concepts of technical and functional performance can be found. Among IT service components detailed in chapter 2.2.1, the SLAs and SLRs as documents can provide the necessary key figures against which the performance of the service can be measured. SLAs and SLRs can be said to be instruments to measure technical

performance of the service. They may not address the functional performance of a service sufficiently.

2.4.2 Customer satisfaction in professional services

Kettinger and Lee (1994, 743) also write that satisfaction can be broadly characterized from a consumer marketing research perspective (such as Grönroos) as a post-use evaluation of product or service quality given pre-use expectations. Satisfaction judgements are dependent on baseline expectations related and any perceived disconfirmation of these expectations. This can be summarized as follows: Consumers or customers of service form specific expectations about a service prior to its use. Service consumption or delivery reveals a perceived quality level which is influenced by the difference between perceived actual quality and associated expectations. This perceived quality may be either confirmed or disconfirmed based on pre-use expectations. Expectations are the baseline or anchor for the level of satisfaction.

According to Grönroos (2009, 100), there is however a widespread difference in how customers and service providers look at what constitutes quality perception of a service or product. Especially technologically focused companies tend to associate this very narrowly with properties and features of the offered product or service. On the other hand, customers have a much wider perspective on what affects perceived quality. Therefore, as Grönroos states, quality of a service should be defined from the viewpoint of the customer, as is the focus of this study.

This dissonance between service provider and customer quality definitions can be understood by considering the existence of so-called fuzzy expectations (Grönroos 2009, 133). Customers may have a strong perception that they have a problem or a need to change their current state, but without knowing exactly what should be done. Existence of such expectations is especially common in professional services. According to Grönroos (2009, 133), the service provider should clearly acknowledge the existence of fuzzy expectations and help customers to articulate them. An IT service such as ERP AMS can be said to be a complex, multi-layered professional service.

If expectations are disconfirmed, depending on what and how the disconfirmation has taken place, the customer satisfaction increases or decreases (Kettinger and Lee 1994, 743). Service quality can be therefore defined as a comparison of service expectations with perceived service performance. High quality service is therefore such service where perceptions exceed original expectations. For low quality service the original expectations are not surpassed.

This study uses definition by Grönroos (1982; 2009), further refined by Kettinger and Lee (1994) to formulate what is meant by service quality and what constitutes customer satisfaction in the research context.

2.5 Perceived value of information systems

Value in business-to-business markets can be defined as the perceived worth in monetary terms of the economic, technical and psychological benefits received by a customer firm in exchange for the price paid for a product offering, taking into consideration competing alternatives and prices (Hinterhuber & Liozu, 2013).

Economic benefits can be described as measurable differentiated benefits, such as cost reduction, productivity improvements, revenue growth and rate of return. Psychological benefits include trust, relationship, service and brand, whereas technical benefits may include user friendliness, ease of use, quality levels and technical specifications (Hinterhuber & Liozu, 2013).

Furthermore, Kotler, Keller, Brady, Goodman and Hansen (2009, 381) defined customer perceived value as the difference between the prospective customer's evaluation of all the benefits and all the costs of an offering and the perceived alternatives. In definition by Kotler et al. (2009), total customer benefit is the perceived monetary value of the bundle of economic, functional and psychological benefits customers expect from a given market offering because of the products, services, personnel and image involved. Total customer cost is the perceived bundle or costs customers expect to incur in evaluating, obtaining, using and disposing of the given market offering, including monetary, time, energy and psychological costs.

This study considers ERP maintenance and support service to be a complex service product which has both monetary and non-monetary benefits. Therefore, the above definition by Kotler et al. is a well-capsulated definition of customer perceived value for this study.

Value of information system such as ERP is more narrowly defined here as a concept of non-monetary value consisting of derived benefits enjoyed by the firm or organization. According to Bernroider (2008, 258), assessing the organizational benefits of ERP is on a whole especially difficult. The success or value of ERP and its definition depends a lot on the perspective of the stakeholder in question. From the perspective of implementing company, it means that there are enough resources to fulfill the specified functional goals set for the system. On the other hand, for the vendor it is important that the implementing organization understands the need of follow-up investments, for example related to maintaining, supporting and upgrading the system. End user judges the value of the system according to how it improves their job performance while being usable and satisfying. The manager requires the system to be effective and to be able to support business objectives.

This study takes these definitions of ERP perceived value and the different stakeholder levels as described by Bernroider (2008) and Kotler et al. (2009, 381) as starting points and assumptions that needs validation from the viewpoint of delivering application management services.

2.6 DeLone and McLean model of Information System success

The main theoretical background of this study is the updated Information System success theory by DeLone and McLean (2003). DeLone and McLean created their original Information System success theory back in 1992 (DeLone & McLean 1992) where they identified dimensions that determine if an information system is successful or not. The model was updated in 2003.

In their original model, DeLone and McLean reviewed information system literature from 1981 to 1987 to establish the dimensions of information system success (Petter & McLean 2009). According to DeLone and McLean, success of an information system is divided into technical, semantic and effectiveness levels. They base their definition on work by Shannon and Weaver (DeLone and McLean 2003, 10), where technical level is defined as the accuracy and efficiency

of the communication system that produces information, the semantic level as the success of information in conveying the intended meaning and effectiveness as the effect the information has on the receiver. This is in-line with the definitions of technical and functional performance of service presented previously by Kettinger and Lee (1994), as well as the concept of fuzzy expectations presented by Grönroos (2009, 133).

The original IS Success Model from 1992 defined dimensions of IS success as System Quality, Information Quality, User, User Satisfaction, Individual Impact and Organizational Impact (DeLone and McLean 2003, 12). Systems Quality measures technical success, Information Quality measures semantic success and Use, User Satisfaction, Individual Impacts and Organizational Impact measure effectiveness success. These are illustrated in Figure 2 below.
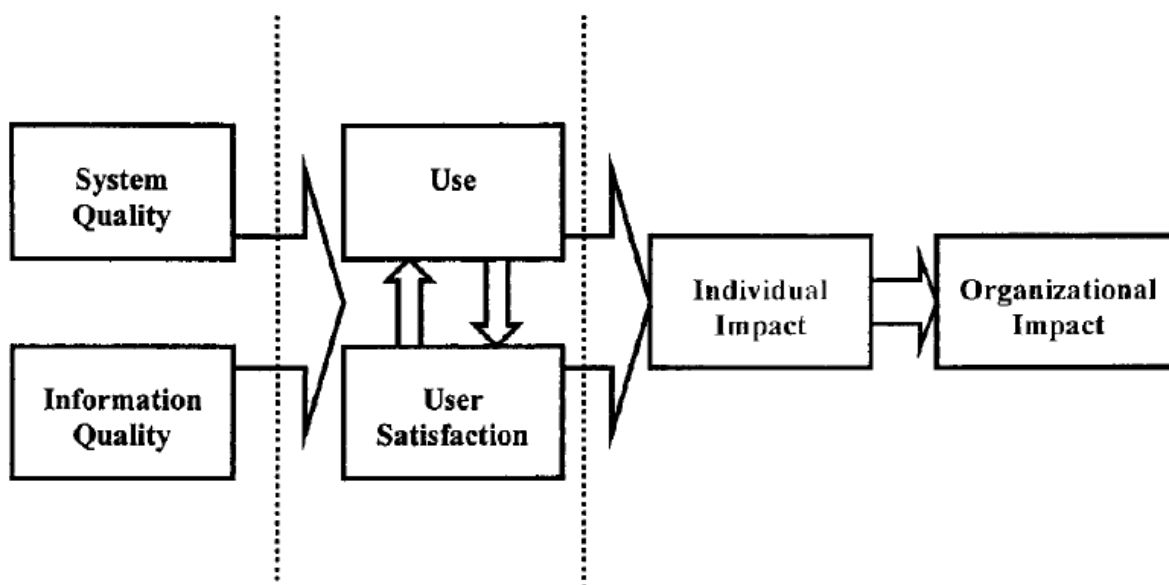
Figure 2. Original DeLone and McLean IS Success Model (DeLone and McLean, 2003, 12).

The original model was altered and extended by various researchers, as well as applied to specific domains, such as e-commerce (Petter & Mclean, 2009, 160). This led overtime to the need for DeLone and McLean to update their model. In their ten year update in 2003, DeLone and McLean revised their model by adding service quality and intention to use as new dimensions and combining individual impact and organizational impact into net benefits. The updated model is illustrated by figure 3.
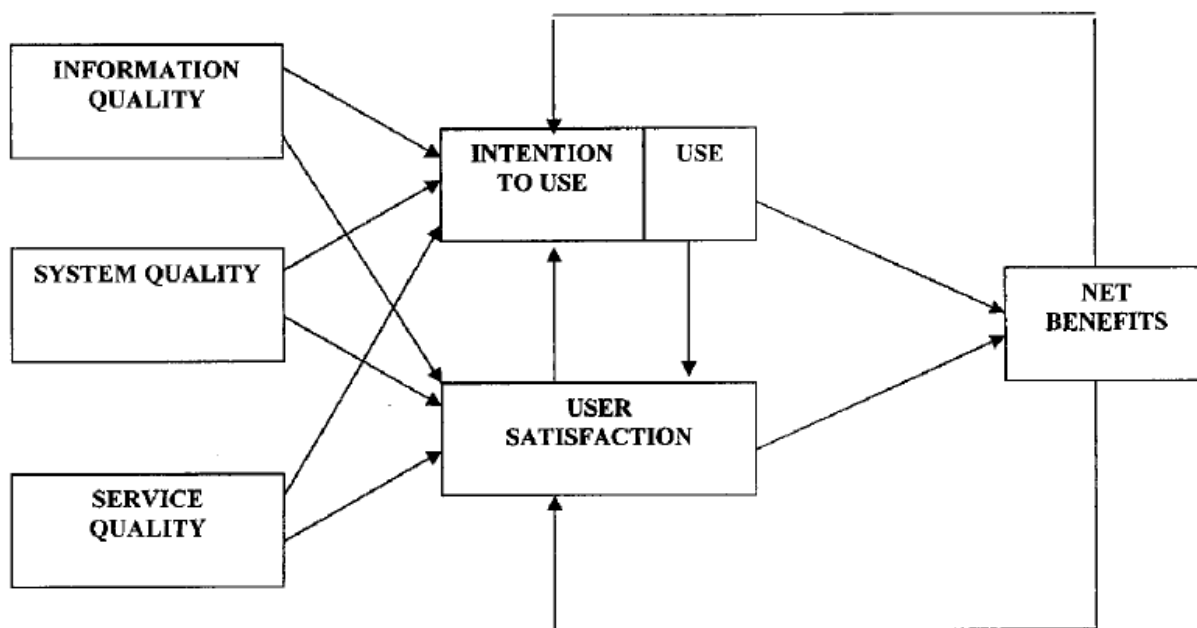
Figure 3. Updated IS Success Model (DeLone and McLean, 2003, 24).

The updated DeLone and McLean model defines Information System success to include seven dimensions. Quality is divided by DeLone and McLean (2003, 23) into three dimensions, Information Quality, System Quality and Service Quality.

They should be measured or controlled separately, as when combined, they will affect use and user satisfaction. Intention to use is provided as an alternative measureable dimension for use, viewing intention to use as an attitude and use as a behavior. Use and user satisfaction are also interrelated, as use must precede user satisfaction in a process sense, the information system has to be used in order for user satisfaction to occur. Positive experience with use leads to greater user satisfaction which causes a causal link between use and user satisfaction.

Use and user satisfaction finally affect net benefits, which captures the balance of positive and negative impacts of the IS (DeLone and McLean 2003, 25). The net benefits occur as a result of use and user satisfaction. According to the model, it is assumed that if the information system or service is continued, the net benefits must be positive from the owner or sponsor perspective. DeLone and McLean write that if there are no positive benefits (2003, 23), this may lead to

discontinuation of the system or IS department. In context of this study this means discontinuing the application management service provided by the vendor, i.e. terminating the service or switching the service provider.

The original DeLone and McLean model of IS success has been applied in numerous studies and therefore has proved to be a valid model (Bossen, Jensen & Udsen 2013, 942).

Several studies have applied the DeLone and McLean model of Information System success (DeLone & McLean 2003) in the context of ERP implementation projects. The model and its applications in this context are detailed here in chapter 2. Zhang, Lee and Huang (2005) identified both critical success factors and success measures for ERP by using DeLone and McLean model of Information System success, whereas Lin, Hsu and Ting (2006) combined the DeLone and McLean model with the famous Kaplan and Norton balanced scorecard in the ERP implementation context. Chien and Tsaur (2007) also applied the DeLone and McLean model to identify success factor dimensions. Bradley (2008) applied the DeLone and McLean IS model by examining the use of management-based critical success factors together with time and budget as the success definition. Tsai, Shaw, Fan, Liu, Lee and Chen (2010) furthermore examined the impact of internal and external stakeholders to the success of ERP implementation project, focusing on ERP usage after the implementation.

The updated model has been applied to research the role of IT governance in success of an ERP system after the initial implementation had taken place (Bernroider 2008). Bernroider studied ERP success in the usage stage. According to the study, an effective IT governance framework and practices seem to increase success rate of ERP in the adopting organization. These practices were an explicitly defined IT/IS strategy, strategic alignment, the development of a selection goal hierarchy based on fundamental strategic objectives, management commitment to the whole project; and the installation of a participative form of decision making and implementation that include all major stakeholders (Bernroider 2008, 258).

Chien and Tsaur (2007, 791) discovered that system quality and service quality are important dimensions for measuring ERP success after implementation by applying the updated DeLone and McLean model in Taiwan. Furthermore, Ifinedo et al. (2010) heavily adapted and modified the DeLone and McLean model, building on work by Gable, Sedera and Chan (2008), removing use and user satisfaction as dimensions from their proposed model.

The referenced studies above show that the Delone and McLean model has been considered to be a relevant theoretical framework to examine benefits of ERP in various stages of its lifecycle, including implementation and usage, latter of which is the context for this study.

DeLone and McLean (2004, 33) wrote that to identify the net benefits, and therefore if the system such as ERP is truly successful, they must be clearly defined. Net benefits as a concept takes into account that there are negative consequences that the company suffers as a result from using the system. Also the beneficiaries have to be defined, i.e who are benefiting from the system. Finally the level of analysis for the benefits, i.e if the benefits occur at company level or at the level of a user needs definition. This study defines the net benefits as those proposed in Bernroider's (2008, 258) classification of organizational benefits by stakeholder.

2.7 Critical Success Factors of ERP maintenance and support

Law, Chen and Wu (2009) recognized that as system lifecycles for ERP are getting shorter, proper maintenance and support activities enable extended lifecycle and result in a more stable ERP system that in turn better supports the core business. This further increases the importance and weight of maintenance and support services for ERP systems. As McGinnis and Huang (2007, 627) wrote, most research related to ERP systems stops at the end of implementation and system start up. However, ERP systems are huge as IT solutions and rarely completely replaced. They are leveraged, upgraded and expanded and rely on perpetual system maintenance.

Law et al. (2009, 298) also point out to three major issues that can arise very early in the life cycle of ERP:

1) The extent of customization.

2) The choice between in-house implementation, use of external consultants or total outsourcing.

3) The management of conflicts of interest between stakeholders. These are potential factors that may affect ERP-related decision-making and investments in companies.

Law, Chen and Wu (2009) identified also the so-called critical success factors of maintenance and support of ERP systems. They divided the project lifecycle of ERP systems into four phases, based on the staged implementation model – adaption, acceptance, routinization and infusion. Routinization and infusion take place after the implementation is done and deal with assimilating the system to routine, everyday life of the organization, seeking new innovation and resolving disorders. According to their research, due to activities in all these phases, companies adopting ERP systems often neglect their attention to the system after implementation, resulting in compromised usefulness and operation of the system after installation (Law et al. 2009, 297).

How extensively the system is customized, if and how much the company chooses to use external consultants and how well conflicts between stakeholders are managed all affect and carry forward to routinization and infusion. They have substantial effect on maintenance and support practices and cost (Law et al. 2009, 298). Customization in ERP means changing the software to fit the business requirements through modification of for example user interface (Law et al., 2009, 299), or how the program looks like and behaves to the users.

The framework by Law et al. (2009) proposes that the overall success of the ERP system is dependent on the combination of seven critical success factors that affect both the quality of the implementation work as well as the outcome of maintenance and support work. These factors are listed in figure 3 below.

Critical Success Factors 1 – 6 all affect the Critical Success Factor 8 or Quality of ERP implementation. However, quality of ERP implementation together with all the other critical success factors listed affect the outcome of maintenance and support services that are provided.

This is especially important as decisions related to customization of the ERP system have to be taken during the implementation, often in a very early phase. ERP packages are very complicated and therefore difficult to understand by the adopting organizations. This makes customization very challenging, increasing costs and risks of implementation and subsequent upgrades.

From vendor perspective, understanding the critical success factors of ERP maintenance and support is important, as customers often initially buy the support service from the same organization that adopted their ERP system (Law et al., 2009, 299). Therefore there is an

important link between maintenance and support service and longevity of business with the same client.
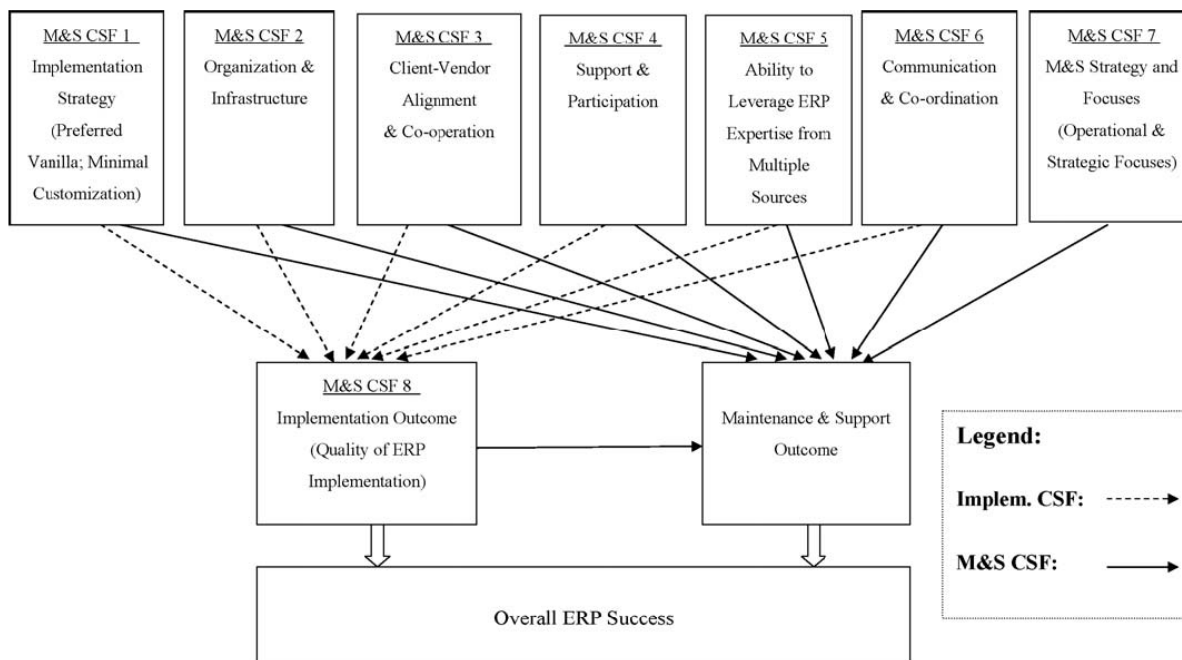
Figure 4. A framework of Critical Success Factors for ERP implementation and maintenance and support (Law et al., 2009, 305).

Relationship between the processes and practices of the organization and the implemented system is also an important factor affecting how well the system succeeds fulfilling its purpose after the implementation. Wang, Lin, Jiang and Klein (2007) pointed out that 90 percent of ERP implementations are late or over budget and 70 percent of ERP implementations fail to deliver anticipated benefits. They concluded that successful knowledge transfer has a substantial effect on how the implemented ERP system manages to meet the expectations and needs of the organization.

Chen and Liu (2008) evaluated the satisfaction of key users as an indicator of a successful ERP implementation. Key users are often involved heavily during the selection of the ERP system and also play a key role during the implementation and later in maintaining and supporting the

system. According to Chen and Liu (2008, 1981), key user satisfaction is an appropriate measure to determine the success of ERP implementation. Key users may contribute to the selection of the ERP, participate in vendor selection, complement and support external consultants, support selecting competent consultants and service personnel, as well as support and train the end users of their company. Therefore, in this study, user level input is obtained from key users or personnel that fit this definition of key user provided by Chen and Liu.

3 Research Framework

The actual themes and the theme-specific questions are defined based on literature and theoretical frameworks examined in chapter 2, as well as in cooperation with the IT services company for which the thesis is delivered as an assignment.

Theme 1 addresses the fundamental question of what is customer satisfaction and its elements, which is a prerequisite to understanding the significance of different factors that may have a positive or negative impact to it. The purpose of the theme is to understand how a satisfied customer is defined especially in context of ERP AMS and what affect if this satisfaction is increased or decreased.

Theme 2 considers the perceived value of ERP AMS to the customer, asking for defining the value of the service, factors affecting the value creation as well as criticality of customer satisfaction for value creation. The criticality of customer satisfaction to value creation is addressed, since ERP AMS, by nature of IT services, is a complex, multi-tiered service, which often may be a subset of a wider portfolio of services. As laid out in ITIL's illustration of service architecture in chapter 2.2.1, the IT service consists of various elements, such as SLAs. The purpose of probing the criticality of customer satisfaction to value creation is to understand the relationship between perceived satisfaction or dissatisfaction and the delivered service against measurement frameworks such as SLAs.

Theme 3 considers the points on customization, as raised by Law et al. (2009). According to Law et al. (2009, 298), "Customization refers to modifications made to the native features of an ERP product. They may include modifications to user interfaces, reports, messages and even program codes, and additions of bolt-on logic to the native system." A key proposition by Law et al. (2009, 306) was that "customization in the implementation or post-implementation stages would be likely to compromise the success of maintenance and support services and increase the difficulty of operating the ERP system." The motivation behind theme 3 is to understand what the perceived effects of customization are from system maintenance and support perspective as expressed by the interviewees.

Theme 4 looks at skills of experts within both client and vendor organizations. As Wang et al. (2007, 210) wrote, having competent consultants is critical for ERP implementation success. The consultants can complement a lack of knowledge in the adopting on certain necessary capabilities. This theme validates what is the significance of this for maintenance and support, assuming similarity with implementation.

Theme 5 concentrates on stakeholder communication. First the most important stakeholders are defined and then it is evaluated what affects success of communication with these stakeholders. It builds on the viewpoint by Bernroider (2008) that part of an effective governance framework of an IT service is a participative form of decision-making that involves all major stakeholders.

Theme 6 covers the effects and significance of ongoing projects from maintenance and support service perspective. This is connected to the framework by Law et al. (2009), where outcome and success of implementation of ERP system has an impact on maintenance and support of the system. Although Law et al. specifically refer to implementation, here the definition is expanded to cover all projects that may have an effect on ERP system maintenance and support.

Theme 7 considers the role of IT governance frameworks, such as ITIL. The theme is derived from Bernroider's (2008) assertion that an effective IT governance framework seems to increase ERP success in the adopting organization. ITIL is the selected framework due to its widespread adoption as a de facto standard of IT service management (Jelliti, Sibilla, Jamoussi & Ghezala 2010, 209).

Theme 8 looks at the importance of a defined IT strategy for the customer satisfaction. According to Bernroider (2008), a defined IT or information system strategy increases success of an ERP system in its usage stage. Theme 9 considers factors related to service delivery model.

Theme 10 addresses knowledge transfer. As Wang, Lin, Jiang and Klein (2007) wrote, knowledge transfer, carried out successfully, is essential to make sure that the implemented ERP system actually serves it purpose.

Figure 5 illustrates the research framework as based on the above themes. The research framework seeks to define the significance of the themes for customer satisfaction and value perception. Each of themes is evaluated with all of the research stakeholders.
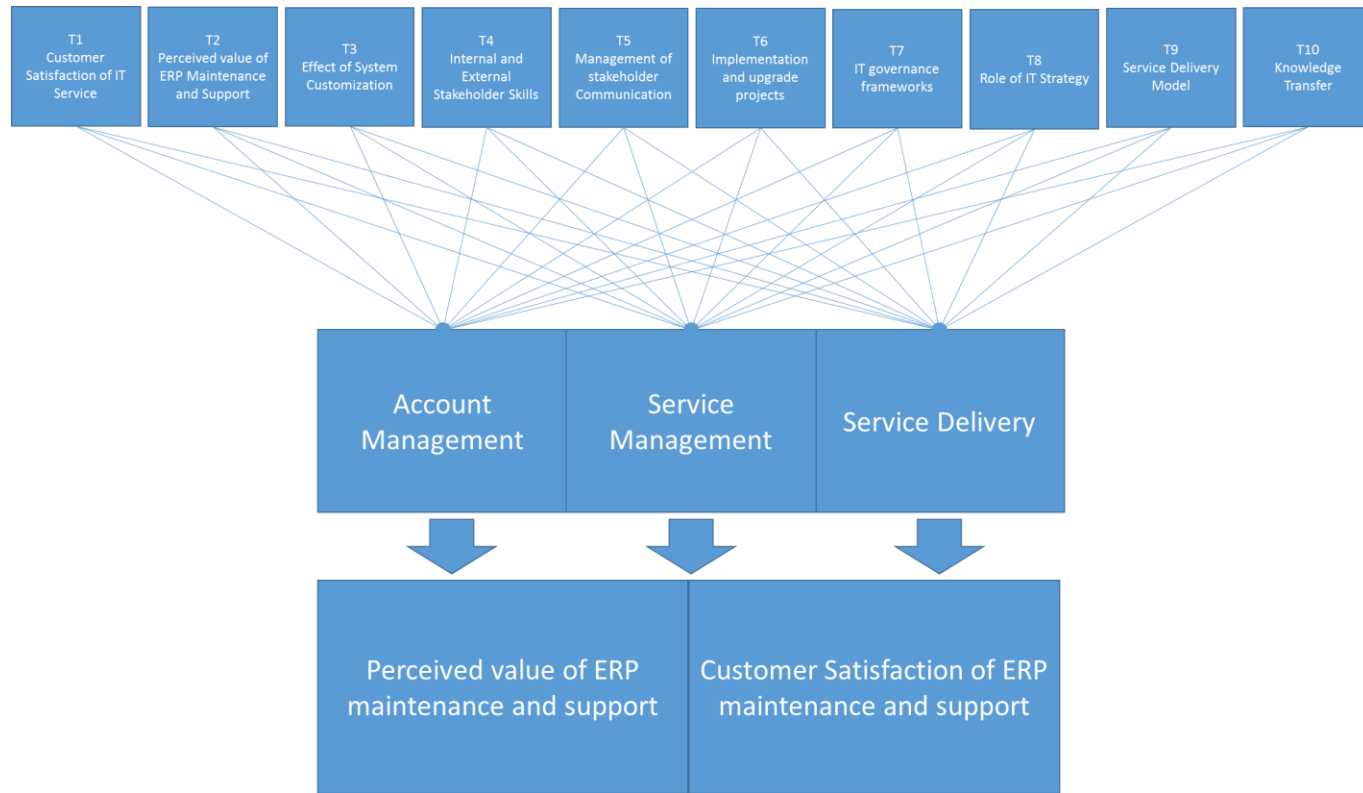
Figure 5. Research framework.

4   Research Methods and Data

4.1 Research Method

This study was carried out as a semi-structured interview of selected experts working for an IT service vendor company and two customer companies. A semi-structured interview is an interview method where a set of preliminary themes are defined and used as a framework to conduct the interviews.

The results of the interviews are highly dependent on the interviewees' interpretations of the themes. It is optimal from the perspective of this study as the goal is to find how interviewees with different backgrounds see the importance of different themes. As the interviewees represent different roles and different levels of organization, a semi-structured interview as a method enables covering the research themes in way that is most optimal for the particular interviewee (Tuomi & Sarajärvi, 2009, 75).

The group of interviewees represent a deliberate sample that was selected to enable analyzing how different roles and different organizations affect perceptions of the research question and the themes that are used to determine the outcome. The composition of the sample was determined by the schedule of the study as well as practical circumstances related to physical access to relevant people, as well as the preferences of the sponsoring company.

The applied part of the research strived to fulfill the goals and answer the questions that are highlighted in chapter 3 of this research plan. The methodology used in this research is a qualitative research that was be carried out by conducting semi-structured, theme-centered expert interviews. Semi-structured interviews are a good research method to obtain qualitative data and in depth understanding of the research topic.

According to Hirsjärvi and Hurme (2004, 27) qualitative methods are suitable when goal of the research is to understand behavioral meanings in a specific context and when the topic of the research is closely related individuals and their mutual interaction. This is fulfilled as the research looks at how IT experts in various roles view and perceive several themes related to delivering an IT service.

The output of this research is dependent on understanding what factors affect attitudes and perceptions about customer satisfaction and perceived of individuals working in IT service organizations. The context of the research is scoped by assignment from a IT service company, to cover very specific cases of IT service delivery by concentrating on factors affecting perceptions of a specific type of service from both customer and vendor perspectives.

The type of semi-structured interview used here will focus on selected themes that were outlined in the previous chapter 3. The original goal of the research was to interview 12 to 16 experts working for one IT services vendor and two industrial companies. Target was to interview professionals, as defined by Bernroider (2008), end users, technical administration and business and IT management.

4.2 Research Stakeholders

Bernroider (2008, 258) named social actors in post-implementation stage of ERP as end users, technical administration and business and IT management personnel. This is also the composition of key stakeholders and the focus group of this research.

For the purposes of this research, the end users are defined as personnel who use the ERP system as a part of their primary job role. More specifically, applying the definition by Wu and Wang (2007, 1583), the end users can be divided into key users and end users. Key users are selected from the company departments, being familiar with business processes and their domains. They may also specialize as trainers and support the end users with their issues, having usually deeper understanding of the system. The actual end users on the other hand are the ultimate users of the system who only have very specific knowledge of the system needed to complete their work tasks. The key-users are essential to the success of the ERP system as they have combined knowledge of the business and the system. Key users often train the end users (Wu & Wang, 2007, 1585). This research focuses on the key user sub-set of end users.

The actual, detailed job role of a key user varies across companies is highly dependent on the organization and business processes of any particular company. Therefore, in this research, a key

user should be understood, in line with above definitions, to be a person that uses the ERP system as a part of their primary job role, while holding a non-managerial, expert position.

Technical administration in this research corresponds to vendor's service delivery personnel who are responsible for administering and delivering day-to-day support and maintenance service. Technical administration in the customer organization is defined as the counterparts for vendor service delivery personnel, who are responsible of engaging the support and maintenance service activities. The technical administration role may overlap with key user role in the customer organization.

Business management can be defined as the counterparts from vendor and customer organizations who are responsible for account and contract management related to the support and maintenance service. IT management personnel comprise of service managers from both vendor and customer organizations. Service managers are responsible for their respective teams of service delivery personnel or ERP experts. Figure 6 illustrates the stakeholder groups of the study.
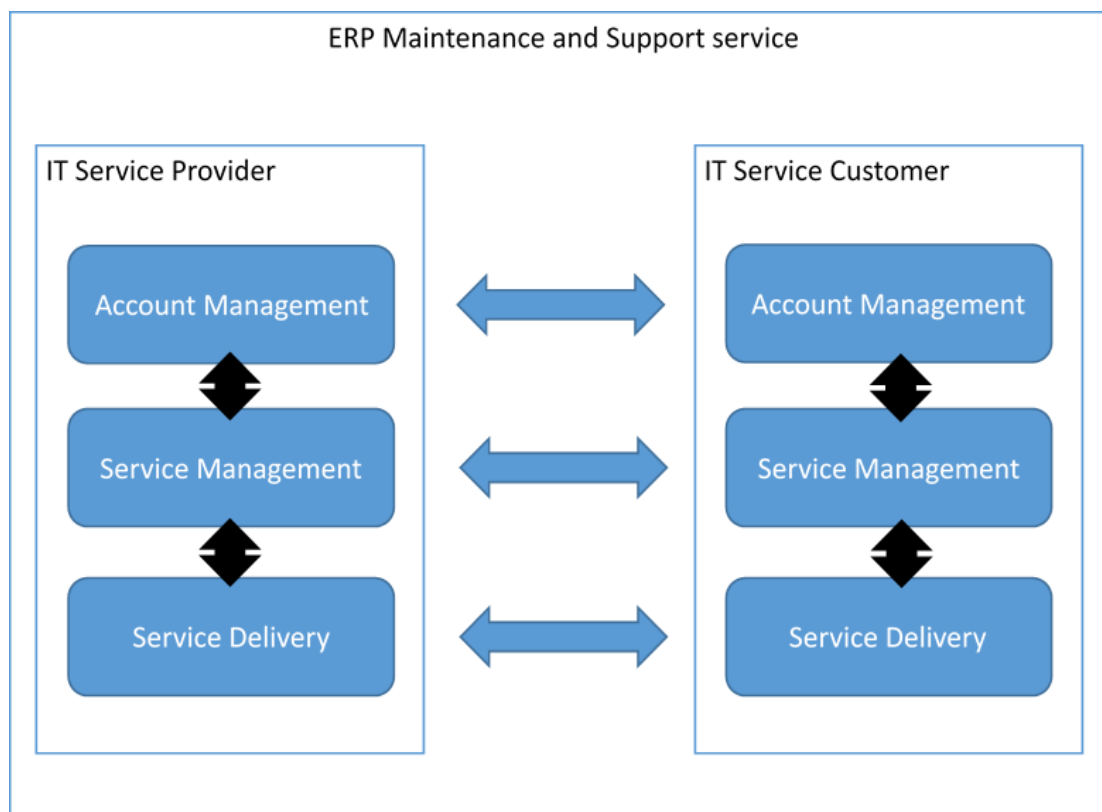
Figure 6. Stakeholder groups of the study.

The specific aim of the research is to probe how the views of the professionals working in above categories are similar or different with respect to the research themes. The goal is to answer the research question based on analysis of the specific theme-related output. Table 1 below includes information about the interviewees.

Table 1. Interviewees.

Interviewee #	Client/Vendor	Job Role	IT Service Years of Experience	ERP Years of Experience
1	Vendor	Service Delivery Manager	15	15
2	Vendor	Sales and Account Management	9	-
3	Vendor	Sales and Account Management	16	15
4	Vendor	IT Service Manager	11	15
5	Vendor	IT Service Manager	15	15
6	Vendor	IT Service Manager	15	10
7	Client	ERP Application Specialist	6	17
8	Client	ERP Application Specialist	6	18
9	Client	IT Service Manager	10	10
10	Client	ICT Director	20	15
11	Client	IT Service Manager	6	11
12	Client	IT Service Manager	15	15

4.3 Carrying out the research

The interviewees were selected experts working with IT service delivery in both vendor and customer organizations. The final group of interviewees consisted of 12 experts working with ERP application management services in a vendor or customer organization. 6 of the interviewees were professionals working for an IT services vendor and the other six professionals working in IT service organizations at 2 industrial companies.

From IT vendor side, the interviewees consisted of a service delivery manager, 2 sales and account managers and 3 IT service managers. Service delivery manager represented the application management service organization of the IT vendor, being responsible for overall service delivery for certain clients. The sales and account managers have overall responsibility for their customers, with the AMS constituting a sub-set of their overall business with the clients. They are the vendor business managers. Service managers are in charge of application management service teams and responsible for delivering the service for the assigned application area against Service Level Agreements and other key metrics. Service managers are considered to be technical administration personnel.

From customer side the counterparts were an ICT director, 3 IT service managers and 2 ERP application specialists working for 2 industrial companies. The ICT director's responsibility among others was the successful support service for the ERP system of the particular industrial company. The IT service managers were responsible for the success of the application management service delivered to their area of responsibility by the external IT vendor. The ERP application specialists were experts responsible for the maintenance and development of a certain area of the ERP solution. They are considered to be end users or more specifically, types of key users.

The Interviewees were classified according to the stakeholder groups:

1) Account Management: Business managers at the vendor or client
2) Service Management: IT service managers at the vendor or client
3) Service Delivery: Application experts at the client

The semi-structured interview consists of high-level themes relevant to the goals and questions of the research. The themes are based on findings presented by previous research and literature. The themes were defined in detail in chapter 3. According to Hirsjärvi and Hurme (2004, 135), qualitative research material can be analyzed concurrently with extracting the data, i.e interviewing. In this research, the interview output was analyzed concurrently with interviews by transcribing and coding the material according to the themes.

The actual interviews were conducted in Finnish or English, as a combination of face-to-face and telephone or Voice-over-IP interviews, using applications such as Skype or similar. The interviews were recorded and supplemented with note-taking. Key statistics about conducted interviews can be found in table 2.

Table 2. Interview statistics.

Number of interviews	12
Total length of interviews	14 hours 11 minutes 9 seconds
Average length per interview	1 hour 10 minutes 56 seconds
Interview methods	Face-to-face, phone

Table 3 lists the themes and theme-specific questions. All of the questions were used similarly to broadly guide and steer the interview processes and make sure that all interviews covered the same subjects.

Table 3. Research themes and theme-specific questions.

Theme ID	Theme	Theme-specific questions
T1	Customer Satisfaction of IT Service	• Defining a satisfied customer of Application Management Service • What are the factors that increase or decrease this customer satisfaction?
T2	Perceived value of ERP maintenance and support service	• How do you define the value of ERP maintenance and support service? • What are the factors that affect if this value is created or not? • Is customer satisfaction or dissatisfaction critical for value creation?
T3	Effect of system customization	• What is the effect of system customization from maintenance and support point of view? • How does the customization affect the required skills of internal experts? • How does the customization affect the required skills of external service personnel? • How does the customization affect the workload between the customer and vendor?
T4	Internal and External Stakeholder skills	• How does the internal skill level of the client organization affect ERP AMS delivery? • How does the skill level of the AMS delivery organization affect the client?
T5	Management of stakeholder communication	• From your and your organizations' perspective, what are the most important internal and external stakeholders in ERP application management service? • How do these issues affect the delivery of application management service?
T6	Ongoing implementation and upgrade projects	• What is the effect of ongoing implementation and upgrade projects on application management service? • Do projects make successful service delivery more challenging? How? • Can you see any key factors that affect the success of maintenance and support during projects?
T7	Role of IT governance frameworks and relevant processes	• How do you describe the role of SLAs (Service Level Agreements) for ERP AMS? • What is the role of frameworks such as ITIL (IT Infrastructure Library)? • What are the benefits of such frameworks? • How about drawbacks?
T8	Role of IT strategy in client organization	
T9	Factors related to service delivery	• What is the effect of delivery model, local or offshore to application management service quality? • What is the effect of service language? • What is the effect of different cultural backgrounds on service quality? • How do these factors affect customer satisfaction?
T10	Knowledge Transfer	• How do you describe the effect of knowledge transfer? • What makes knowledge transfer in ERP AMS successful?

Each interviewee was asked the basic questions about their role and years of experience with IT service and ERP systems. On their role it was asked if the interviewee saw themselves as belonging to Account Management, Service Management or Service Delivery. When asked about years of experience, the interviewees were allowed to describe freely in their own words how much experience they perceived they had.

The interview material was transcribed and, where necessary, translated from Finnish to English. The interview material was then grouped by themes and collected into a spreadsheet according interviewee, role and theme to better facilitate analysis.

First of all, we look at the viewpoints on the Account Management level, which comprises of business and sales managers at the IT vendor and their higher-echelon counterparts at the industrial companies that were interviewed.

Secondly we evaluate the responses in the Service Management organization at both the vendor and the client, consisting of IT service managers at the vendor and industrial companies.

Then we evaluate the responses from Service Delivery organization that means the application specialists working at an industrial company.

4.4 Analysis of the results

The analysis of the results was conducted as a theory-based analysis. According to Tuomi and Sarajärvi (2009, 97), a theory-based analysis is a framework for analyzing the outcome of a research based on e.g. a theory or a model. The theoretical basis for the analysis for this research is the research framework and its theoretical background.

The output of the interviews was analyzed by summarizing theme-specific results according to interviewee roles. The interviews were first transcribed to text and, where applicable, translated to English. Following transcription, the interview material was read through and the output of each interview was codified according to which theme it best applied to.

5 Data Description

This chapter provides a summarized description of the data gathered in this research. The description is grouped by the interviewee roles and to the extent possible by the individual themes.

The themes are analyzed by summarizing the interview results and referencing specific extracts from the interviews were deemed relevant and applicable.

In the overall analysis of the results, the key take away from the interview is presented by breaking down the interview output per interviewee role according to the classification presented in chapter 3:

1) Account Management: Business managers at the vendor or client
2) Service Management: IT service managers at the vendor or client
3) Service Delivery: Application experts at the client

First of all we look at the viewpoints on the Account Management level, which comprises of business and sales managers at the IT vendor and their higher-echelon counterparts at the industrial companies that were interviewed.

Secondly we evaluate the responses in the Service Management organization at both the vendor and the client, consisting of IT service managers at the vendor and industrial companies.

Thirdly the responses from Service Delivery organization were evaluated, meaning the application specialists working at an industrial company.

5.1 Account Management

This section details the outcome of the interviews for interviewees that were categorized to belong to Account Management. They consisted of interviews of 2 IT vendor sales and account managers and one customer company executive representing higher IT management.

5.1.1 Customer satisfaction of IT Service

The first theme covered defining the fundamentals of IT service customer satisfaction from the IT vendor and customer sales and account management perspective. In other words, what are most important factors that affect customer satisfaction and if it increases or decreases.

The account management group of interviewees for the IT vendor emphasized the service contract as a baseline for good customer satisfaction.

The fulfillment of contractual obligation was seen as the minimum to achieving a satisfied customer. In addition to the contractual obligations, the service vendor should seek to provide value-adding capabilities such as innovation.

"There are two perspectives to customer satisfaction. One is the monetary aspect where the customer is satisfied with the monetary benefits of the contract. That covers being able to fulfill your contractual obligations with the customer. The second perspective is your ability to provide value-adding capabilities, such as capability for innovation." –Interviewee 2, an IT company sales and account manager

"First of all, you need to be able to deliver against the contract. Managing the customer relationship is just as important. You have to know the people at the customer." –Interviewee 3, an IT company sales and account manager

Flexibility of the vendor in being able provide services and undertake activities outside of the service contract was considered important.

"As a vendor you should be able to be flexible and at times go beyond what was agreed in the contract. "–Interviewee 3, an IT company sales and account manager

Other elements that were considered to be important for customer satisfaction was the overall capability of the support team. From the vendor perspective, competence was understood to be something that fulfills the pronounced customer expectations and skill requirements.

The customer relationships in IT service industry were considered to be long. Improving customer satisfaction in the long term was seen as generating more business.

From the IT vendor sales and account management perspective the overall management of the customer relationship was seen as important in affecting how the customer satisfaction develops.

Physical presence at the customer location and proactive communication on a personal level was seen as essential to build mutual trust between the client and the vendor.

"You have to be present at the client. It is important to be seen at the client office, be present, participate in the meetings and communicate actively in person. That way you can learn to know the customer personally and connect with them." –Interviewee 3, an IT company sales and account manager

Understanding the roles of different people in the customer organization and their relationship to the IT service was seen as important for managing the service. This was considered important to understand the actors in customer organization who are important from the vendor perspective.

"It is important to understand the true roles at the customer. The formal role does not necessary mean that someone actually has the power and influence. You need to understand the true dynamics of the customer organization." –Interviewee 3, an IT company sales and account manager

IT maintenance and support service for ERP was perceived to be an ancillary support service to customers. It was not seen to be a strategic service and its main value proposal was considered to be an operative support service that enabled the customer to use their resources to core business activities.

Internal communication about the service in the customer organization was seen as important in managing the expectations of the end users.

However it was also understood that many customer organizations emphasize cost reductions and that the lower cost of service can be a more important than end user satisfaction.

To increase customer satisfaction the vendor should be flexible and be able to go above the contractual obligations. This was considered important as expectations within a customer organization can vary greatly.

The customer counterparts of the IT vendor sales and account managers emphasized the importance of the Service Level Agreement (SLA). A well-defined SLA was considered to be

critical for customer satisfaction since it was considered to clarify the customer expectations and make them measurable.

"The SLA has to be well-defined as part of overall service management and it has to be communicated properly. It makes sure that the end users know what kind of service to expect and its lead times. Having this is in place is fundamental for customer satisfaction." –Interviewee 10, an industrial company ICT director

A well-defined SLA was seen to make it easier for the service vendor to understand customer expectations and identifying what elements of the application are considered by the customer to me most critical.

Following the SLA was seen to be critical for customer satisfaction by the customer IT management. It was considered that the customer had the responsibility in describing their service expectations in the SLA.

Additionally the customer IT management saw the poor user experience of the business applications as an element that can reflect in the customer satisfaction of the related support service among end users.

"If the AMS does a really good job solving the problem, it might be a positive thing for the service as a whole. After a good service experience in case of a problem, the user might become more committed to the service and be more confident about the problems getting solved." – Interviewee 10, an industrial company ICT director

High ability of the support service to solve problems was seen as a factor that can increase user satisfaction and increase trust of end users in the support service.

Key factor in increasing the customer satisfaction is proper definition and communicating it to the end users of the supported system.

5.1.2 Perceived value of ERP AMS

The second theme covered the perceived value of the outsourced maintenance and support service.

According to the vendor sales and account managers it is important for the vendor to understand the background of the customer decision to outsource the maintenance and support service. The underlying reason for outsourcing is reflected in what is the expected value of the support service.

Customers were considered to view maintenance and support IT services to lay outside of their core business. The key value proposition was seen to be the ability of a dedicated support vendor to provide the specialized resources to support a large ERP application.

The decision to outsource the support service was seen to already validate what the customers consider to be within their core competencies.

"The customers have concluded what is their core competence and what should they buy from outside. They have decided what to develop with their limited resources and where to rely on external partners." –Interviewee 2, an IT company sales and account manager

Efficiency in providing the support service was seen as the key value proposition of an IT service provider. Efficiency was seen to be realized through common practices, processes and tools, supported by ways of working mutually agreed between the customer and the IT service vendor.

 "The value of the support service is the ability to the limited IT resources to more value-adding activities. The maintenance and support service is about supporting business applications and their users and buying it from outside frees up the customer resources to do more valuable tasks." –Interviewee 3, an IT company sales and account manager

Providing in-house support services was seen as inefficient and something that most customer companies were looking to outsource. It was perceived that customers should focus on their core business and outsource basic IT support services to professional vendor companies.

"The value for any larger company for buying AMS externally is that it is nobody's core business. You should let the professionals and vendors take care of it and use your own capacity

for something that makes more sense for your business." –Interviewee 3, an IT company sales and account manager

Customer companies were seen to be able to provide support services more efficiently and at lower cost by buying them from a specialized vendor. An external support service was considered to enable the customer internal IT to be better in focusing their resources to answer business needs.

As the IT organization you are a better partner for your business when you don't run the engine room yourself." –Interviewee 3, an IT company sales and account manager

When introducing an external support service, change management was seen as critical. The success of an external support service was considered to be tied to the success of managing changes in the customer organization. Change management should consist of training, operations and introducing the customer to the concept of an external support service. These were seen as critical to realize the value of the maintenance and support service.

From customer IT management perspective the value of the maintenance and support service came from the ability of the customer company to focus on core business activities instead of using resources to provide functions such as ERP support services internally.

"The value comes from our ability to focus on core activities. It is a matter of core versus contextual activity and using limited resources to get and maintain competencies." –Interviewee 10, an industrial company ICT director

From the customer perspective management of external IT maintenance and support services can be considered to be a core activity. It is the customer responsibility to manage that the business applications and the related support service answers to the business process and business model requirements.

"Executing a support service is a contextual activity. Someone else does it better and can offer better prices as they can benefit from economies of scale." –Interviewee 10, an industrial company ICT director

The support service vendors were seen to be more efficient in delivering the service as they can benefit from economies of scale.

The key value of the support service was perceived to be that it enables better performance of core business processes that are dependent on business applications such as ERP.

The maintenance and support service and its management was not seen as a trivial activity but being a multidimensional, specific competence area. Being able to provide such service efficiently was seen as valuable.

As a part of the maintenance and support services value perception the criticality of customer satisfaction was probed. The aim was to understand if there is a connection or disconnection between the two.

From the IT vendor perspective there was a uniform view that customer satisfaction and value creation are connected.

"Customer satisfaction is absolutely critical for value creation." –Interviewee 2, an IT company sales and account manager

However a potential for disconnection was identified. It was noted that expectation management and success of change management in the customer organization would affect how well the customer IT management and customer end user expectations are aligned.

The vendor sales and account managers agreed that from end user perspective the support service starts and ends with the internal IT service desk. The success of the end to end support process was seen as a challenge as often multiple vendors or actors in the customer IT organization are involved.

"From end user perspective the service starts with the incident and ends with the resolution. The end to end process is challenging as it often involves multiple partners." Interviewee 3, an IT company sales and account manager

It was also noted that value can be created and delivered even if some organization levels at the customer experience lack of satisfaction. From service value creation perspective it was considered that complete end user satisfaction was not a feasible goal.

"The value can be created even if the users are unhappy. Why should every end user be satisfied? That is not an efficient approach from a business perspective. It is not an effective use

of IT money to invest in a top notch basic support service." –Interviewee 3, an IT company sales and account manager

By delivering support services cost effectively, the support vendor was considered to enable the customer to focus their IT resources in more value adding IT activities.

"Currently the companies across the world are going through a major digital transformation. If they are spending their money into maximizing support service user satisfaction that is a completely wrong trend." –Interviewee 3, an IT company sales and account manager

The key to connect value creation and customer satisfaction was defined to be proper expectation management. The customer expectations of service level must be managed and set to the right level.

The customer perspective on criticality of aligning customer satisfaction and value creation was clear. The perception of the service was more important then the actual metrics. Accordingly, the perception can be affected by the metrics but is ultimately defining if the customer is satisfied or not.

"Customer satisfaction is definitely critical for value creation. If I think that some service is good, this perception is always more important than what the metrics show. The metrics can affect my perception. But if I think something is good, it is good regardless of the metrics, until something forces me to change my perception. As the saying goes, perception is everything." – Interviewee 10, an industrial company ICT director

5.1.3 Effect of system customization

The third theme evaluated broadly the customization of ERP systems and the effect on success of maintenance and support service.

According to the sales and account managers of IT service vendor the standard system functionalities should be utilized as much as possible. The customer should carefully evaluate any need for customizing the system.

However, it was also understood that the purpose of the business application and its support service is to enable execution of business processes. Therefore, the customers can perceive that customization is required to fulfill business process requirements.

"The need for customization has to be carefully evaluated and see if the processes can be served and the value created with standard functionalities and processes as far as possible." – Interviewee 2, an IT company sales and account manager

Customization in general was seen as decreasing trend and the current software products were seen as packaged and standardized enough to drive customers away from customization.

"Customization is these days decreasing as a trend. The software these days are so packaged and standardized that customers are more inclined to refrain from customization." –Interviewee 2, an IT company sales and account manager

If the customer considered a need for customization, it was considered a better option to evaluate if the processes could be adjusted and remodeled.

"It might be better for the company to adjust their processes to fit the standard instead of adjusting the software." –Interviewee 2, an IT company sales and account manager

The overall effect of system customization from maintenance and support perspective was seen as negative. Customization was perceived to increase the workload of system maintenance, making it more complex and expensive.

"Customization affects the complexity and cost of maintenance. Before, we used to customize everything that was possible. Then the companies realized that you should remain to standard. The companies thought before that they had unique processes." –Interviewee 3, an IT company sales and account manager

Additionally, it was considered that heavy customization of an ERP product makes system upgrades more expensive and more complex. Direct effects of customization were defined to be increased amount of custom program code and a risk that the original software vendor would not support the customized solution.

"Having a heavily customized solution makes upgrades more complex and creates a risk that the software vendor does not support your application." –Interviewee 3, an IT company sales and account manager

Customization was seen as requiring higher business process competence from the vendor support team.

"For the vendor team it means that they need to better understand the customer business processes and the background behind the customization. Knowing the customer business becomes more important." –Interviewee 2, an IT company sales and account manager

Additionally, supporting customized ERP solutions was seen as requiring more advanced technical skills as opposed to supporting a more standardized solution.

Having a customized system was not seen to affect the workload of the customer in managing the support service. It was considered that the system upkeep is a vendor responsibility and it is the task of the support vendor to obtain the necessary knowledge.

A highly customized solution was seen as a reflection of weak IT management in the customer organization.

It was seen that the IT vendor should drive their customers strongly towards adapting standardized solutions. The vendor company should recommend and motivate the customer to review and change their old processes.

The vendor should help the customer to understand potential cost implications that system customization has for maintenance and support.

Customization was on overall seen to increase the volume of work related to the support service. For the customer the implication is the requirement to retain technical knowledge of the customization in their organization.

"The overall workload grows tremendously. For the client, depending on their outsourcing arrangement, you need people who know how the customization was done. You should not completely outsource that competence." –Interviewee 3, an IT company sales and account manager

On the other hand, the division of work between the customer and the vendor should be the same regardless of level of customization in the application. It was considered that the main responsibility of the customer is to define their expected service level to the vendor and manage their internal organization.

"On overall the division of work should not be affected by customization. On a higher level the responsibilities are always the same. The main responsibility for the client is that they have to manage their organization so that it works according to the common AMS processes, regardless of level of customization." –Interviewee 3, an IT company sales and account manager

The customer IT management view on customization was almost entirely negative. In general, the attitude was that customization should be avoided. Instead remodeling or adjusting business processes to fit application requirements was seen as more feasible.

"I greatly oppose customization. I am prepared to go as far as to say that if the customization is required due to a process, we should look at changing that process instead of the changing the software." –Interviewee 10, an industrial company ICT director

The main risk caused by customization was seen to be its effect on managing the application lifecycle.

"Customization makes application lifecycle management more difficult. As a customer you assume responsibility for developing and supporting an application you purchased from a vendor. That destroys the fundamental idea of packaged software." –Interviewee 10, an industrial company ICT director

It was also agreed that customization is a decreasing trend. Part of this was seen to be due to the changing nature of software towards using new technology and new business models.

Benefit of standard solutions was that the customer can minimize the size of their support and maintenance organization. A customized system would require substantially larger staffing in the customer IT organization, making the application lifecycle management a core activity of the customer company. This was seen as heavily reducing the value of external services. Heavy system customization increases also the level of technical skills that are required from the

customer organization. Customization was also seen to increase the need for high quality documentation.

5.1.4 Internal and External Stakeholder Skills

The fourth theme discussed the skills of internal and external stakeholders that are relevant for the maintenance and support service from the interviewee perspective and the effects of their skills.

In the IT service vendor sales and account manager's view a highly talented internal customer team enables the customer to take wider responsibility for the practical support tasks.

"If the customer has a talented internal team, they can actually do an extensive part of the practical tasks themselves. Some companies make the decision consciously to maintain such competence." –Interviewee 2, an IT company sales and account manager

Change management was considered to be an important skill for the customer organizations.

"Change management is another important skill. Lack of good change management leads to overall disorganization and bad communication, where you have talking of apples and one of oranges." –Interviewee 3, an IT company sales and account manager

High skill level of the vendor support team was perceived to result in better support for the business.

Competence elements for support service team consist of processes, methods and ways of working alongside technical competence.

"Competence of the vendor team consists not only of competence of the people; it also encompasses the service process, the methods and ways of working. Alongside IT security questions and change management." –Interviewee 2, an IT company sales and account manager

Good people skills were considered to be important for managing the service teams as the support consultants are often inexperienced and junior. On overall for vendor service teams a good customer service attitude was considered to be important.

From the customer IT management perspective, it is essential to maintain a minimal team that has a sufficient technical understanding that is required to manage their ERP solution and its maintenance. The primary task of the customer organization is to manage and supervise the vendor service team.

"The usual minimum organization for managing ERP consists of internal experts for each ERP module. They have to understand what their module does and how and where there are any limitations or restrictions applying." –Interviewee 10, an industrial company ICT director

"You have to have a good customer service attitude." –Interviewee 3, an IT company sales and account manager

The skills of the customer internal IT organization are vital. Especially the role of the internal service desk was seen as important from end to end process perspective.

"If your service desk is not competent enough to resolve your issues, then the maintenance and support service has to be especially competent. Otherwise the support model leaks through. The maintenance and support service has to resolve the majority of the tickets and help service desk to assist key users and end users." –Interviewee 10, an industrial company ICT director

The role of the external support service was seen as more important if the internal service desk is not highly skilled with the ERP application.

5.1.5 Quality of Communication

The fifth theme furthered the discussion on stakeholders by identifying which stakeholders were identified as most important and factors affecting communication quality with them.

First the stakeholders were identified. For the IT vendor sales and account managers the vendor service manager was the most important internal counterpart. Other internal stakeholders were considered to be the service management leadership and other sales and account managers. The IT vendor sales and account manager stakeholders are detailed in table 4.

Table 1. Maintenance and support service stakeholders for IT vendor sales and account managers.

Internal	External
IT vendor service manager	Customer IT service manager
Service management leadership	Higher ICT management
Other sales and account managers	Business stakeholders

At the customer side the key stakeholders consisted of the customer service manager together with the customer ICT management and the customer business stakeholders. These stakeholders are detailed in table 5.

Table 2. Maintenance and support service stakeholders for customer IT management.

Internal	External
Business stakeholders	IT vendor service manager
End users	Other vendor service management stakeholders

"The people who are responsible for the business processes to perform and run are the most important partner for IT in application support. If they feel that our business applications perform and create business benefits and that the support service delivers, then the service is successful." –Interviewee 10, an industrial company ICT director

Next the quality of communication and its elements were discussed. It was noted that the key elements for high quality communication in service management context was the knowing and having relationships to key people in the customer organization.

"Good quality communication is first of all about knowing the right people at the customer, supported by the governance model, meetings and agreed formal practices which form the

baseline for communicating in service delivery." –Interviewee 2, an IT company sales and account manager

Knowing the right people in the customer organization should be complemented by well-defined practices.

 "In ERP AMS it is essential to have well-defined communication and meeting practices that are agreed together with the customer." –Interviewee 2, an IT company sales and account manager

Insufficient change management has also reflections to communication and the type of expectations that the end users have. Managing the customer expectations is very important to make sure that both the customer and the vendor have the same understanding of key elements of the service.

 "Proper expectation management is the key. You have to be on the same page with your counterpart at the customer about what is going to be delivered. You also have to manage the end user expectations and make sure they understand the approach and service level agreed between the companies. You need to make sure the end users know what to expect and what not to expect from the service. –Interviewee 3, an IT company sales and account manager

Change management activities have to be systematic and well-measured as they have a key impact to communication. For example the definition of roles and responsibilities and its granularity has a high impact on communication. The key user concept was considered to be important and something that should be carefully defined.

"The key user concept has to be well-defined. The role should not be vague and instead of having a large key user community, you should have a smaller, well-trained and dedicated group of key users. A more intensive role helps its holders to have a better key user identity and make them more committed. We as a vendor have to support the client in making that happen." – Interviewee 3, an IT company sales and account manager

The differences in ways of working of business and IT people were perceived to be important. It was noted that the entire service delivery organization should have a good attitude towards customer service. The attitude was considered to reflect in their communication.

According to the customer IT management role definition was important.

"Well-defined roles populated with competent people, coupled with real time communication, with any and all delays removed." –Interviewee 10, an industrial company ICT director

Impact of poor communication was according to the customer impact the ability of the support service to meet the Service Level Agreement requirements.

"The tickets and service requests do not always contain the necessary information. Then it is important that there is clarity on how to communicate onwards from there. The communication process has to be clear as it impacts the end to end resolution times."–Interviewee 10, an industrial company ICT director

5.1.6 Ongoing Implementation and Upgrade Projects

The sixth theme concerned ongoing implementation and upgrade projects. In the discussion it was defined that projects cover any large scale change work that affects the supported system.

From the IT vendor sales and account management perspective the key issue was that the support service provider has to carry responsibility for work done by others.

"The support service provider has to carry the responsibility for supporting a solution delivered by someone else. It matters a lot how well everything is tested and verified before being implemented in the live system. Taking the change into production environment is a critical phase for business continuity." –Interviewee 2, an IT company sales and account manager

Success of projects in general from maintenance and support service perspective was seen to depend on various things. Among others were change management, overall success of project management in managing the scope of the project as well as motivation and commitment of the business stakeholders.

"It is important that the customer is aware of what is really changing. They have to be well informed of what is going on in the project on a detail level. Change and risk management should be carefully handled."–Interviewee 2, an IT company sales and account manager

It was considered to be important to reduce risks caused by projects to support service. Mitigating actions were mentioned to be e.g. involving parts of the support team in the project. It was considered to be ideal if the project and support vendors were the same company.

Projects should be followed by well-structured and careful handover practices.

"Success factors for a handover are simple. Support resources should be involved early on in the project, for example through testing. Handover is conducted professionally. Same vendor should take care of the project and the support. You should follow well defined processes when doing the handover." –Interviewee 3, an IT company sales and account manager

The customer IT management agreed and also saw the handover practices from project organization to the maintenance and support organization as critical. It was considered that a major project should incorporate handovers and associated knowledge transfers in its plan. It was perceived that it is the responsibility of the project team to plan and conduct the handovers.

5.1.7 IT Governance Frameworks

The seventh theme discussed the topic of IT governance and especially its elements such as the Service Level Agreement and ITIL framework.

The importance and role of the Service Level Agreement was first discussed. On overall the IT vendor sales and account managers agreed that SLA is a core tool to measure service performance, with implications to the vendor.

"The SLA is the basic tool for measuring service performance. Not following it leads often to monetary penalties. SLA metrics are used to demonstrate our performance to the customer. The customers often use SLA as well as a tool to point out the problems in service delivery."

SLA was seen as a definition of what the customer is paying for. It was however considered to be only one element of managing the service. For example, the accuracy and currency of SLA metrics was seen as important.

"The KPIs defined in SLAs may be out of touch with the actual business case of the service. You do not get a good general view of the service based on just SLAs." –Interviewee 3, an IT company sales and account manager

The customer IT management was also agreeing on the role of the SLA as well as the importance of having a wider view of the service performance. SLA was seen as a tool to ensure the service levels correspond to business needs.

"The Service Level Agreement ensures that the service follows the lead times required by the business processes. The business process has a defined support model and a service level. Some application might require priority tickets to be responded in 2 hours where 6 hours can be enough for another." –Interviewee 10, an industrial company ICT director

SLA was also seen as a tool to evaluate value creation.

"The SLA is a way to follow if the value is created." –Interviewee 10, an industrial company ICT director

Finally it was noted that the SLA has to be flexible and change according to business requirements to reflect the real needs.

"The SLAs can and have to be adjusted according to moving business requirements as well as to keep costs in control. There is no point to provide 24 hour support service if the business does not require that." –Interviewee 10, an industrial company ICT director

The next topic that was discussed was the ITIL as a governance framework. The IT vendor sales and account managers viewed ITIL as a helpful basic framework that should be applied according to service requirements.

Especially ITIL was considered to be useful as it allows the vendors to commoditize the IT services, providing common language and standard processes for maintenance and support services.

"ITIL provides you with a common language, framework and standard processes for maintenance and support service. It allows you to commoditize the service. It is a widely used framework. ITIL is a best practice that each company has to apply as they see fit. The framework

provides the tools the processes, language and taxonomy to the service delivery and governance models and practices." –Interviewee 2, an IT company sales and account manager

It was noted that many service providers base their processes and ways of working on ITIL. However, ITIL does not remove the need to actively manage the customer relationship.

"You should not let ITIL give you a false sense of security and emphasize the technical side of the service at the expense of customer relationship." –Interviewee 3, an IT company sales and account manager

The customer IT management stated that ITIL contains best practices, however it should be carefully applied according the requirements of a specific service.

"ITIL is like a cookbook. Some top chef can adjust or improve the recipes; however the essence stays the same. ITIL is a tried and tested model. At the same time, ITIL does not replace competence and common sense." –Interviewee 10, an industrial company ICT director

5.1.8 Role of IT strategy

As the eight theme, the role of IT strategy for customer satisfaction in IT service was discussed. The vendor sales and account managers broadly saw IT strategy to be a reflection of overall company strategy. The sales organization of the service vendor often has the strategic discussion with customer IT management as a counterpart.

"IT or ICT strategy should be a reflection of the overall strategic goals of the company. Service providers usually work more with the ICT departments of the clients and that is where we discuss their strategies with them." –Interviewee 2, an IT company sales and account manager

Accordingly, it was seen that it is the job of the service vendor to help the customer pursue their strategic goals.

"The customer relationship is at its best when we can support the client's ICT or business strategy." –Interviewee 2, an IT company sales and account manager

However, there was no consensus on if the IT strategy and how it is defined has an effect on customer satisfaction.

"IT strategy does not reflect strongly on customer satisfaction." –Interviewee 3, an IT company sales and account manager

The customer IT strategy was seen as something that should be derived from the overall business strategy of the customer. The vendor should help the customer to pursue their chosen strategy, otherwise existence of IT strategy was not a significant factor for customer satisfaction.

In the customer IT management, the view was that the IT strategy should be derived directly from business strategy.

"A company has to have an IT strategy where you define your focus areas for your activities. The IT strategy must be derived directly from the business strategy." –Interviewee 10, an industrial company ICT director

Otherwise the IT strategy should be in the form of a practical action plan which should drive execution of business strategy in IT.

The role of IT strategy for the maintenance and support service was clear. The need for a maintenance and support service must be derived from a business strategy requirement.

"At the end of the day, IT service such as AMS must meet a requirement set by the business strategy. If it does not, it should be eliminated as an unnecessary cost." –Interviewee 10, an industrial company ICT director

5.1.9 Factors Related to Service Delivery

The ninth theme in the study comprised of factors related to service delivery. The discussion was broad but was loosely organized around the themes of geographic location of the service team, the service language and cultural differences.

From the IT vendor sales and account management perspective the physical distance was considered to increase the challenge of establishing close contact with the customer.

"The farther you are physically, the farther you are from the customer." –Interviewee 2, an IT company sales and account manager

Delivering the support service from offshore was still noted to require a local organization to manage the communication and relationship with the customer.

"When working with offshore, you need the local organization to complement it and manage the communication, making sure the offshore teams are up to date about the customer's requirements, about their situation, latest communication, change management, service quality, satisfaction et cetera. The local organization is still essential." –Interviewee 2, an IT company sales and account manager

Offshore delivery requires a heavily standardized service model. It was seen as a necessity to make offshore delivery practical.

From the customer IT management perspective, personnel turnover was one of the clear key risks.

"Personnel turnover is a big risk in offshore delivery. If the attrition rate is terrible it affects the stability of the team setup." –Interviewee 10, an industrial company ICT director

Constant changes in the team structure were seen to lead the service organization to be in a disorganized state of transferring knowledge to new resources. It was considered to reflect as bad performance against the Service Level Agreement.

"High attrition rate means that the team is going through constant knowledge transfer. That does not forecast good performance; instead it is going to be badly reflected in the SLA metrics." –Interviewee 10, an industrial company ICT director

When discussing the effect of languages, the overwhelming outcome was that from the vendor perspective it has implications for the local organization and from the customer perspective use of local languages is to be discouraged.

"We all would prefer to use our native languages. The language of global business is broken English." –Interviewee 10, an industrial company ICT director

On the other hand, cultural backgrounds were seen as a very important element of service delivery. The main consequences related to communication and language issues. Differences in cultural backgrounds in the service organization increase the service manager responsibility on overall.

"Cultural backgrounds matter a lot. It affects the communication with the customer. It affects what kind of promises service providers make. There can be also pure language issues. Much rests on the service manager's ability to manage the whole." –Interviewee 2, an IT company sales and account manager

Conclusion was that cultural differences are emphasized when the service delivery is located physically far away from the customer. The effect of cultural differences was partially mitigate in case of more experienced consultants.

"Cultural differences are emphasized in offshore delivery. There are differences in attitudes to customer service. More experienced consultants overall have better customer service skills." – Interviewee 3, an IT company sales and account manager

The customer IT management perception on offshore delivery is that increases the need for management and documentation.

"In offshore activities have to be well documented, specified and written down. You should not expect a great deal of self-sufficiency or innovativeness in offshore practices." –Interviewee 10, an industrial company ICT director

5.1.10 Knowledge Transfer

The tenth and final theme was the topic of knowledge transfer. This considered broadly the importance of knowledge transfer activities from service delivery perspective and factors that affect success of knowledge transfer.

From the IT vendor sales and account manager perspective knowledge transfer has a substantial effect on service quality.

"The effect of knowledge transfer is tremendous. How the knowledge transfer is done, how systematic it is, it has a large effect on the quality of service." –Interviewee 2, an IT company sales and account manager

Failed knowledge transfer was perceived to result in weak competence of the service teams and reflected in customer feedback.

"Weak level of knowledge in the service team annoys the customers and results in bad feedback." –Interviewee 3, an IT company sales and account

Knowledge transfer should be achieved so that it does not disrupt the service or lower the quality of the customer experience.

However, it was recognized that after knowledge transfer there is a phase for new team members where they familiarize themselves with the systems. Minimizing effects on service quality was considered to be a change management issue.

"After knowledge transfer, there is a phase in the service when everything is new to the new team members. It takes time to get accustomed with the system, the applications and how everything works. Getting that right is a question of change management and managing the people who are undergoing the changes." –Interviewee 2, an IT company sales and account manager

The success of knowledge transfer was considered to depend on covering the essential elements of the customer relationship.

"In the knowledge transfer you should focus on the correct things; culture and ways of working at the customer, the people you work with, the customer business and their business processes. The knowledge transfer should be about the customer as a whole, not only about the system." – Interviewee 3, an IT company sales and account manager

5.2 Service Management

This section details the outcome of interviews for interviewees who were categorized to belong to Service Management. They consisted of 3 IT vendor service managers and 4 customer IT service managers.

5.2.1 Customer satisfaction of IT Service

The first theme covered defining the fundamentals of IT service customer satisfaction from the IT vendor and customer IT service manager perspectives. In other words, what are most important factors that affect customer satisfaction and if it increases or decreases.

Customer satisfaction was divided into two perspectives; one related to hard metrics and other related to perception about how the service functions.

 "Satisfaction is of course dependent on how the service works, and I would approach from two perspectives: hard KPIs and the feeling if it's working or not."-Interviewee 1, an IT company service delivery manager

The customer perspective of the service was considered to be based on the contract and on perception of the contract before and after the service is initiated.

 "Sometimes it has been said that there is one perspective of the contract, when it's signed and two, after it has been signed. They are different perceptions of the same thing. There is something that you imagined that you were buying, and that works well and in a high-quality manner, KPIs are green and so on. And then there is the general feeling about the service that it just works well." -Interviewee 1, an IT company service delivery manager

Reliability of the service was seen as a key element of achieving customer satisfaction. Reliability was defined as the vendor being able to deliver what they promised.

"The key for customer satisfaction is the reliability of the service. I don't mean the technical reliability. It is important that the service provider does what is promised."-Interviewee 1, an IT company service delivery manager

It was also identified that there is a connection between a satisfied customer and generating new business. Also a satisfied customer was considered to be less micromanaging towards the service vendor.

"A satisfied customer trusts the vendor and lets them to deliver the service without too much micromanagement." –Interviewee 4, an IT company service manager

It was considered that a less confrontational tone of communication and a lower threshold to communicate reflects a satisfied customer. A satisfied customer was also considered to trust the vendor and their competence in resolving the problems.

"The customer trusts that if they need expert judgement on a problem, they can get it from the service vendor. And that they can trust that the response is correct." –Interviewee 5, an IT company service manager

On overall, a satisfied customer was considered to be easy to work with from service manager perspective.

However, there were also deviating views on what is the relationship between customer satisfaction and inclination to generate more business. It was considered possible that customer satisfaction and amount of business may have no connection. This may be due to how the customer has positioned and classified the vendor. It was considered that in case of non-strategic and ancillary services, good performance may not increase sales.

The discussion then moved to discussing what increases of decreases customer satisfaction from vendor service manager perspective.

The customer willingness to pay for support work was considered low. The customer is willing to pay only for high quality resources with rare abilities.

"Price-quality ratio is very important these days. The customer is willing to pay for right kind of resources. They are not willing to pay for routine work but can see the value when the vendor is able to bring in resources with rare abilities." –Interviewee 4, an IT company service manager

Another factor affecting development of customer satisfaction is the flexibility of the vendor in resourcing. The vendor should be able to scale their staffing up or down as required by the customer.

"Flexibility in contract issues affect how customer satisfaction develops. The ability to be flexible and downscale or upscale resources according to capacity is important."-Interviewee 4, an IT company service manager

Staff turnover was considered to be a risk and a factor that can negatively impact service quality and customer satisfaction.

Staff turnover should be mitigated as a risk by designing the service organization so that the effect of individual consultant is lower. The vendor service team should consist of certified consultants following precise methods.

Following agreed processes both on vendor and customer sides was considered very important to maintain customer satisfaction.

However, the real customer expectations can be fundamentally different from what was agreed in the service contract. Fulfilling the contractual obligations may not guarantee customer satisfaction.

"The expectation values of the client can be completely different from what was actually agreed in a contract. That affects their satisfaction for sure." –Interviewee 6, an IT company service manager

The development of customer satisfaction is affected by the overall trend of service quality. Failures in service delivery should be handled appropriately to turn the service on a positive trend.

"Trend of the service matters, the direction things have been developing. Sometimes there are cases where the situation is hopeless. The vendor has not been able to deliver what was promised."–Interviewee 6, an IT company service manager

After a negative service event it is important to secure confidence of the customer that the service will improve. If the customer does not trust in the ability of the service vendor to fix the problems, the customer relationship will be heavily damaged.

Also being able to deliver what was promised is essential, regardless of the contract.

"The customer gets what is defined in the contract. However, if you promise something that was not stated in the contract, it is just as important for you to stand behind that promise and deliver. Your track record there creates the basic expectation value for the service." –Interviewee 6, an IT company service manager

"Communication is everything. If the customer asks you to do something, the response has to be there right away. Without mentioning how it is done, who is paying, it does not matter. You have to respond immediately, promptly. Then if it is agreed that it is done by a date, it has to be done by that date, no matter what." –Interviewee 6, an IT company service manager

The customer IT service managers emphasized quality as a key element affecting customer satisfaction. The customer IT service managers consider their role to be to purchase a service and deliver it to their internal customer in the business units.

"As a service manager I am both a client who buys a service, as well as someone delivering a service to my own final customers in the business units of my company. As a service buyer, quality is the primary factor. Whatever the vendor does and delivers has to work without doubt and be of good quality." –Interviewee 9, an industrial company IT service manager

Cost management of the support service and ability to achieve cost reductions was considered to be an element of service quality. From IT service manager perspective the key factor affecting their satisfaction is the ability of the service to enable end users to focus on their primary job roles.

"For me as a service manager, good customer service is service that is delivered according to a Service Level Agreement with good quality so that the end user can focus on their primary job." –Interviewee 11, an industrial company IT service manager

From the customer IT service manager perspective, the customer satisfaction of their organization is derived from the satisfaction of their end users. They broadly see themselves as service providers who extend the services provided by external partners.

The customer IT service managers recognized that problems or successes of the service delivery are not always tangible or reflected in the metrics. Lack of flexibility and inability for the service provider to deliver what they promised can be a source of dissatisfaction.

To maintain and increase customer satisfaction, the maintenance and support service should be able to cooperate with the customer IT organization and respond to business requirement in an agile way.

"We have to be able to manage the requirements together with the vendors. Our cooperation should be smooth and involve our internal IT, the IT vendor, as well as our business partners." – Interviewee 9, an industrial company IT service manager

Continuous improvement of cost management was seen as an important element of improving customer satisfaction. The service vendor should make sure that the service is constantly optimized from cost perspective.

5.2.2 Perceived value of ERP AMS

The second theme covered the perceived value of the maintenance and support service from service management perspective.

From the vendor perspective the key value of the service is to serve and enable the customer business.

"The benefit of the service is in how it supports the business. Long term value of a support contract comes from the ability to adapt to changing requirements." –Interviewee 1, an IT company service delivery manager

The ability to fulfill current customer requirements and be able to adapt and change with the customer was seen as an essential value driver. Service was considered also to be able to provide value by helping the customer to change and improve their ways of working and processes.

However the core value proposition was seen to be the ability of the support service to deliver basic maintenance service that makes sure that the supported business applications stay up and running.

"The value of the maintenance service comes down to making sure that the core business does not suffer any troubles due to issues in the applications." –Interviewee 4, an IT company service manager

To enable delivering this value the vendor should have the right, motivated team of support consultants, as well as the internal ability to change according to customer needs. The vendor should be proactive and lead the service delivery and its improvement.

The monetary value of the support service was seen as well as a key component of the service value. Customer companies should know their realistic cost levels and achieve cost reductions by buying their support service from external vendors. The monetary value of the service should be constantly improved as it is perceived that the customers expect this.

"The customers usually expect that the service is optimized and its cost efficiency improved year-on-year. Being able to cut costs through the service life cycle and improving the monetary value of the contract to the customer is essential." –Interviewee 6, an IT company service manager

Another value element is the ability of the vendor to introduce processes and ways of working that have developed and improved based on experience of other services. The vendors have the ability to learn from their other service operations and bring these benefits to their customer companies.

"We can bring in ways of working and processes that have been developed and improved at a faster pace than would be possible by the customer alone. The vendors have learned from their other clients and operations and are able to scale that knowledge for the customer." – Interviewee 6, an IT company service manager

The value of the maintenance and support service was summarized to consist of efficiency provided by cost savings and processes and methods.

"To summarize, the value is created from the cost savings the client achieves by outsourcing the service, as well as from the ease of dealing with the resulting from processes and methods." – Interviewee 6, an IT company service manager

Discussion was then turned to understanding what affects if the value is created or not. From the IT vendor service manager perspective, the overall state of the customer relationship is important for value creation. In addition to customer IT, this consists of the relationships with the customer procurement organization and business departments

It was perceived that priorities for IT organizations and business departments can be highly different. The customer's value perception is also affected heavily by personal relationships.

"It is also possible that the service actually creates a lot of value. The buyer is not satisfied for one reason or another, for example due to chemistry between people." –Interviewee 1, an IT company service delivery manager

Perceived lack of value was seen to be a symptom of larger problems with service. It demonstrates that customer expectations are not met.

"Something is not done right if there is a perceived dissatisfaction. Development activities might not work well, some small things seem to be impossible to fix. The price questions are not so important for the business but critical for the IT organizations." –Interviewee 1, an IT company service delivery manager

There were considered to be different perspectives for measuring value of IT support service, such as business or IT. The business perspective was considered to be most important.

"Value of the service should be measured from either IT or business perspective and the perspective of the business is absolutely more important." –Interviewee 1, an IT company service delivery manager

The failure of the support service to changing business requirements can lead to a situation where the service no longer creates value.

"You should ask what is valuable for the business. The IT organization can be focused on seeing if the contract is followed. The service can be delivered precisely according to the contract but it

might no longer support the business. The environment has changed so drastically." – *Interviewee 1, an IT company service delivery manager*

The service can also create very good value for example to IT stakeholders but the business management can consider the service to perform poorly, based on SLAs and metrics. The vendor should understand that value perception can be very different depending on level of customer organization.

Vendor service managers agree that the key value proposition is fundamentally the ability for the customer to refocus their IT resources and maintaining the applications.

"The core value of the maintenance and support service is making sure the application works right." –Interviewee 5, an IT company service manager

From the IT vendor service management perspective, customer satisfaction was seen also as an indicator of value creation.

"Customer satisfaction indicates if the value has been created. If the service creates value and the customer recognizes this, they are satisfied. The client's perception of value creation is an indicator of customer satisfaction." –Interviewee 6, an IT company service manager

The customer IT service managers emphasized quality of service as a key value element. The vendor should be able to deliver high quality solutions that support the customer core business. The service delivery should be supported by a solid business case, enabling the customer IT to offer the support service efficiently to their end users.

"It is about the quality of the execution. We should be able to get high quality solutions and implementations that support our core business. Schedule and cost estimates should be realistic and reliable." –Interviewee 9, an industrial company IT service manager

An additional value of the maintenance and support service is the ability of customer IT organization to refocus the time of its resources.

"The application service manager should have time to concentrate proactively on development activities instead of spending so much time on solving day-to-day support cases." –Interviewee 11, an industrial company IT service manager

The SLA fulfillment was seen as reflection of vendor service competence. It was considered by customer IT service management that if the SLA is not fulfilled, value is not created, since SLA represents the support service value proposal.

"If we would not meet our SLAs in AMS it would cause severe problems. That would mean significant overruns in resolution time for high priority cases. SLA fulfillment has a strong reflection the competence of the team. That is why they are constantly monitored and critical for the success of the service." –Interviewee 11, an industrial company service manager

5.2.3 Effect of system customization

The third theme evaluated broadly the customization of ERP systems and the effect on success of maintenance and support service.

From IT vendor service management perspective customization was noted to affect complexity of maintenance and increase experience requirements of the service team.

"Customization makes maintenance more complex. You need a more experienced team, people who can provide support by reading the code and documentation. It makes the learning curve steeper." –Interviewee 4, an IT company service manager

From maintenance and support perspective system customization was seen as undesired.

"I think customization should be avoided." –Interviewee 5, an IT company service manager

The perception of IT vendor service management was that the customer companies consider their processes to be unique and require customization of the application.

"Companies often think their processes and business are very unique. You can usually challenge them a bit and tell them that their sales process is really not that different." –Interviewee 5, an IT company service manager

The vendor should take customization and its impact into account when planning for support service resource to minimize impact of customization. Customization was perceived to worsen

the effect of staff turnovers in the support team and lower the overall service quality. This reflected in customer evaluations.

"When the client evaluates how well different systems are supported, usually the one with the most customization gets the worst score." –Interviewee 6, an IT company service manager

If a supported system is customization, it has an effect on support team skill requirements. The vendor cannot usually use consultants with more standard technical skills to support a customized solution.

"The maintenance organization cannot employ experts with standard application skills. The experts have to get familiar with the nature of customizations so that they can make sure that any changes, corrections or development does not impact the system negatively." –Interviewee 1, an IT company service delivery manager

Customization also increases the role of knowledge transfer and its effect.

"The effect of knowledge transfer to the service team grows significantly. Support team has to understand the impact of their work more thoroughly and realize that they cannot implement standard solutions in to the customized system." –Interviewee 1, an IT company service delivery manager

On overall customization was considered to increase skill requirements for both the customer and vendor organizations.

"For the vendor the tough part is to understand the customer business and their business processes." –Interviewee 4, an IT company service manager

"Customization requires much more competence from our team members.–Interviewee 5, an IT company service manager

"It is not possible to understand the customized system in any short time period." –Interviewee 6, an IT company service manager

"If you have a heavily customized system, you cannot use junior team members." –Interviewee 6, an IT company service manager

"The client experts need to have a solid understanding of what has been customized and how. Documentation has to be very precise." –Interviewee 6, an IT company service manager

Customization was seen to increase the overall amount work involved in the support of the particular application. It was especially seen to make system upgrades more challenging and increase the amount of test related work for the customer organization.

However, the role of the Service Level Agreement was seen as vital in minimizing the effects of system customization from maintenance and support perspective. Customization was on overall seen to increase the monetary cost of maintaining and supporting an application.

"From service management perspective the customization should not matter. SLAs are defined and you work accordingly. Contract and vendor management have to be handled differently. Not all vendors have what it takes to support customized solutions." –Interviewee 6, an IT company service manager

From the customer IT service management perspective customization was considered to be decreasing activity. The roots of customization were considered to originate from the rigid nature of older software products.

 "Before, the software was more rigid and you were not able to achieve everything with out of the box functionalities. This mindset might have stayed the same. Your thinking maybe inclined towards modifications." –Interviewee 9, an industrial company IT service manager

Customization was perceived to increase the role of documentation. Insufficient documentation of customized solutions was seen to increase support costs and make knowledge transfer more challenging. It can make the service more dependent on individual consultants.

"If the system custom code is not well documented, it increases the workload and costs of support. Internal handovers in the service organization become more difficult.." –Interviewee 9, an industrial company IT service manager

Customization was also seen to increase the role of sufficient testing.

"It is self-evident that customization makes support more challenging. It requires much more careful regression testing for example." –Interviewee 11, an industrial company IT service manager

Customer IT service management also saw customization to increase the specific skill requirements of the service team as well as increase the role of documentation.

"It all culminates down to the level of documentation we have. That affects how well the service vendor is able to catch up with the solution and how it works. Also we become often quite dependent on key people in the service team." –Interviewee 9, an industrial company IT service manager

Effects of personnel turnover were considered to be worsened by customization. It increases the need for more experienced consultants.

"It is critical to maintain the competence in the AMS team. It is difficult to hold on to the key people and make them stay. Everyone wants to have the competent people on their team, serving their clients. The internal competition for consultants is hard." –Interviewee 9, an IT company service manager

From the customer workload perspective, customization was seen to increase the workload of internal IT experts and lead to more time being devoted to support work. It was also seen important that a customer organization maintains more of internal resources if their application is heavily customized.

"For business critical parts of the solution, it is important that we take some of the responsibility for having competence in-house. We need to identify the most critical areas where we have to keep internal experts so we know what to buy from the vendor." –Interviewee 9, an industrial company IT service manager

It was considered that a customer organization has to have a good understanding of their customized solutions in order to outsource maintenance and support work to a vendor.

"We are able to move workload to the vendor only if we fully understand the implications from customizations." –Interviewee 9, an industrial company IT service manager

5.2.4 Internal and External Stakeholder Skills

The fourth theme discussed the skills of internal and external that are relevant for the maintenance and support service from the interviewee perspective and the effects of their skills.

From the IT vendor service management perspective skills were perceived to consist of broadly business process and technical skills. Good business process skills were considered to be important from customer service perspective.

 "The better the understanding of business processes and how they are implemented in the ERP system, the better the organization can serve the client." –Interviewee 1, an IT company service delivery manager

It was also perceived that a lack of business knowledge is an issue for technical support teams. The amount of business knowledge was noted to grow over time, as the team gains experience of working for a particular customer. Competence in general was seen as vital for quality of service delivery.

 "If we don't have right and competent people in our team, we are not able to deliver good and high quality service to our customer. The customer does not want to pay anything for a service that does not add value to them." –Interviewee 4, an IT company service manager

In addition to competence, speed of service and the ability of an individual support consultant to adapt and learn quickly were seen as important elements of service quality. The customers were considered to be unwilling to pay for inexperienced resources.

"If you know what you are doing, you are efficient at it. The speed is an important element." – Interviewee 4, an IT company service manager

Good communication skills and an ability to communicate in non-technical terms was seen to demonstrate good business process knowledge. However, the technical skills were considered to be the most important skill set and the primary value of an external support team.

"Technical competence is the key here to everything. That is our primary driver. If the technical skills are too low, we cause more harm than good. Any value simply crumbles away." – Interviewee 6, an IT company service manager

Technical skills should be complemented by knowledge and understanding of the business environment. It was also noted that supporting a complex application may require specialized skills that are not needed regularly. Maintaining availability of resources with rare skills was considered to be challenging.

For the customer IT service managers, competence of support consultants on overall was seen important from supervision perspective. If the customer perceives the consultants as competent, they are prepared to trust them more and give them more freedom to work closely with the customer experts. The customer IT service managers saw ideal support consultants to have both strong technical and business competence.

"In the best case the consultant has the strong technical competence supported by strong understanding of the business environment and the processes. The ideal situation is that we are able to get to our service the people who understand both sides of the coin." –Interviewee 9, an industrial company IT service manager

"Sometimes we need hard technical competence. If you talk about SAP, about ABAP code or Basis, we are able to provide the business context but need the core technical implementation from our partners. There are not many people who have good command of both contexts. Not to mention having good communication and people skills at the same time." –Interviewee 9, an industrial company IT service manager

It was perceived that there is a shortage of high quality resources in maintenance and support services who have both strong technical and business skills. An ideal skillset was considered to be a management consultant with business and application skills.

From service manager perspective the skills of the vendor service manager were seen as vital. If the perceived skill level of the vendor service manager is low, the customer is more inclined to resort to formal frameworks and the contract.

High competence level of a support consultant was seen to create overall trust towards the support service and allow the customer to reduce management and supervision of the support team.

"High level of competence creates trust and releases our time to managing the pipeline of tasks and expanding the scope of support we as an IT partner can internally provide. It reduces the level of our control. We can then let the consultants and business people work directly together to define the requirements and so on." –Interviewee 9, an industrial company IT service management

Good communication skills were seen to enable the consultants to communicate more directly with the users and help them to avoid practices that may result in incidents.

"Good system knowledge is fundamental to the vendor paired with good communication skills. If you have an excellent resolution which you are not able to communicate clearly, the work goes to waste." –Interviewee 11, an industrial company IT service manager

It was perceived that in general formal and precise communication is important when communicating with an external service provider.

Less formal communication practices were seen to be more feasible when working with smaller service providers. It was perceived that smaller service providers often had experienced resources which did not need a lot of supervision.

Strict and careful specifications were not seen as important when working with smaller service providers, reducing the customer workload.

The larger service providers were considered to employ more junior resources in their support service teams. The more senior consultants were utilized by larger vendors in more value-adding work such as projects.

The junior level of the service team was said to be evident from the nature of their questions and general level of communication. However, from customer IT service manager perspective,the customer has to understand the implications their desired cost level has on the skill level.

However, from customer perspective, it was noted that the vendor should manage their service so that the junior skill level is not visible to the customer. The junior consultants should be backed up by more senior colleagues to mitigate the skill gap.

5.2.5 Quality of Communication

The fifth theme furthered the discussion on stakeholders by identifying which stakeholders were identified as most important and factors affecting communication quality with them.

First the stakeholders were identified. The IT vendor service manager stakeholders are detailed in table 6.

Table 3. Maintenance and support service stakeholders for IT vendor service managers.

Internal	External
Service management leadership	Customer IT management
Support team members	Customer service buyers
Sales and account managers	Customer business stakeholders
	Customer end users

In general, the most important internal stakeholders for IT vendor service management were their service team and the leadership of the vendor service management organization, accompanied by the sales and account management people who are responsible for the customer relationship.

Internally, the sales and account management were seen as an essential group of stakeholders. They were seen to be responsible for the entire customer relationship.

Externally, the customer IT organization and service buyers together with the customer end users were seen as important external stakeholders.

The customer service buyers and the business stakeholders were considered to be important as they defined the business requirements for the application and for the service in general, including development and improvement work.

Additionally, the customer end users were considered to be a very important stakeholder group. They were perceived to be the primary customers of the support work. Additionally the more

advanced users and the customer internal IT was seen as an important stakeholder group as they would complement the support team by internally supporting the customer end users.

From the customer IT service management perspective, the vendor service management was seen clearly as the most important external stakeholder and as a counterpart for the customer IT organization and its experts. Table 7 below summarizes the customer IT service management stakeholders for maintenance and support service.

Table 4. Maintenance and support service stakeholders for customer IT service managers.

Internal	External
Key users and advanced end users	IT vendor service manager
IT managers	
Internal IT service desk	
Business stakeholders	

Internally the customer IT service management saw the different internal IT stakeholders as the most important group of stakeholders. The internal IT stakeholders consisted of the key users and other more advanced user groups, the different IT managers and the internal IT service desk. These were accompanied by the business stakeholders who are responsible for the performance of their business processes.

"It is extremely important to be closely involved with the people who operate and execute the business processes. You need to work closely both with the technical people such as more advanced users and the more purely process-oriented experts who are deeply qualified with the applications and the processes." –Interviewee 9, an industrial company IT service manager

It was considered to be important to closely communicate with end users and other people who use the applications to operate and execute business processes.

After identifying the different stakeholders for IT service management, factors affecting communication quality with these stakeholders were discussed.

From the vendor IT service management perspective, the service managers at the vendor and at the customer were seen as vital counterparts to achieve quality communication. There were seen to be the most important actors in the service and having a large potential impact on service quality.

"Service managers both at the client and vendor are the cornerstones for good communication between the vendor and client organizations." –Interviewee 1, an IT company service delivery manager

A defined communication plan was seen to improve communication quality. Such communication plan should include procedures and activities that are followed in communicating major issues.

"There has to be a communication plan which defines how to act in case there are major issues as well as who communicates, how and when." –Interviewee 1, an IT company service delivery manager

Meetings and reports were seen to facilitate communication and make it more structured. Well-structured communication was seen to make it easier for IT vendor service managers to communicate with their internal and external stakeholders.

The role of quality communication was seen as especially important when resolving problems. When resolving problems with high probable business impact, it was seen as essential that the vendor communicates openly with the customer. The vendor should describe clearly the activities that are carried out, their potential impact and the expected timeline of the vendor activities, as well as make it clear if actions are expected from the customer.

To facilitate quality communication, it was seen as important that the tone and form of communication by the vendor representatives is as uniform as possible. Communicate should be transparent at all levels.

Also clarity of communication was seen as important. This was defined as avoiding to present repetitive questions to the customer. Lack of clarity was considered to slow down the service and increase a risk of misunderstanding.

Unclear communication was also perceived to lead to a risk of the vendor service team doing unwanted activities and carrying out something that the customer did not want.

For the IT vendor service management, it was also important that the customer communicated openly and proactively towards the service vendor. The overall quality of communication requires active communication by the customer as well.

"The customer has to communicate on their part with good effort too. Sometimes the customers do not inform the service providers in good time about changes or future development. They might think that the vendor does not need to know, even though the effects to the service are remarkable." –Interviewee 4, an IT company service manager

Quality of communication between customer and vendor organizations was seen to depend heavily on quality of internal communication. Delays and distortions in internal communication were noted to result in key stakeholders not being informed of e.g. planned changes in the relevant applications.

Complexity of managing communication is perceived to increase when the customer is working with several vendors. The customer than has to bear the additional burden of coordinating and managing the work of different vendors. This creates dependencies that affect the ability of an individual vendor to deliver their service.

Quality of the customer relationship reflects on the quality of communication. The customer was considered to be most active in their communication when facing problems. In a good customer relationship, the overall volume of communication is higher. Communication quality can be increased by having well-structured communication practices.

The vendor sales and service management organizations should be well aligned internally and set the customer expectations on the same level. Lack of coherence in vendor communication was seen to lower customer's confidence in the vendor.

"Lack of coherence in internal communication gives the customer an impression that we don't know internally what is going on and makes them trust us less." –Interviewee 5, an IT company service manager

Effect of good quality communication was seen to be that it helps to mitigate failures in the service.

Quality of communication between the customer and the vendor is heavily affected by the perceptions of customer internal stakeholders. For example, negative service experience by business stakeholders can translate to negative feedback to the customer IT organization who then channel the feedback to the vendor.

In order to achieve coherent communication by the vendor organization, it is important that all vendor stakeholders of the support service are well aligned and informed in their understanding of the customer relationship. This covers understanding the contractual obligations and capabilities and limitations that the service vendor has in particular service.

All communication with the customer should be prompt and timely. Timing of the communication is an element of communication quality as the maintenance and support service is often dealing with problems which require swift action.

"When communicating with the client, timing is the most important thing. At AMS you are usually dealing with various problems. When the client is having problems, you need to communicate swiftly and accurately." –Interviewee 6, an IT company service manager

Timely communication keeps the customer aware and helps them to plan their next actions. The vendor should not hesitate to communicate openly and clearly even f the message is negative.

If the service delivery team is not able to communicate well with the customer, it increases the overall responsibility of the service manager in leading the communication.

If the communication does not improve, it can worsen the customer attitude towards the service team.

Using different ways of communication is an element of communication quality. The vendor should utilize different modes of communication. Face to face communication is important as it

helps to avoid risks of misunderstanding. Written communication such as emails can be misinterpreted.

From the customer perspective it is important that the vendor is able to change their communication practices according to the stakeholders. Different stakeholders have different expectations and priorities which should be addressed.

"The level of detail and nature of topics are different between stakeholders. You have to speak the language of your stakeholders. When talking with higher management, effects to overall business, change management, cost and performance indicators are more important than technical details." –Interviewee 9, an industrial company IT service manager

In line with perceiving the vendor service manager as the most important external stakeholder, the ability of the vendor service manager to be productive and efficient was considered important for communication.

The customer should communicate respectfully and professionally with the vendor and keep them informed about the relevant future plans in the customer organization.

"We should communicate with them actively, respect and manage that relationship. It is important to inform the vendor of the future development so that they can also accommodate and plan their activities for mutual benefit." –Interviewee 9, an industrial company IT service manager

Communication should be based on structured frameworks so that service teams are well informed of relevant system activities, such as development freeze periods, in good time.

The quality of communication in the maintenance and support service depends on clarity and content of service requests. The service requests should contain all the necessary information and be properly filled by the customer. Service transactions are more difficult and resolution times are prolonged if the customer provides insufficient information.

The support service vendor should actively demand that the customer provides all the necessary information. The support team has to understand the service request and be able to communicate clearly with the customer. Skills of the support team members are reflected in the content of their communication.

The vendor should adjust the tone of their communication when communicating with end users.

"Tone and content of vendor communication is really important. You should not use overtly technical terms when talking with the end users. The end users should understand the consultants even if they don't have technical understanding of the system." –Interviewee 11, an industrial company IT service manager

Communication with all stakeholders should be prompt and timely. Bad communication was defined to be repetitive and involving a lot of technical language or language that does not correspond to the customer's business language. Good ability to communicate is a reflection of the support consultant's skills.

If the customer does not communicate clearly, it complicates the entire communication process. The customer can also do mistakes and use wrong terms or make their own misguided assumptions of the problem. These can steer the support team to wrong direction in their problem resolution work.

The multilayered nature of a maintenance and support service affects communication quality. Communication related to the service takes place constantly on different levels of the organizations. This can lead to distortions and delays.

Personnel turnover was also considered to affect quality of communication as change in team setups results in loss of knowledge. Also routinization of the support service and the associated job roles may lower communication quality as the interest level and involvement of the stakeholders' decreases.

To mitigate the effect of routinization the job roles and identities of the people working the support service should be strong, especially in the customer organization. An example would a strong super user network.

Face-to-face communication was seen to facilitate improvement of inter-personal relationships between the vendor and the customer. Communication in general should be carried out by using diverse methods.

"Communication should not be solely written, driven by tools and email; there should be verbal communication through calls and meetings as well as face-to-face meetings." –Interviewee 12, an industrial company IT service manager]

5.2.6 Ongoing Implementation and Upgrade Projects

The sixth theme concerned ongoing implementation and upgrade projects. In the discussion it was defined that projects cover any large scale change work that affects the supported system.

It was considered important that the support service team is well aware of any changes caused by a project to the application that is being supported by the team.

"The service team has to have a good understanding of the changes caused by the project, what is changing and what are the effects of those changes." –Interviewee 1, an IT company service delivery manager

The project should conduct a proper handover process and document the known errors.

"Without proper handover process the first problem causes havoc. Known errors have to be documented so that the team knows how to handle them." –Interviewee 1, an IT company service delivery manager

Negative effects of projects can be mitigated by proper documentation, knowledge transfer and proper testing.

The project organization has to plan a handover process to move responsibilities for the project outcome to the support organization. The project organization and the customer are responsible for organizing the handover. The support vendor should describe their requirements.

The customer should be well aware of the changes to the supported applications resulting from the project. Lack of understanding can result in redundant requests to the support vendor.

"If the customer does not understand what the project outcome was, they can make tickets about some feature not existing, when it was actually removed in the project as planned." –Interviewee 1, an IT company service delivery manager

Ongoing projects affect the ability of support service to carry out maintenance activities. Applications often need to be frozen for development activities. Projects often define the time periods when the system is accessible for the support team.

Overall, projects do not complicate the delivery of support service. It is considered normal for ERP systems to go through regular development or project work. Managing the projects from maintenance and support perspective is a question of planning.

"Projects do not make service delivery itself more challenging. It is normal to have some ongoing development or project work with the ERP system. I think it is just important to plan the handover from project to service carefully. Changes have to be well documented and knowledge transfer to AMS done. The support team has to feel that they have sufficient knowledge about what has been done." –Interviewee 4, an IT company service manager

The key to successful support service after a project is a proper handover process including good knowledge transfer from the project organization to the support team. To make it successful, the support organization should actively demand the customer and the project team to conduct it.

The handover and knowledge transfer processes should be structured, the proper documentation should exist and should be reviewed and improved if necessary.

To mitigate its effects, the project organizations should evaluate the effects of their change work and determine the dependencies of their work to maintenance and support services.

The key challenge caused by the projects is that they require close involvement often from the same customer resources that are important for managing the maintenance and support service.

Also if the project locks down the applications for maintenance work, it may restrict the ability of the support team to deliver the service and carry out necessary activities in the systems.

The maintenance and support organization in general should be well prepared to handle projects from time to time.

"Regular, small projects usually do not disturb the service delivery. You should be used to handling projects in AMS from time to time, knowing how to prepare for them and how to anticipate them. The changes resulting from minor projects usually do not result in breaking the system." –Interviewee 6, an IT company service manager

Large implementation or change projects are dangerous from support perspective as the changes they bring can lead to disruptions and problems as new functionalities are introduced. Large projects often increase the volume of incidents and problems after they are finished.

"Large projects are dangerous. There is so much going on. New functionalities that the users are unable to learn, process changes that are unclear, technical challenges and functionalities that have not been properly tested. These reflected in service delivery as a peak in support tickets." –Interviewee 6, an IT company service manager

Effects of major projects should be mitigated by reserving enough time and resources after the project to stabilize the system.

Large projects can affect customer satisfaction of the support service as the customer often perceives the effects of projects only for a limited time. The support organization has to be able to achieve normal service levels quickly after the project.

If the project organization is not able to resolve the issues that they cause, the work is eventually transferred to the support organization. This can increase the workload and cause delays in service delivery.

To prepare the support organization for maintenance of the changed system, it would be beneficial to involve support team members in the project organizations or include project team members in the support organization.

The customer service managers perceived that lack of communication is a key issue that can cause problems for maintenance and support service.

"Freeze periods in a project mean that the support and maintenance cannot make changes to the production system unless under absolute urgency. If communication is not good, there is a good chance of conflict between maintenance and project activities." –Interviewee 9, an industrial company IT service manager

"There can be several projects going on at the same time, involving our vendors and sometimes our own clients. Lack of communication by the project team can lead to unpleasant situations in the support where we may be unable to carry out critical maintenance due to the project." – Interviewee 9, an industrial company IT service manager

The project team has the overall responsibility to keep the support organization aware of any activities caused by the project. The projects should be scheduled so that they cause minimal disruptions to core business activities.

Major projects increase the workload of the customer and lead to key resources being assigned to the project. This means that the customer has less time to focus on support and maintenance work.

"If we have a major project, our resources are diverted from the support service to the project. This means that the amount of development and enhancement work in support goes down. It is direct impact for a certain period of time, as we focus on the project at hand." –Interviewee 9, an industrial company IT service manager

Maintaining the applications is critical for business operations and should receive enough attention even during projects. The customer organization has to be able to refocus rapidly from project work to support activities.

The support organization should be proactive in planning their knowledge transfer requirements. Often the support service vendor and the project vendor are different. This increases the importance of good communication between the project and service organizations.

"If the service and project vendors are different, the quality of communication and coordination between service managers and project managers has a huge impact. There has to be ongoing passing of knowledge between vendors and agreement on how to train the service vendor's team. Our people need to have the proper oversight and review and verify that competence will be at the required level." –Interviewee 9, an industrial company IT service manager

Handovers from project to support organization are often challenging due to restricted project schedules and budgets. The project plan should be flexible to include sufficient time for handovers. Lack of flexibility results in poor handover and overloading of the support organization with service requests.

The projects often define the schedule for maintenance and support services. Support services should have higher priority.

"The projects often cause challenges in system administration tasks. The support team is often requested to do something very quickly and with very vague details. That causes a delay as the support team needs to ask for more information." –Interviewee 11, an industrial company IT service manager

Projects can also cause challenges in system administration tasks if the project team requests urgent activities from the support team with insufficient information.

"The quality of the support should never be compromised. Projects by nature often try to squeeze through their activities without adhering to agreed processes. The plans should be made more flexible." –Interviewee 11, an industrial company IT service manager

5.2.7 IT Governance Frameworks

The seventh theme discussed the topic of IT governance and especially its elements such as the Service Level Agreement and ITIL framework.

The first topic that was discussed was the role of the Service Level Agreement.

From the vendor service management perspective, the SLA was seen to be an important instrument of service management, in particular from perspective of measuring the success of service delivery.

The SLA is a representation of different components of the service. The defined service level of a service component is a reflection of that component's relative importance to the customer.

"SLA describes the importance of different elements in the service. Stricter the SLA, the more important that element is to the buyer." –Interviewee 1, an IT company service delivery manager

SLAs can be used as well to steer the vendor activities to the focus areas that are important to the customer. SLAs have a financial elements and non-compliance with the target service level can lead to sanctions or penalties against the vendor.

The definition of SLA targets has a direct effect on required staffing of the service team, which has an effect on the cost and pricing of the service.

"Additionally the SLA may have penalties involved that occur if the vendor is not able to meet the defined parameters. There are differences in how strictly different customers handle the SLA limits." –Interviewee 4, an IT company service manager

Strictness of SLA targets affect the ability of the support organization to take responsibility of changes done to the system. In order to meet SLA targets, the support team needs adequate knowledge transfer.

Strict SLAs also require that the vendor follows the processes very strictly and has good change management practices in place.

SLA defines what the vendor is committed to deliver. Relaxed SLA target metrics mean lower costs and more strict SLA metrics result in higher costs of running the service.

The SLA can be said to be a reflection of the customer's desired service level.

"The SLA represents a key decision by the client regarding what level of service they want to buy." –Interviewee 6, an IT company service manager

For the customer the SLA was seen from service management perspective to be an instrument to measure if the service is delivered according to the contract.

"We have an SLA, we have a contract with the vendor, which should match with the service delivered. We measure that the service is delivered according to the SLA. If this is not the case, if the SLA is not met, there are implications and consequences that are defined in the contract. The purpose of the SLA is to steer the service in the right direction." –Interviewee 9, an industrial company IT service manager

The SLA was seen to remove emotional ambiguity from the service experience. The SLA can be used to judge if the service is delivered according to the requirements.

"With SLA you can remove all the ambiguity and gut feeling about the service. We simply follow the SLA. You can get rid of all the emotional conversations about service quality. Our SLA defines how we work." –Interviewee 9, an industrial company IT service manager

The SLA metrics and measures can serve to help get insights and draw conclusions about change requests and incidents and how they are processed.

SLA can be seen as a tool to make sure the customer gets the service that their business processes require. SLA defines the priority of requests and incidents.

Then the importance, benefits and drawbacks of ITIL where discussed from Service Management perspective.

ITIL was seen to standardize the service as provides service processes as practices that do not need to be defined separately. It works a standard model that the customers can use to work with vendors.

"ITIL standardizes the service. You do not need to define processes case by case, ITIL works as the standard model which you can use with every partner. You know precisely how services function and what you can expect." –Interviewee 1, an IT company service delivery manager

ITIL was considered to be commonly accepted by customers and vendors alike. ITIL should be applied so that it benefits the particular service. ITIL serves as a basic framework for processes and practices.

Due to its complexity, customers may not have the same ability to follow ITIL as the vendor. ITIL can be also heavy to use with small customers. When using ITIL with small companies, the framework should be simplified.

"It is not a one-size-fits-all. You should not try to implement everything as it is but adapt case by case." –Interviewee 4, an IT company service manager

ITIL in general makes service delivery easier for both customer and vendor as both parties know what to expect from the other. ITIL also lowers vendor switching costs for the customer as it is used by largest IT vendors.

The major benefit of ITIL is that it provides the service stakeholders with a common language and facilitates the quality of communication. ITIL provides a general framework for managing and delivering the service.

"ITIL is also really important in that it provides both parties with a generally agreed framework about how things should be managed and taken care of. It makes communication easier." – Interviewee 6, an IT company service manager

ITIL can also facilitate improving the service. From customer IT service management perspective frameworks such as ITIL were seen as beneficial but that they should be applied sparingly.

"Service management has to be both dynamic and efficient. There has to be a right amount of bureaucracy involved. Whatever we do, we must do in a right and controlled manner." – Interviewee 9, an industrial company IT service manager

ITIL can be used to define how to measure and control the support service.

"ITIL contains good fundamentals of service delivery. It provides you with a controlled way of working with the necessary bureaucracy." –Interviewee 9, an industrial company IT service manager

ITIL provides the best practices for service management.

"ITIL is a nice framework, it is really good collection of best practices. We do not have to take everything from there. ITIL gives you a good idea how to manage your services." –Interviewee 11, an industrial company IT service manager

ITIL can be used and applied to define specific processes for support services. By using ITIL, the customer or the vendor do not have to define the required basic processes themselves.

A drawback of ITIL is that it can be considered to be too rigorous and heavy to be applied to the practices of the customer IT organization.

5.2.8 Role of IT strategy

As the eight theme, the role of IT strategy for customer satisfaction in IT service was discussed.

IT strategy was seen to provide a baseline for the IT requirements and activities.

"If the customer has an IT strategy defined, it can set the parameters for service delivery, development, architecture and such. It can affect which ERP system is selected, what services that system is supporting. –Interviewee 1, an IT company service delivery manager

The vendor should be aware of the strategic priorities of the customer and help the customer to pursue them.

"Vendor who acts according to the customer's IT strategy improves their satisfaction. The vendor is able to propose solutions that support the chosen strategy." –Interviewee 1, an IT company service delivery manager

Companies with well-defined IT strategies are better in defining and articulating their IT service requirements. If the customer has no defined IT strategy, they may be unable to define their expectations from an IT service.

"If you do not have a strategy, you have no idea where you are going or what you really want. That is also a good recipe for an unhappy customer." –Interviewee 4, an IT company service manager

A defined IT strategy can serve as a plan and a roadmap for the customer for their future development. An IT service vendor should design their service delivery so that it supports the customer strategy.

Understanding the strategic priorities of the customer makes it easier for the vendor to produce value to the customer by offering services that are aligned with the strategic priorities of the customer.

Existence of an IT strategy may not have an effect on customer satisfaction. If the customer company has not defined an IT strategy, the IT organization and its people simply works according to their personal goals.

"I do not think IT strategy has an actual effect on customer satisfaction. If there is no strategy, people simply follow the goals given to them. If an IT strategy exists, it affects their goals." – Interviewee 6, an IT company service manager

IT strategy is important for customer satisfaction only if it is well communicated and translates to actions in the customer organization.

"I have seen companies with very fancy and well-defined IT strategies, and which have been well communicated, but which have nothing to do with the reality." –Interviewee 6, an IT company service manager

From the customer IT service management perspective, it is important to understand the business requirements of their company. If the IT does not understand the overall business priorities, they cannot be reflected in IT service requirements.

The IT strategy should be derived from the overall business strategy.

"The business strategy should be communicated so well that it translates into an effective IT action plan which supports the business. We should be able to deploy the strategy and reflect it in our service offering such as AMS." –Interviewee 9, an industrial company IT service manager

Lack of a defined IT strategy may lead to lack of coordination of the IT activities.

5.2.9 Factors Related to Service Delivery

The ninth theme in the study comprised of factors related to service delivery. Within the theme the geographic location of the support service team, the language and the cultural background was discussed.

From the IT vendor service management perspective, it was seen on overall important to match the customer expectations for service team competence and maintain clear communication.

If the communication between the service team and the customer in case of offshore delivery does not work, it has a negative effect on customer satisfaction.

"Understanding the cultural environment at the customer is important. If the customer is not able to communicate with offshore teams, it makes service delivery more difficult and also affects customer satisfaction." –Interviewee 1, an IT company service delivery manager

Using offshore delivery increases the responsibilities of the vendor service manager.

"Some customers prefer to work more with local teams. If they have to work with offshore teams, the service manager quickly becomes an unofficial translator." –Interviewee 1, an IT company service delivery manager

Offshore teams may have limitations in their business knowledge and communication skills.

"The offshore team might not always have a good understanding of the customer business and they may not use the correct terms in correct circumstances." –Interviewee 1, an IT company service delivery manager

Larger customer companies are usually better prepared to work with offshore delivery teams. In general, it is important to maintain local service management to facilitate closer communication with the customer.

"It is important to have local service management so that you have a direct interface to the customer. You are able to physically meet them face-to-face." Interviewee 4, an IT company service delivery manager

Even when delivering service from an offshore geographic location, the customers often see face to face communication as a value adding factor. The IT vendor company should facilitate face to face communication.

Agile methods are more challenging to use with offshore teams.

"Agile deliveries are not feasible in an offshore model." –Interviewee 6, an IT company service manager

Communication in offshore deliveries is mostly written and driven by tools. Using purely written communication creates the risk of misunderstandings.

"Communication with offshore teams is mostly written and tool-based, which increases the probability of misunderstanding and missing vital information." –Interviewee 6, an IT company service manager

Personnel turnover was considered to be an inherent problem in offshore teams.

"Competence as such is not worse in offshore teams compared to local consultants." – Interviewee 6, an IT company service manager

The delivery model was seen to have an effect on customer satisfaction, but the customer willingness to pay the premium for local service can be low.

"On overall delivery model has an effect on customer satisfaction. However, it is too small to affect the willingness to pay for local service." –Interviewee 6, an IT company service manager

Delivering service with experienced local consultants results in higher quality but is perceived to be much costlier.

"You should not underestimate the quality difference of having experienced, local consultants who know your business. However, the cost difference is substantial. That seems to be a bigger driver for the customers." –Interviewee 6, an IT company service manager

From the customer IT service management perspective, the suitability of offshore delivery depends on the nature of the service and the system. A standard ERP or a purely technical component of the system is easier to support from offshore.

Offshore delivery increases the complexity of communication and administrative work that the customer does not see as value adding. Working with a local partner enables the customer to use that time for development and service delivery.

The whole service experience was considered to be vastly different between local and offshore teams.

"Unavoidably the service experience is different with a local, smaller partner compared to a larger offshore service provider. Working next to someone you know for years compared to creating a ticket in a system – it is a vastly different service experience." –Interviewee 9, an industrial company IT service manager

The ability of offshore service vendors to scale their capacity is better compared to smaller local vendors. The cost of service with local vendors is higher and they are more dependent on individual people.

Offshore support service requires more management effort from the customer. Offshore teams can be technically very competent and knowledgeable. The perceived challenge is to attract the best resources for your service team.

On overall communicating with offshore support teams is more complex. The customer has to be more specific in their requirements. The customer has to use more time and expertise to write detailed specifications.

"With the large vendors and especially in offshore practices you have to be more specific in your requirements. This places a lot of responsibility on the customer organization as well. Writing

more detailed specifications is always more or less painful." –Interviewee 12, an industrial company IT service manager

It is often perceived that local consultants are automatically more senior and skillful and offshore consultants more junior and inexperienced.

Offshore delivery increases the dependence on tool-driven communication. Communication quality is more dependent on the limitations and restrictions of the technical tools.

"Working with geographically separated delivery team makes communication very tool-driven. Locally delivered service provides better opportunities for face-to-face interaction." – Interviewee 12, an industrial company IT service manager

In the topic of service language, the IT vendor service management clearly favored use of English. Challenge of English language service was still recognized if the customer business language is not English. Then using English can decrease the quality of communication and increase the risk of misunderstandings.

"It can lead to communication problems if English is not your normal business language but the IT service only communicates in English. In that case good quality communication may not be possible. There is severe risk of misunderstandings." –Interviewee 1, an IT company service delivery manager

Using the local language of the customer can add value when gathering requirements and defining specifications. It is easier for the customer to contribute in their mother tongue. It is value adding to involve local team members in requirements gathering.

"Sometimes it is important to speak the customer's language. For example, when doing specifications, it is helpful for the customer that they are able to express them in their mother tongue." –Interviewee 4, an IT company service manager

In service delivery the role of the language was considered to be less important than the level of technical skills.

Offshore delivery teams may have challenges in their understanding of the customer business if they are not familiar with the company.

The limitations of offshore delivery teams can be mitigated by having a local service manager who can keep close contact with the customer.

If the customer users are not able to use English, it increases the workload of service management, especially within customer organization. Not being able to use English on overall lowers service quality and increases costs.

From the customer IT service management perspective their workload also increases if their service vendor is not able to provide local language service.

However, English was considered to be an essential language in international business environments. If the customer is doing business across several countries, it was considered practical to use English.

When discussing cultural backgrounds, on overall the technical competence of the service team was seen as a mitigating factor in cultural differences.

Attitude of users towards offshore teams can be worse than towards locals.

"Customer attitudes towards offshore consultants can be worse than towards locals. Some clients have a lower respect towards teams that are not local." –Interviewee 6, an IT company service manager

This attitude is reflected in assumptions that offshore teams have lower skill levels and lower understanding of the customer requirements.

Overtime customer perceptions of offshore teams often improve. Especially perception of the technical competence improves with understanding the business context usually remaining a challenge for offshore teams.

From the customer IT service management perspective cultural differences should not be overlooked. It is important that the vendor service team adapts to the customer's culture overall.

Service teams from different cultures were considered to be prone to using terms that may confuse users. Offshore consultants were perceived to be potentially pushy and aggressive in their communication style.

5.2.10 Knowledge Transfer

The tenth and final theme was the topic of knowledge transfer. This considered broadly the importance of knowledge transfer activities from service delivery perspective and factors that affect success of knowledge transfer.

From the IT vendor service management perspective knowledge transfer was seen as essential to make sure that the team understands the solution they are supporting.

"Knowledge transfer is essential to make sure that the team understands the system, why it exists and what kind of activities, changes and customizations have been done." –Interviewee 1, an IT company service delivery manager

Knowledge transfer is an important utility to onboard new team members and decrease the effect of staff turnover.

Importance of knowledge transfer is increased when the service organization takes over responsibilities from a project organization.

If the supported system is very standard, knowledge transfer is not that important as the support consultants are assumed to have the necessary knowledge. Knowledge transfer should not be entirely technical and it should cover business processes as well.

"Getting to know the business processes is a vital part of knowledge transfer." –Interviewee 5, an IT company service manager

Knowledge transfer should describe the critical system components and any associated system customizations to the support team. Overall goal of knowledge transfer is to provide the support team with basic knowledge needed

From the customer IT service management perspective, the purpose of knowledge transfer is to guarantee that the support team is able to support the solution properly.

Effects of failed knowledge transfer are apparent when multiple vendors are involved. If the knowledge transfer between vendors has not been successful, the customer has to intervene and rely on the original vendor for support.

Without successful knowledge transfer the support team is not able to support the end users and fails to deliver the fundamentals of their service. The support team and the vendor organization in general should be well aware of previous change work.

The support vendor should have a method to absorb knowledge from other vendors.

"It is extremely important that the application management partner and their experts are up to date of any changes being done in the solution. They have to be able to work with other vendors, having a model to successfully take responsibility for supporting changes made by others." – Interviewee 12, an industrial company IT service manager

Successful knowledge transfer from IT vendor service management perspective depends on having sufficient time and money to conduct the activities. Abrupt personnel changes can have a critical impact on the ability to do good knowledge transfer.

"Knowledge transfer is a question of money and time. Personnel turnovers, sudden changes in the team can make it very challenging, especially if the person leaves the company." – Interviewee 1, an IT company service delivery manager

Knowledge transfer should always be complemented by opportunities of practical work to apply the received knowledge.

Knowledge transfer process should be coordinated and it should be well documented. Successful knowledge transfer requires motivation from the person providing it.

Recipient of knowledge transfer should complement it by independent learning and look for more information. The success of knowledge transfer depends heavily on individual learning abilities.

Full potential of knowledge transfer is never fully realized without practical experience.

"After the knowledge transfer, it is very important that you get to work right away. You learn by doing. The full potential is not realized unless you get practical experience." –Interviewee 4, an IT company service manager

Successful knowledge transfer requires involving the right people and giving them enough time for the process.

"Successful knowledge transfer requires identifying the correct people and reserving enough time for them to ask and answer the right questions." –Interviewee 6, an IT company IT service manager

The customer IT service managers emphasized the role of good documentation in ensuring successful knowledge transfer. As a part of knowledge transfer the system documentation should be carefully reviewed.

"Documentation has to be reviewed carefully. In the end it has to be agreed if sufficient knowledge transfer has taken place and the whole process signed off by the parties." – Interviewee 9, an industrial company IT service manager

Good documentation should accompanied by face to face sessions to achieve good knowledge transfer. The knowledge transfer process should be verified by having the vendor produce a document that details their understanding of the information. It can be then used to identify gaps in the vendor knowledge.

The service vendor should define clear boundaries for what they consider sufficient knowledge transfer. The vendor should have proper methods and processes in place to conduct knowledge transfer.

"Customer is not interested of methods or processes used to get the knowledge transfer done. More important is that the partner knows to set the boundaries and tell when the transition to service can be done. The vendor should have proper methods in place to achieve this." – Interviewee 12, an industrial company IT service manager

5.3 Service Delivery

This section details the outcome of interviews for interviewees who were categorized to belong to Service Delivery. They consisted of 2 ERP application specialists of a customer company of IT service.

5.3.1 Customer satisfaction of IT Service

According to the application specialists, the customer satisfaction was considered to be the result of the whole service process when the customer expectations are met. Fulfilling the expectations was seen to be a precondition for customer satisfaction.

The nature of the support service affects the customer expectations. For example, supporting business critical applications increases the importance of timely response.

In general, it is important for the IT vendor to understand the customer expectations to be able to offer proper level of service.

Customer satisfaction may increase when the service team gets more familiar with the supported application. This is due to the decreased time used by the customer in managing the vendor.

"The satisfaction may grow over time, as the service team grows better in their expertise and understanding of our solution. That makes our job easier since we don't have to spend so much time describing what we need." –Interviewee 7, an industry company ERP application specialist

The customer should have confidence in the vendor's competence in order to be satisfied. For instance, the vendor should not have to refer to documentation when resolving critical incidents. This would lower the customer's trust towards the vendor's ability to support the application.

On the other hand, the customer confidence and satisfaction is increased if the vendor is able to solve incidents or fulfill requests with minimal specifications from the customer.

When delivering development work or non-standard support activities, the vendor should be proactive and suggest the customer different solutions to the problems at hand.

Application development work in particular should be iterative and the vendor should first try to research and understand the problem well before asking for clarifications.

Accuracy of work estimates affects the customer satisfaction. The work estimates define the scale of the work and describe the magnitude of the task. Incorrect work estimates demonstrate low skill level of the support consultant.

To enable the vendor to fulfill the customer expectations, the customer IT organization should provide the specifications as clearly as possible. Prior knowledge of the supported solution increases the customer's trust in the vendor's ability to support the application.

If the vendor has been involved in building the system or in the implementation project, the customer is more prepared to trust them.

5.3.2 Perceived value of ERP AMS

The second theme discussed how the customer application specialists saw the value of the ERP maintenance and support service.

The customer saw the service as more valuable if the service team was able to deliver solutions that the customer re-use across their business units.

"If the solutions can be widely applied and rolled out across business units, that is a specific example of value creation and can be measured with monetary indicators." –Interviewee 7, an industrial company ERP application specialist

Low staff turnover was perceived to increase the value of the service in the long term as it decreased the need for knowledge transfer and minimizes loss of productivity. The customer considers the team to create more value if it remains stable.

Outsourcing the maintenance and support service was considered to be a compromise. The customer has to understand that the goal of outsourced service is to enable focusing resources in core business activities.

"Outsourcing AMS is a conscious decision where you are accepting a compromise. Our priorities are producing our goods and selling and distributing them to our customers. That is where our money comes from." –Interviewee 8, an industrial company ERP application specialist

The customer should carefully define their expectations for the service and define what extent of the maintenance and support work is to be delivered by the external vendor. Maintaining vast systems such as ERP completely in-house is impractical and expensive.

"Today the systems are so large and complex that in-house maintenance is not practical. It would take too much internal resources. It is an impossible idea that we would look after every instance ourselves." –Interviewee 8, an industrial company ERP application specialist

Cost is an important driver in the decision to outsource the support service. Buying the service externally creates value by reducing the fixed costs and making it possible for the customer to buy it only as they need it.

The customer perceives large support vendors to be efficient as they are able to realize economies of scale by serving various clients and utilizing their experience across customers. These benefits reduce service unit costs.

Service value creation was considered to improve over its lifecycle. The vendor adapts to the customer practices and produces more value as it gains experience.

It was also discussed if value creation and customer satisfaction are connected. According to the customer application experts, being able to deliver reusable solutions in support service is an example of value creation. However, it was not considered to be critical, rather a value-adding element of service.

The customer application specialists stressed that clarity of communication affects the value perception. If the service team is not able to communicate well with business stakeholders, the overall perceived value of the service may decrease. The service team should for example clearly inform the business when their problems are resolved.

The role of the customer internal IT is to be the link between vendor and the customer business stakeholders. The internal IT has the responsibility to translate the business expectations to the service vendor.

The perception of the business stakeholders can be that the service does not work even if it fulfills e.g. contractual obligations. The service contract is often done by the customer IT organization and can be designed to fulfill their value expectations. The customer IT and business stakeholders may have different priorities.

"The business might have a perception that the service does not work even if it does. Internally we may have not communicated properly what has been purchased. IT function does the contract with the vendor and that might not match with the expectations of the business." –Interviewee 8, an industrial company ERP application specialist

5.3.3 Effect of system customization

The third theme evaluated broadly the customization of ERP systems and the effect on success of maintenance and support service.

The effect of customization in general was seen as very negative. The customer ERP application specialists strongly favored using standardized solutions. Customization was perceived to make the system on overall highly vulnerable to issues and unstable.

"Customization is not a good thing for the client or the vendor. From business perspective customization makes the system highly vulnerable. Fixing one place tends to break another." – Interviewee 7, an industrial company ERP application specialist

Customization also worsens the effects of staff turnover as more tacit knowledge is stored with individuals. Customizing package software is often challenging and this challenge is carried over to maintenance and support as increased complexity.

"There is a clear link between customization and complexity of the maintenance." –Interviewee 8, an industrial company ERP application specialist

It was clearly perceived that customized system components are often difficult maintain. They were perceived to be prone to errors and not well tested. Insufficient testing with low quality custom code was noted to cause problems.

"It is often so that the customized parts of the solution are most problematic to maintain. They are crisis-prone and not tried and tested well enough. They are purpose built and breakdown easily if applied pressure." –Interviewee 8, an industrial company ERP application specialist

Customization increases the customer responsibility for maintaining strong technical competence. It was considered that the customer should understand that by customizing their ERP solution they increase the costs and risks of maintaining it. Customization also increases the required technical skills of business stakeholders and users.

"When your software is strongly customized, it is very important how well the business people understand the system specifics. They have to accept that customization is a conscious risk and cost decision. The expertise and support of business stakeholders is vital." –Interviewee 8, an industrial company ERP application specialist

Customized system was also perceived to increase overall expectations to the service vendor. Customization is often concentrated in the most business critical software components which leads to greater service level expectations.

"It is not rational, but if the system is customized, we want more from the vendor. Customized solutions are also often business critical which leads to greater expectations from the service." – Interviewee 8, an industrial company ERP application specialist

Heavy customization reflects a perception that a critical business need could only be fulfilled by customizing.

System customization increases the general learning curve of the support team as they need to spend time in getting familiar with the system. Especially heavy customization may make the customer organization entirely dependent on internal resources. It can be impossible for external consultants to understand the solution without customer help.

Knowledge about system customization was perceived to accumulate over time. Customization increases the customer dependency on their internal experts as well as key individuals in the support team. Customization makes knowledge transfer a lot more difficult.

Effect of customization is mitigated gradually over time. It however greatly increases the challenge of handling multiple vendors.

Customized solutions increase the technical skill requirements of the support team and exclude usage of junior resources. On overall it increases the customer workload in managing the support service and related activities.

"In a standardized solution you can have the vendor do most of the work. You can have a standard change process in place and focus more time into development and supporting the customized parts of the system." –Interviewee 8, an industrial company ERP application specialist

5.3.4 Internal and External Stakeholder Skills

The fourth theme discussed the skills of internal and external which are relevant for the maintenance and support service from the interviewee perspective and the effects of their skills.

The customer ERP application experts had high expectations for both the technical and business knowledge of the support team.

The support team should be highly skilled so that they require only minimal knowledge from the customer. Skill level of customer internal experts affects heavily their ability to cooperate with the external support teams.

The support team should have a strong understanding of the customer business processes to be able to create high quality technical solutions.

Accuracy of work estimates was seen to demonstrate the skill level of the service team. It demonstrates proper understanding of the scope of work.

The amount of clarifying questions and additional information requested from the customer was perceived to be a reflection of the support team skills. Large quantity of additional questions was considered to result in poor quality delivery and reflect a poor understanding of customer requirements.

Personnel turnover in the service team was seen as a threat to service quality. It was understood that the customer should work so that the competent consultants are motivated to stay in their support team.

"Personnel turnover is a risk as it directly affects the competence of the service team. As a client we should make sure that the competent people have enough work to do so that they will stay in our service." –Interviewee 8, an industrial company ERP application specialist

5.3.5 Quality of Communication

The fifth theme furthered the discussion on stakeholders by identifying which stakeholders were identified as most important and factors affecting communication quality with them. Table 8 below summarizes the internal and external stakeholders as defined by the ERP applications specialists.

Table 5. Maintenance and support service stakeholders for ERP application specialists

Internal	External
Super users	IT vendor service manager
End users	IT vendor support consultants
Business stakeholders	
Other IT stakeholders	

Advanced users and end users were considered to be most important stakeholders together with other business stakeholders. Additionally, other internal IT stakeholders were considered to be important in delivering maintenance and support service.

In the IT vendor organization, the most important external stakeholders are the vendor service manager and the the support consultants.

"At the vendor I work with the service manager who is the most important partner in the support organization." –Interviewee 8, an industrial company ERP application

When discussing the factors that affect communication quality, good practices and processes were emphasized. The customer should also follow the commonly agreed processes to increase quality of communication.

When resolving incidents, the vendor should communicate clearly what the resolved problem was and what was done to fix it. Communication practices should be followed rigorously at both sides to avoid misunderstanding.

"Lack of uniform practices can lead to misunderstanding between parties. You don't understand what the other side is happy or unhappy about." –Interviewee 7, an industrial company ERP application specialist

The service quality was perceived to be especially high when the vendor requires minimal communication from the customer. It is considered to reflect a high level of skill.

"The service is at its best when the vendor understands your problem from only a few key words. They don't waste time wondering around and asking for specifications." –Interviewee 8, an industry company ERP application specialist

5.3.6 Ongoing Implementation and Upgrade Projects

The sixth theme concerned ongoing implementation and upgrade projects. In the discussion it was defined that projects cover any large scale change work that affects the supported system.

According to the customer ERP application specialists, projects are a heavy drain on the customer key people who are also relevant for the support service.

The project vendor can be different from the support vendor. Handovers after a project may result in lower service quality.

The support service requires adequate knowledge transfer to be able to take over responsibility for project outcomes.

"It is hard to transfer the knowledge completely from the project vendor to the support team in some workshop or two. The support team needs to know how the solution is built and how it works, including all the details about what can be expected in the production environment." – Interviewee 7, an industry company ERP application specialist

Implementation projects were considered to be very challenging for maintenance and support service. The support vendor has to provide enough resources to support a larger application as well as to solve the acute issues that arise after the project is complete.

However, the customer considered that it should not have any effect on service quality if the project and support vendors are different. Any effects should be mitigated by proper knowledge transfer.

Key challenge after a project is that the original team is often disbanded after a project is complete. Failure of project handovers can have serious business implications. Projects also affect the time windows that are available for maintenance and support activities.

Projects were considered to tie up customer resources and leave less time for maintenance and support work. Projects affect the ability of the customer IT to execute their support activities.

Ongoing projects increase the overall workload for both the customer and the support vendor. For example, large projects may require active management of user accesses and user rights to the ERP system.

5.3.7 IT Governance Frameworks

The seventh theme discussed the topic of IT governance and especially its elements such as the Service Level Agreement and ITIL framework.

First the role of SLA was discussed. SLA is used to define the priority of service activities, tickets and incidents. High priority means that the vendor has to reserve resources to resolve such incidents especially fast. The customer has to be precise in their classification.

"In SLA we define the priority of tickets and problem cases. We define what high priority is, what is critical. If we define something as a high priority, the AMS vendor has to reserve enough resources to answer that need. We need to be critical and avoid classifying everything has higher priority." –Interviewee 7, an industrial company ERP application specialist

Classification of incidents affects their resolution lead times and the cost of the service. Classifying incidents is challenging as business stakeholders want to prioritize their incidents and have them reflected in the SLA.

Incident classification helps the vendor to understand what kind of issues the customer considers most important and critical.

After SLA, the role of ITIL as a framework was briefly discussed. The key benefit of ITIL was perceived to be that it provides structure to the service delivery practices.

5.3.8 Role of IT strategy

The role of IT strategy was not discussed with the customer ERP application specialists due to time constraints.

5.3.9 Factors Related to Service Delivery

The ninth theme in the study comprised of factors related to service delivery. Within the theme the geographic location of the support service team, the language and the cultural background was discussed.

The geographic location of the support team, meaning using offshore or local service team did not have any perceived quality difference. This view was substantially different compared to vendor service managers. The offshore teams were considered to have sufficient technical skills.

"There is no significant quality difference if the service is delivered locally or not. The skills matter." –Interviewee 7, an industrial company ERP application specialist

Using English as a service language may cause translation requirements. Translation may affect service lead times which in turn can affect customer satisfaction.

"Translation affects lead times which may have an effect on satisfaction. However it is a result of internal arrangements where we support users with language limitations." –Interviewee 7, an industrial company ERP application specialist

5.3.10 Knowledge Transfer

The tenth and final theme was the topic of knowledge transfer. This considered broadly the importance of knowledge transfer activities from service delivery perspective and factors that affect success of knowledge transfer.

From the customer ERP application specialist perspective knowledge transfer was considered to be essential especially in case of projects.

Often multiple vendors are involved in supporting and building business applications. Knowledge transfer is easier within a single vendor. Knowledge transfer after projects is critical since the original team is often unavailable to support later.

"It is a benefit if the support vendor has also been involved in building the supported system in the first place. Knowledge transfer is critical since the old hands might not be available to support later. You have to maintain the know-how. The maintenance team has to have the knowledge from the original builders of the solution, well transferred and absorbed." – Interviewee 8, an industry company ERP application specialist

High quality documentation is essential for the success of knowledge transfer. Documentation helps the support team to become familiar with the solution.

The purpose of the knowledge transfer is to enable seamless transition of responsibilities to the support organization from the project vendor. From the customer perspective it should not matter if the project and support vendors are the same or not.

"It should not matter who is the project vendor and who is the AMS partner. There has to be sufficient knowledge transfer and handover from project to AMS and good documentation in place." –Interviewee 8, an industry company ERP application specialist

Lack of documentation requires that knowledge transfer involves hands on work with the system.

6 Results and discussions

This chapter summarizes the findings of this master's thesis research, describing the results of the research and how the research question was answered.

This research was ultimately successful in answering the research question:

- What affects customer satisfaction and perceived value of ERP maintenance and support service?

To achieve this, the importance of themes derived from the framework by Law et al. (2009) was evaluated through an exploratory, semi-structured interview study. In this chapter, the results of the study, based on data description in Chapter 5, and their analysis is presented.

6.1 Customer Satisfaction of ERP service

As Law et al. (2009) state in the Critical Success Factor framework client and vendor alignment and cooperation is important for success of maintenance and support. From Account Management perspective it was clear that fulfilling contractual obligations was seen as a critical factor. It was stated that understanding customer expectations and delivering against them was essential to achieve a satisfied customer.

According to Law et al. (2009, 305) it was important that a company implementing an ERP system understood the nature of the product and aligned itself to facilitate its support. According to the interviewees, the contract and the Service Level Agreement were seen as manifestations of the customer expectations. Additionally, it was recognized that explicit customer expectations there exist implicit expectations. This was clear when the interviewees stated that in order to achieve customer satisfaction the vendor should exceed the contractual obligations.

This implies that according to persons working in sales and management of customer relationships, producing service according to documents such as the contract and SLA do not sufficiently capture all levels of customer requirements and expectations.

It can be said that customer has tacit expectations that the vendor should perceive and fulfill. DeLone and McLean's model of IS Success defined Net Benefits as a measure of information

system's success. According to Bernroider (2008) the ERP system should produce benefits to the organizational stakeholders.

In order to understand true customer expectations and the elements of their satisfaction, it was considered to be important to know the customer stakeholders on a personal level and define the most important people from the maintenance and support service perspective. This is in line with discovering the organizational stakeholders who should be benefiting from the ERP system.

Cost reduction as a primary motivation behind procuring an external support service was seen as an important benefit of the maintenance and support service. It was understood that cost reduction as a goal may not align with the expectations of end users.

The customer IT management saw the Service Level Agreement as the most important definition of customer satisfaction. A well-defined SLA was seen to explain the customer expectations and service level priorities to the vendor. Following the SLA was seen as critical to customer satisfaction.

Going beyond the contractual obligations or provision of value-add elements as a part of the support service was not seen as important by the customer IT management. On the other hand, the poor user friendliness of business applications in general was seen as a factor that can decrease end user satisfaction, regardless of support service quality.

In DeLone and McLean's model (2003), Organizational Impact of the system was seen as an element of success of an information system. Here it can be said that the impact of the system on some users can be negative, which can affect the perceived net benefits of the organization related to the system itself. This negative perception can translate to negative perceptions of the support service. It is observed that users may be unhappy with the service and perceive the service negatively, however the source of their unhappiness may not on the service provider's responsibility.

It can be concluded that the users who are unhappy do not actually perceive the source of their lack of satisfaction if they consider themselves to be unhappy with the maintenance and support service.

From IT service management perspective, the contractual obligations were not highlighted as much as by the Account Management interviewees. SLA and its fulfillment were seen as important but the customer satisfaction as a whole was seen to compose of several elements. Customer satisfaction itself was divided into being based on hard metrics such as SLA parameters and the overall perception of the service, based on e.g. feelings.

The vendor service managers stated that reliability and the ability to deliver to the customer what the vendor promised were critical factors for customer satisfaction. The relationship of promises to contract or SLA was not seen as important. This is an evidence that the vendor service managers recognize that the contract or SLA do not cover or represent all aspects of customer's expectations towards the maintenance and support service.

Ability to avoid staff turnovers and the ability to scale up and down the service team resources was seen as an important factor for customer satisfaction. This reflects the cost reduction aspect that was mentioned by the vendor sales interviewees. The customer is satisfied if the team structure is flexible according to their needs.

This leads to conclusion that inability to scale down the support team would have monetary implications for the customers that would lead to decreased customer satisfaction. Therefore, it can be stated that being able to manage costs of the service is critical for customer satisfaction.

The customer service managers greatly emphasized service quality as the most important determinant of their satisfaction. Cost management and ability to achieve cost reductions was seen as a key element of service quality.

The customer service managers saw their satisfaction to be derived from the satisfaction of their business stakeholders and end users. They saw themselves as an internal service provider who works together with external partners to serve their business stakeholders.

In order to increase customer satisfaction, the maintenance and support service should change and adjust according to customer needs. This again can be said to demonstrate that ability to fulfill expectations, whether they captured by e.g. contract or not, is the key element of achieving and increasing customer satisfaction.

For the customer application specialists, the key element of customer satisfaction was fulfillment of customer expectations. It was considered to be important that the vendor understands the importance and criticality of the applications they are supporting. The nature of the supported application was seen as defining the customer expectations.

A key factor affecting the satisfaction of customer application specialists was how they perceived the vendor support team's skill level and how well they trusted them. Their perception of vendor competence and their trust towards the vendor was considered to increase as the vendor team became more familiar with the system. This can be seen again to link to Law et al. (2009) model and the critical success factor related vendor cooperation and alignment.

Table 9 below summarizes factors of customer satisfaction from both vendor and customer stakeholder perspective.

Table 6. Factors of customer satisfaction.

Role	Vendor	Customer
Account Management	• Fulfilling contractual obligations • Identification of customer stakeholders and their expectations • Ability to realize cost benefits	• Fulfillment of Service Level Agreement • User-friendliness of business applications
Service Management	• Fulfillment of Service Level Agreement • Customer perception of service quality • Ability to deliver what was promised • Ability to avoid staff turnovers • Flexibility in capacity	• Quality of Service • Cost management and ability to optimize costs • Ability to change and adjust according to customer needs
Service Delivery		• Overall expectations fulfilled • Vendor skill level

6.2 Perceived value of ERP maintenance and support service

The perceived value of ERP maintenance and support service was a complex concept which resulted in differing perceptions between the interviewee groups. According to Bernroider (2008), the perception of the success or value of ERP depends on the stakeholder in question. This was confirmed in this study.

According to IT vendor interviewees representing sales, the key element of an external IT service is that it represents a conscious make or buy decision by the customer. By buying a service externally, the customer has already made a decision that it is a better use of their limited resources to focus them on core business activities.

It was considered that external service providers are able to offer the service both at a lower cost and more efficiently than a customer company delivering it in-house. It was considered that buying a support service in the first place demonstrates that a customer company has made this decision and that the underlying value proposal of the IT service is their ability to use their resources to other activities.

The customer IT management's perspective was aligned with this. Management of maintenance and support services was seen as a core activity, since only the customer company was considered to be able to know the true requirements. However, delivering the actual support service was seen to be an activity that should be procured externally.

When evaluated the connection between customer satisfaction and value creation, the IT vendor interviewees representing sales were uniform in their opinion. Customer satisfaction and value creation are strongly linked.

Potential disconnection was identified as the service contract is often done between the IT vendor and the customer IT organization. The expectations of the customer IT organization and the end users can be very different. Therefore, it is actually possible that part of the customer organization is still unhappy, even though value is created from the contractual counterpart's perspective.

The conclusion is that the IT vendor salespersons prioritize the expectations of the customer IT management and trust them to define their expectations in the service artefacts such as the contract and the Service Level Agreement.

The viewpoints of the vendor and customer Service Managers were again very different from the viewpoints of the Account Management interviewees. The value of the maintenance and support service was considered by vendor service managers to be based on its ability to support the business requirements and adapting to changing requirements over time. In the core of this value proposition was the ability to provide a support service that enables uninterrupted operation of business critical applications.

The maintenance and support service value was also seen consist of efficiency achieved through cost reductions, processes and methods were the vendor is able to realize their learnings from a wide range of customers. It was considered to be valuable that the customer can benefit from vendor's experience in other services. This provides a clear link to the model by Law et al. (2009), the ability to leverage expertise from multiple sources.

The customer service managers raised quality of the delivery as a key value proposal. Elements of quality were defined to be accurate schedules and rigid costs. An added value of the support service was perceived to be the ability of the customer to focus on their core business activities. This perception is in line with the customer higher IT management's perception.

The customer ERP application specialists considered the external maintenance and support service to be more valuable if it produced reusable solutions that the customer can utilize outside of that service. This expectation has a connection to the vendor salesperson perception that exceeding contractual obligations is important for customer satisfaction.

6.3 Factors affecting customer satisfaction of ERP maintenance and support service

The list of themes that were evaluated in the interviews besides the defining of customer satisfaction and its fundamental determinants and the perceived value are evaluated according to their links to the above two chapters.

They are considered from the perspective of what is their link to success and quality of the maintenance and support service and thereby to customer satisfaction.

6.3.1 System Customization

The overall effect of system customization was seen to be negative for customer satisfaction. From account management perspective customization should be replaced by adjust and re-evaluating business processes. From customer perspective customization would mean assuming responsibilities belonging to software or service vendors.

System customization was seen to make maintenance activities more complex and expensive from the service management perspective by increasing the need for customer involvement in the management of the service, complexity of the system, lowering the overall quality of the system from support perspective and increasing skill requirements and costs of the service.

From customer application specialist perspective, customization was also seen to be a decreasing trend and something that should be avoided. Using standardized solutions was favored due to simplification of support.

6.3.2 Stakeholder Skills

The effect of stakeholder skills to success of maintenance and support was seen to be substantial from account management perspective. The level of technical skills affects the level of responsibility that the customer organization can assume in the support and maintenance tasks.

Low level of technical skills within the customer organization places additional expectations and responsibilities on the service provider. In addition to technical skills, change management and people skills were considered to be important for the service vendor.

From service management perspective both business and technical skills were considered to be important. However, in realizing the success of the support and maintenance service, technical skills were considered to be more important. While business skills and communication skills were perceived to be important, the technical skills were seen to be critical for service delivery.

The customer application specialists in general had very high expectations for vendor support team skills. The underlying expectation seemed to be that the effort of the application specialists in managing the support team should be minimized, for instance the support team should be able to deliver resolutions with minimal specifications and communication from the customer. The support team should proactively offer different solutions to the problems the customer faces.

6.3.3 Quality of Communication

For the vendor account management and for the customer IT management, the service management was seen to be an important stakeholder and seen as vital counterpart for managing and communicating the service.

On the account management level, the business stakeholders were seen, externally for the vendor and internally for the customer, to be important stakeholders.

Within service management level, the vendor service managers perceived customer service management, customer service buyers, business stakeholders and end users to be important stakeholders. On the other hand, the customer service management identified only the customer service management as an important external stakeholder.

On the service delivery level, the customer application specialists identified the vendor service manager and vendor support team as external stakeholders. The vendor service manager was identified as an important counterpart or internal stakeholder on all levels. This is a

representation that the vendor service manager is as a whole a critical actor for the success of maintenance and support service.

In order to achieve high quality communication within maintenance and support service, the communication should be planned and structured and involve all the necessary stakeholders. Both customer and the vendor should communicate openly and proactively, keeping each other informed of future developments as well as of any negative events or developments in the service.

Timeliness and promptness of communication was as an essential element of quality communication in a fast-paced support service. Communication should also be carried using various means, varying from formal meeting practices and tool-driven communication to less formal verbal and face to face communication.

Good quality and open communication was seen as essential for good quality service and customer satisfaction.

6.3.4 Implementation and Upgrade projects

From the account management perspective, it was considered to be important to reduce risks caused by projects to support service. Mitigating actions were mentioned to be e.g. involving parts of the support team in the project. It was considered to be ideal if the project and support vendors were the same company. However, it was recognized that often this is not the case.

Essential for the success of projects from maintenance and support perspective is the planning and execution of structured handovers from project organization to support.

From service management perspective it was considered normal that ERP applications undergo upgrade or implementation projects. The support organization as a whole should be geared towards handling and managing the handover of responsibilities from projects from time to time.

The risk of the projects from service quality perspective is insufficient planning for handovers as well as the inability of the project organization to resolve issues resulting from the project. This would increase the support organization work load and lower the quality of service delivery.

From customer perspective, the projects are a heavy tax to the limited resources of the customer IT organization. It increases the expectations to the associated vendors to shoulder the burden of organizing the handovers and knowledge transfer.

6.3.5 SLA and ITIL

SLA was seen as a key element of service delivery on all levels. On account management level it was considered to be a basic tool of performance measurement. For the customer IT management SLA is a tool to ensure that the service is delivered and the value created according to the customer needs.

For vendor service management, SLA is an important instrument to measure the success of service delivery. For the customer service management, SLA is an instrument to measure if the service is delivered according to the contract. Here the perceptions of SLA in the service management space are quite uniform.

For customer application specialists the role of the SLA is to define the priorities of different types of incidents and problems. Fulfilling the SLA is clearly an important of customer satisfaction as the SLA is considered to represent the most important components that the support and maintenance service should successfully support.

ITIL was also seen as universal baseline for defining processes and ways of working for support and maintenance services. Application of ITIL as such was not questioned and it can be perceived to be a de facto standard.

ITIL was seen to provide basic processes, methods and frameworks which should be applied according to the specific requirements of the service. Main drawbacks of ITIL were considered to be its rigorous structure which should not be applied without analyzing what is the feasibility from the particular service perspective.

6.3.6 IT Strategy

Views on IT strategy were mixed between the account management and service management levels.

On the account management level, it was seen that a customer IT strategy represents their overall strategic priorities and that the vendor should be geared to offer services that further those strategic goals. This was agreed by both vendor and customer, with the customer view being that only services that serve strategic imperatives should be procured at all.

On the service management layer, it was seen that a customer with a defined IT strategy is easier to serve, as a defined IT strategy makes it easier to interpret and understand the customer priorities. However, it was also considered that lack of IT strategy is not critical for customer satisfaction as the expectations of customer stakeholders are affected by their goal setting. Therefore, existence of an IT strategy at a customer company can aid and help the service vendor to create value and achieve customer satisfaction. However, it is not critical

The theme of IT strategy was not discussed with the customer application specialists due to time constraints.

6.3.7 Service Delivery

The offshore delivery is a common and established service delivery model. It was identified by vendor interviewees that the customer willingness to pay for local service does not offset the cost difference against offshore service.

Technical skills were seen to be sufficient in case of offshore teams. There were identified to be gaps in the communication skills, understanding of the business context and the culture of the customer company.

It was considered that using an offshore team still requires a local service management. This view was especially favored by the service managers themselves, which might represent a bias.

It was stated that commonly offshore consultants are perceived to be more junior and less skilled than local consultants, which may lead to negative attitudes towards them. It was noted that attitudes towards the technical competence of offshore teams often improve gradually over time.

6.3.8 Knowledge Transfer

The vendor account management considered knowledge transfer to have a substantial effect on service quality. This was agreed by the service managers at the vendor and customer as well. The vendor service managers considered knowledge transfer as such to encompass multiple areas of the service, ranging from onboarding new members to doing handovers from projects.

Successful knowledge transfer should cover the specifics of the application as well as the customer business processes. The knowledge transfer should also be conducted systematically and follow defined processes and practices. Good quality documentation was seen as vital for successful knowledge transfer by the customer service management.

7 Conclusion

7.1 Managerial implications

The key findings of this study were that stakeholders of ERP maintenance and support service are aligned in their priorities with their corresponding counterparts at, in case of IT vendor, the customer organization and vice versa in case of the customer companies.

To improve customer satisfaction, IT vendors should seek to engage and involve the customer business stakeholders and end user communities more closely in managing the service and contributing to the stated service requirements. Whereas the customer IT management, higher and service managers alike view physical documents such as the contracts and agreements as the primary method of defining what is considered important and valuable for the customer, both sides recognized that the key for successful service delivery is the ability of the service to fulfill business requirements and enable core business activities.

Critical baseline for value creation was seen to be the ability to at minimum fulfill contractual obligations. However, this was necessarily not enough for full value realization. It was widely seen that the IT vendor companies should be able to be flexible and at times exceed whatever was agreed in written contracts and agreements.

System customization was widely seen as negative and not as a preferable way to address business requirements from maintenance and support perspective. System customization was seen worsen effects of low skills in both vendor and customer organizations and increase the level of required technical skills at both sides. Overtime, customer companies using ERP systems should strive to replace customization with more standard functionalities and seek to adjust processes and practices in favor of opting with system customization.

The effect was stakeholder skills was seen to affect how workload is distributed. Lower skill levels of counterparts were seen to increase the workload and responsibility of the other party for ensuring success of maintenance and support service.

From communication quality perspective, there was a strong view from IT vendor sales perspective that it is the responsibility of the vendor to ensure that change management is given

sufficient priority. Change management was seen as a complex, multi-layered and a time consuming activity which should be given adequate priority. Change management was seen as a way to manage and govern customer expectations so that especially the customer business stakeholders know what to realistically expect from the maintenance and support service. Change management was also seen to reflect in the level of system customization, with high level of customization seen to be reflect a low level of change management skills of the vendor.

Implementation and upgrade projects were seen as inherent characteristic of ERP systems, with the longevity of an ERP implementation counterbalanced by the need of more or less regular and constant projects of different magnitudes. The business as usual practice is that the organizations and teams who take care of larger projects and maintenance can be completely different. It was widely stated that handovers of responsibilities between project teams and support organizations are challenging. It is thus self-evident that both the support organizations and project delivery organizations have to step up and give sufficient resources to responsibility hand overs between projects and support teams.

When evaluating the effects of governance frameworks such as ITIL it was seen vital that a framework exists and is used to provide fundamentals for delivering the maintenance and support service. ITIL was not seen to provide added value as itself, other than serving as toolbox and de facto standard that can be confidently relied on by both the vendor and the customer. ITIL was seen to make it easier for the vendors to productize their service offerings and for the customer to manage different vendors similarly. Lack of structured governance was seen as more critical than using any given framework.

IT strategy on the other hand was seen as a mixed subject. The importance of defining a good IT strategy was seen both as important and not important at all. In a nutshell, the definition of IT strategy was seen to matter only if the strategy was linked to customer company's overall business strategy and was sufficiently and deployed so that it translates to actual activities. Most important take out was that the goals of the customer stakeholders affect their expectations and the IT strategy, if any, is important only if it affects these goals. The IT vendor should mold its service offering to correspond to the customer strategic priorities if these are well pronounced and seen to steer the customer ways of working. On the other the customer IT organization

should plan its activities so that the customer IT is supporting the overall business strategy o the company. These priorities should regularly be reviewed.

IT vendor sales and service managers recognized that the mode of delivery, such as delivering services from offshore, has an effect on customer satisfaction. In essence locally delivered service was seen as preferred, but the customer willingness to pay was considered to be too low to make local service a differentiating factor. Also at the vendor side it was considered that there exists a quality difference in technical competence in favor local consultants. However, at the customer side the perception was that there is no significant difference in technical competence and that the differences in service quality between local and offshore teams are more related to the level of business and process competence.

In this context, it can be said that customers see technical competence as the key value proposal of ERP maintenance and support service, giving lesser priority to business competence. The IT vendor should be able to realize cost reductions and enable the customer to focus its limited resources to IT and non-IT activities alike that are more valuable and more supporting from perspective of core business activities.

Knowledge transfer was discussed as a separate topic and seen as a critical element of maintenance and support service. Knowledge transfer was seen to cover transfer of information from more experienced to junior team members as well as between teams and organizations, such as from customer to vendor or from project team to support organization. In general, it was seen as essential and success was seen to depend on giving it enough time and proper tools and resources to execute it. Both the vendor and the customer should give knowledge transfer the priority it deserves and make sure that proper processes and methods are in place to conduct it systematically.

With the above, when referring to DeLone and McLean (2003) and the framework by Law et al. (2009), it can be said that the elements of Law et al. (2009) critical success factor framework are important and relevant to realize the net benefits of an information system such as ERP.

7.2 Limitations of the study

This study represents varied and in-depth views on the research topic from a small sample of IT experts working for an IT service vendor and customer companies. Due to a small interview sample and qualitative nature of the research, the results of the study cannot be generalized in the manner of quantitative studies, to encompass IT vendors or companies using an outsourced maintenance and support service. Instead this study has to be viewed as an exploratory qualitative study which provides insights to how experienced IT professionals view of the effects of certain factors to customer satisfaction and value perception of ERP support and maintenance services.

The original plan of the research was to interview experts equally from IT service vendors and client companies that are consuming ERP application management services. In the end, majority of the interviewees were working for a single IT service vendor. The experts interviewed from two industrial companies represented people who are actively involved in managing or delivering the service for the business stakeholders. The industrial companies that were involved were different by the nature of their business, the structure of their IT organizations and practices.

Also majority of the interviewees represented different angles of management of the ERP maintenance and support service. From the IT vendor organization, sales and service management were represented and from customer organizations internal IT service managers and application experts were interviewed.

These groups represent individuals with long experience of IT services and ERP systems. This nature of the interview group skews the already limited sample towards representing the viewpoints of people who are closely involved with or part of IT industry.

As stated, this research cannot be generalized to apply to other companies than ones examined here. However, the study was able to provide much insight in how selected, experienced IT professionals working both for vendor and client companies, view the effect of the research themes on customer satisfaction.

The interviewees of this study were all professionals with considerable experience. Therefore, it can be said that this study can be said to give a decent insight into how experienced IT

professionals view the themes both in the vendor and customer organizations that represent industrial companies.

However, these limitations and constraints did not expose or compromise the reliability or validity of this research.

7.3 Reliability and validity

This study followed the principles of grounded theory and analytical induction. The general research question was first defined and research was carried by evaluating a deliberately selected and limited sample by using semi-structured interviews.

The interviews were structured according to the theoretical research framework and results from the interviews coded and analyzed based on this structure.

Qualitative research and exploratory studies such as this are difficult to evaluate for reliability and validity in the same way as quantitative studies (Koskinen, Alasuutari, Peltonen, 2005, 255). Their importance is emphasized in e.g. studies that are based on observation or usage of statistical or systematic quantitative methods.

Due to the inherent nature of qualitative research and qualitative methods, concepts of reliability and validity have to be applied differently. According to Koskinen et al. (2005, 258-259), a qualitative study should fulfill the following requirements to be considered reliable and valid:

- Describe how the study was carried out, e.g. describing research methods. This makes it possible to evaluate repeatability of the study.

- Description of how the research output was analyzed and evaluated.

- What is the effect of circumstances related to the researcher and the organizations that were involved? This helps to understand the underlying context and background of the study.

This study fulfills these requirements. Chapter 4 describes the methodology of this research, as well as the more specific themes and subjects that were discussed with the interviewees. It as

well describes the analysis method used. It also describes that how the sample of interviewees and the topic of the research was affected by the nature of the study, being an assignment.

7.4 Suggestion for future research

This study was limited to one IT service vendor and two customer companies. Additionally, the study covered a limited sample of IT experts. The study itself was able to provide in-depth insight into views of these IT experts and can be used as a representation of opinions of experienced IT professionals in the topic of ERP maintenance and support service.

However, opportunities to extend this research are numerous. For example, the topic of system customization could be addressed by researching more closely why customer companies opt to customization instead of adjusting their business processes to fit better with packaged ERP solutions. The suggestions for future research are summarized in table 10.

Table 10. Summarization of suggestions for future research.

Research topic
Motivations system customization in ERP versus adjusting processes
How to reduce personnel turnover in maintenance and support service
What affects customer satisfaction of end users and business stakeholders
How to improve ability and flexibility of maintenance and support service to adjust and change according to business needs
Improve reflection of true business requirements in service contracts and documents
How to improve handovers from project teams to maintenance and support teams

The topic of personnel turnover was mentioned in connection with multiple themes. It could be valuable to research how to reduce personnel turnover in maintenance and support services for systems such as ERP. This is especially as interviewees representing a customer company stressed both the appreciation of high skill levels and the longevity of the support team.

However, personnel turnover was clearly a perceived risk and element of the support and maintenance service.

Considering the sample and scope of this research, the study could be expanded to cover interviewees such as end users or people representing business units and departments that use ERP systems to execute their day-to-day business processes and activities. This would reduce the effect of IT perspective and provide a different context to the viewpoints expressed.

A key takeaway from this study was that the viewpoints of higher IT management and salespeople of the IT vendor were quite similar, emphasizing contract and written documents as an important baseline for customer satisfaction and value realization. On the other hand, people who were more involved with delivering the service or managing the service delivery did not emphasize contract or formal agreement to the same extent. Service managers and ERP application experts stressed actual perceptions and actual service experience over any formally agreed documents such as service contracts or service level agreements. This can be seen as evidence that these service documents are too rigid and inflexible and may in reality be out of touch with what is seen as valuable and important in the lower layers of service delivery.

Therefore, an additional study could look into how continuous improvement of service can be carried out more efficiently so that the true requirements of the customer are better translated and passed into formal documents and agreements that govern the maintenance and support service. If the contracts and agreement remain too static, it creates the risk that the service delivery no longer answers the true underlying needs of the customer organization, lowering the perceived value and ultimately decreasing overall customer satisfaction.

It was also evident that the service contracts and agreements are often drafted together by the customer IT management and vendor sales and account management. Suggestion here is to improve the ability of the service to match expectations of business and lower layers of customer IT organization, business representatives and such IT specialists should be more closely involved in discussing and defining the service documents.

Another opportunity for future research is the topic of projects. Projects were seen as challenging from the perspective that they interfere with service delivery and also from the perspective that handing over responsibilities for project outputs to the service team was not given enough priority by project deliveries. It can be researched and evaluated why handovers are not seen as sufficiently important in project planning and why are they not properly executed.

Sources

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