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MAIJA YLINEN

IMPACT OF THE ACQUISITION PROCESS ON THE SUCCESS OF INFORMATION SYSTEM

Master of Science thesis

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ABSTRACT

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This master's thesis was conducted in the Tampere University of Technology, with the attempt to gain deeper understanding about information system acquisitions and their successes. The information system acquisitions have been and continue to be a struggle for many organizations both in the public and private sector. Hence, finding ways to improve acquisitions of this kind, is important. This research focuses on finding the ways to define the success of information system acquisitions, in addition to the critical success factors behind the information system acquisition success.

The study was conducted as a qualitative case study, focusing on two different information system acquisition cases. The data analysed was collected with interviews within the organizations, whom acquisition cases were under study. As the study, focuses only on two cases the results are not entirely generalizable. However, the findings illuminate what organizations actually find important in the information system acquisitions, which is a useful basis for a further research.

Based on the two cases, the most common way to define information system acquisition success, is by comparing the obtained benefits to the objectives of the acquisition. These objectives are often stated in the managerial level and hence the success is defined by the management. However, the official definition of success has a little effect on the users' perceptions. Hence the information system acquisition success is multidimensional, as the critical factors affecting the success of information system acquisition are different in different levels of the organization. In the cases studied, the completion of the acquisition alone enabled the realisation of the organizational objectives. The success factors of the acquisition hence, mainly affected the users' perception of the success, which though unrelated to the acquisition success, are vital in ensuring successful operation after the acquisition has been completed.

TIIVISTELMÄ

MAIJA YLINEN: Tietojärejstelmähankintaprosessin vaikutus järjestelmähankinnan onnistumiseen
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Tämä Tampereen teknillisessä yliopistossa tehty diplomityö tutkii tietojärjestelmähankinnan prosessia sekä sen vaikutusta tietojärjestelmähankinnan onnistumiseen. Tietojärjestelmähankinnat on jo pitkään nähty haasteena niin julkisella kuin yksityisellä sektorilla. Näin ollen on tärkeää löytää tekijöitä, joilla tietojärjestelmähankintoja voitaisiin sujuvoittaa. Tässä tutkimuksessa tutkitaan sitä, mikä tekee tietojärjestelmähankinnasta onnistuneen sekä tekijöitä, joiden voidaan nähdä vaikuttavan hankinnan onnistumiseen.

Tutkimus toteutettiin laadullisena, kahta hankintaa tutkivana, tapaustutkimuksena. Data kerättiin haastattelemalla hankinnoissa mukana olleita henkilöitä sekä hankitun järjestelmän käyttäjiä. Koska tutkimus perustuu vain kahteen tietojärjestelmähankintatapaukseen, ei tuloksia voida pitää täysin yleistettävinä. Tästä huolimatta tutkimuksen löydöksiä voidaan pitää merkittävinä, sillä niissä nostetaan esille tekijöitä, joita hankintaa toteuttaneet organisaatiot pitävät tärkeinä.

Kahden hankintatapauksen perusteella tyypillisin tapa määritellä tietojärjestelmähankinta onnistuneeksi, on verrata hankinnasta saatuja hyötyjä sille asetettuihin tavoitteisiin. Koska nämä tavoitteet on usein määritelty johtotasolla, määrittelee johto tyypillisesti myös hankinnan onnistumisen. Aina johtotason näkemys hankinnan onnistumisesta ei kuitenkaan vastaa käyttäjien kokemuksia. Tietojärjestelmähankinnan onnistuminen onkin näin ollen hyvin monitahoinen ja perustuu eri organisaatiotasoilla eri asioihin. Tutkituissa tapauksissa organisaation asettamat tavoitteet saavutettiin paljolti jo järjestelmän käyttöönotolla. Käyttäjien kannalta kuitenkin myös monilla hankintavaiheen tekijöillä oli merkitystä. Näin ollen voidaan todeta, että vaikka tietojärjestelmähankinta itsessään ei vaikuttaisi organisaation näkemykseen hankinnan onnistumisesta, on sillä merkittävä vaikutus hankinnan jälkeisen toiminnan kannalta.

PREFACE

This thesis was made during the summer and 2016 for the department of Information and Knowledge management in the Tampere University of Technology for the OMG-project.

I would like to thank all the interviewees, who so generously dedicated their time and were willing to participate in this study. Additionally, many thanks to Samuli Pekkola for offering me this wonderful opportunity take part in this intriguing project. Grateful thanks belong to Pasi Hellsten as well, for encouragement and advises throughout this learning process. I would also like to show special gratitude to Johanna Horstia and Jani Tikka for keeping the mood high and joining me for the motivational ice cream when it was needed.

"I have yet to see any problem, however complicated, which, when you looked at it in the right way, did not become still more complicated."

- Poul (William) Anderson

Tampere, 31.10.2016

Maija Ylinen

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ABBREVIATIONS AND NOTATION

CSF	Critical success factor
ERP	Enterprise resource management
HR	Human resources
IS	Information system
IT	Information technology
TAM	Technology acceptance model

1. INTRODUCTION

Though extensive studies and substantial interest on the topic, most information system (IS) acquisitions are not completed successfully. For instance, according to the Standish Groups Chaos report (2015) only 29 per cent of IS acquisitions are actually successful (Standish Group 2015). Additionally, there is a little evidence that IS development failures were becoming more rare, even though experiences are cumulating (Goldfinch 2007). As the role of IS in business has become more strategic, information systems are expected to generate even more benefits to be justified (Petter et al. 2012) and while the role of IS is becoming more strategic, the management of these types of investments, has become more difficult (Benamati & Lederer 2001).

In spite of the risks, the possible benefits of new systems are often seen so great, that new IS acquisition projects are started, even when there are no guarantees of success. It seems that even though the success rate of large IS acquisition is notably low (Standish Group 2015), larger acquisitions are started. For example, in Finland a substantial healthcare IS acquisition was started in 2012. This project, known as Apotti, is a large scale IS investment aiming to create a united healthcare system, to improve operations and hence, the quality of health care in Southern-Finland. (Apotti.fi 2016) Thought its well-intentioned objectives, this project is stated to be an unavoidable failure from the start (Mutikainen 2011). On the other hand it is also said to be too big to fail (Tamminen 2015), but at what cost. What is success or failure in the case of this type of acquisition? Especially as most of successful public IS acquisitions have over exceeded the cost and time frames of the acquisition projects (Moe & Päivärinta 2013). However, some of these projects are still seen successful, as it has eventually produced a new system, instead of failing entirely (Goldfinch 2007).

In the literature, there are multiple studies related to the success factors of IS (DeLone & McLean 2003) and critical success factors of IS implementations (Zwikael & Globerson 2006). However, it can be concluded, that though IS acquisition is a vastly studied field, the IS acquisition failures are still quite commonplace phenomena (Dwivedi et al. 2015). Due to this, complex system of software, people, orga-

nizations and their goals should be studied in more detail. Especially in different environments, to grasp its intricacy and consequently to improve the understanding on what the aspiration of success might include and finally what success actually means.

Especially as information systems are constantly evolving and hence, organizations are required to improve their systems more often to even stay competitive in their market. This means that the significance of managing organization's IS resources has become more important but also more demanding task. While the need to update and acquire new systems grows, the need to acquire information systems successfully, has become a vital condition for organizational success. (Benamati & Lederer 2001 p. 96) This requires continuous learning, change in the culture of managing IS, but also more understanding how to acquire, implement and admin information systems successfully.

The interest on how to improve the acquisition process and better take the different aspects of IS success into consideration has been a focus in Tampere University of Technology as well, and hence, resulted in a project studying how to be a successful buyer and seller of information systems (OMG, osto- ja myyntiguru). This thesis is one of the studies conducted under this particular project, focusing on the factors that make IS acquisitions successful and whether the acquisition process has any effect on this matter.

1.1 Research problem

This research focuses on the inputs, that can lead to a successful IS and IS acquisition project, considering both the success of the system as well as how the acquisition project can have an effect on the final system. Neither of these aspects has been excluded as these two can be seen to have a strong correlation. For example, if the acquisition project fails, the system, no matter how successful, might not ever cover the costs of the failed project and hence, never cumulate sufficient amount of benefits. On the other hand, success factors of IS are relevant because without a sufficiently working system, the benefits desired will most likely not be generated. Hence, in this research, besides the inputs leading to the success of an IS acquisition, the success of the project itself and the success of the end-result of the IS acquisition are considered.

The research questions of this thesis are: "What makes an acquisition of an information system successful?" and "How can an acquisition process of an information system affect the success of that particular system?" Hence, objective is to define

the success factors of IS acquisition and then mirror those factors to two different acquisition cases, to identify whether any linkages between the decisions and actions during the acquisition process and the success of the acquired system can be found.

However, the attempt of this study is not to conclude a specific way to conduct an information system acquisition, but to understand if the acquisition project can affect the success of an IS and if it can, how. Hence, the goal of this thesis is not to formulate the critical success factors of IS acquisition but to analyse, can different success factors of IS acquisition explain the success of an IS acquisition. Though the requirements specification and the bidding are factors that can be considered a part of acquisition project, in this research the focus is on the actions made after the suitable vendor and system have been selected.

Additionally, as in this thesis the focus is on whether different acquisition success factors have an actual effect on the considered success of the definite system, the focus is not to study specifically in what phases of the acquisition process specific actions are the most beneficial. Furthermore, the effects of other information systems used in the organizations under study are excluded, as the two IS are quite different in nature. In addition, though information security is an important factor when considering information systems, in this thesis the subject is not covered, as this topic is for most part dependent on the organizations information security procedures and rules, and hence, it is not fully related to the acquired IS, even though information security should be carefully considered during the acquisition.

1.2 Scientific framework

The scientific framework of this study is based on the Saunders et al. (2009) research "onion". This framework presents the necessary choices and concepts of the philosophy of science. These are the philosophies, approaches, strategies, choices, the time horizon and the actual techniques and procedures whereby the research is conducted. (Saunders et al. 2009, p. 108) The chosen scientific research framework is presented in the Figure 1.1.

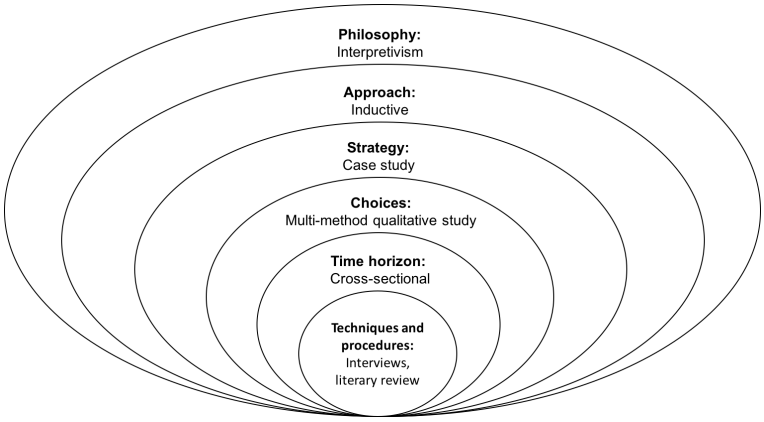

Figure 1.1 *The research methodology, adapted from (Saunders et al. 2009, p. 108).*

In the scientific study, the research philosophy is significant as it defines the basic assumptions of the research. These assumptions can quite strongly define, what kind of research strategy is sensible and what kind of methods can be used. (Saunders et al. 2009, p. 108) The research philosophies are often dependent on the views of the author presenting them. Hence, here only one division is used. Saunders et al. (2009) divide the research philosophies into positivism, realism, interpretivism and pragmatism, which often define the qualitative and quantitative nature of the study.

In this research, the phenomenon under study is seen to be socially constructed and hence follows interpretivism as a research philosophy. (Saunders et al. 2009, p. 119) In this study, there is a presumption, that world under study cannot be clearly and unambiguously defined, but that the interactions and interpretations of the world, define how the reality will be constructed. Therefore people are considered as social actors, who make their own interpretations of the world surrounding them and then behave in accordance of these interpretations. (Jackson & Sorensen 2006, p. 162) Due to this, qualitative methods are used to collect the data, as there is a presumption that the factors that define the success of the IS acquisition are dependent on the interpretations of the individuals. Hence, qualitative methods can provide more comprehensive depiction of the phenomenon under study. (Saunders et al. 2009, p. 115–116) Therefore, the IS success cannot be measured all inclusively, as the interpretation of success is formed at the individual level. Due to this, the IS can be a success and failure at the same time, depending on the individual interpreting the situation.

In a qualitative study, there are two different approaches commonly recognized in the literature. These are inductive and deductive analysis. In the inductive analysis, the objective is to generalize the findings, whereas in the deductive analysis a general

theory is applied to a singular entity. Hence, where deductive analysis often aims at proving a theory, inductive analysis can be connected with the process of creating one. (Tuomi & Sarajärvi 2009, 95) This study follows mostly the inductive approach, as the aim is to generalize, to some extent, the findings of two cases under study (Eskola & Suoranta 2008, p. 81). The approach however, is not entirely inductive as the framework for the data collection has been conducted partly by using notions of previous literature.

In the inductive approach, the main focus is in the data, due to which the units of measurement are not predefined. Hence, in the qualitative study the findings are constructed from the data, unlike in the deductive approach where the data is often used to test an existing theory. (Eskola & Suoranta 2008, p. 83) Though there already exists theory that considers the IS success and the success factor of IS acquisition, this study attempts to joint these two fields of study. Therefore, focusing the observations only to known phenomena was not seen sensible.

The chosen research strategy in this study is a case study research, which is one of the most common ways to execute qualitative inquiry, though as Järvinen and Järvinen conclude, case studies can contain both qualitative and quantitative data (Järvinen & Järvinen 2011). As the research questions of this study focus on comprehending both IS acquisition and its effects on the organization, the unit of analysis, emphasized by (Yin 2014, p. 32) as an important feature of case study, is the IS acquisition and the stakeholders to whom it affects.

Case studies can be classified with multiple ways, one of which is presented by Stake (2000). In this classification, the case studies are divided in to three different types: intrinsic, instrumental and collective case study. The intrinsic case study aims to gain deeper understanding of the case under study. In the instrumental case study, the role of the case is quite different, as it is seen more as a tool for understanding a larger phenomenon. The collective case is then a study of multiple cases, that may or may not express similarities. Collective case study is often used to increase understanding about the cases and possibly other cases as well. (Denzin 2000, p. 437)

This study is mainly a collective case study, as it contains two cases. However, the cases have not been selected only based on their similarities, which could provide a possibility to generalize the findings, but the cases themselves are of interest. Hence, this study encompasses the traits of intrinsic case study as well. Especially as two quite different cases cannot be unambiguously used as theory building, but can be used to enhance the understanding of the phenomena trough the understanding of

the particular cases.

The time horizon of the study refers to the duration of the study. It can be either cross-sectional or longitudinal. Hence, the study can be conducted in a short period of time, and depict the world in a certain state. If the purpose of the study is to comprehend change, a longitudinal time horizon should be used, as then the research subject is studied more as a continuum over time. However, often the time horizon is dependent on the external factors and cannot be defined by the researcher. It is not always possible to gather material in the longitudinal way, due to the limitations of the study or the subjects under study. (Saunders et al. 2009, p. 155) This study follows a cross-sectional time horizon, as the time spam for it was limited by a predefined strict time frame. As the study is conducted as a case study and the interviews executed in a short period of time, it fits to the Saunders et al. (2009) the description of the cross-sectional time horizon.

One of the main ways to collect qualitative data is to carry out interviews. Though interviews can be used to collect quantitative data as well. (Eskola & Suoranta 2008, p. 85) In this study, the data is collected with semi-structured interviews and then analysed in a qualitative way. Unlike the structured interview, the semi-structured interview does not follow the order or the phrasing of the questionnaire so precisely (Eskola & Suoranta 2008, p. 85). In this study, the interviews were conducted in a more discussional manner though a questionnaire was used as the basis of the discussion. Hence, the data collection method fits the semi-structured interview definition better than the definition of in-depth interviews, where no clear structure for the interviews is formed (Eskola & Suoranta 2008, p. 85).

The interview types can also be divided into individual and group interviews (Eskola & Suoranta 2008, p. 85, 94). In this study, both of these methods were used due to the time limitations of the study. However, as the interviews were conducted as semi-structured interviews, this was possible as group interviews often cannot be conducted as structured interviews, but can provide a lot of significant information when the interviewees are allowed to speak freely (Eskola & Suoranta 2008, p. 94).

Additionally, the study contains a literary review, which is used to formulate the questionnaire for the interviews and to compare the findings of the study with the existing literature. The literary review is an important part of the study as it helps in the formulation of the research itself but also helps with the analysis of the findings, made from the inductive analysis. (Saunders et al. 2009, p. 58–60)

1.3 Research process

This study contains two methods, which are a case study and a literary review. The data analysis of the case study is done data-drivenly and then the findings of the data analysis are connected with the current literature of the topic. The reasoning behind the selection of the case study as a suitable method for studying the particular topic, was the desire to brought up the important insights of the IS acquisition success, for which the case study suited well. The literary review was conducted to specify the significance of the study in the field of IS literature. Therefore the study process advances from the case study to the literary review and finally connects these two. This process is presented in the Figure 1.2.

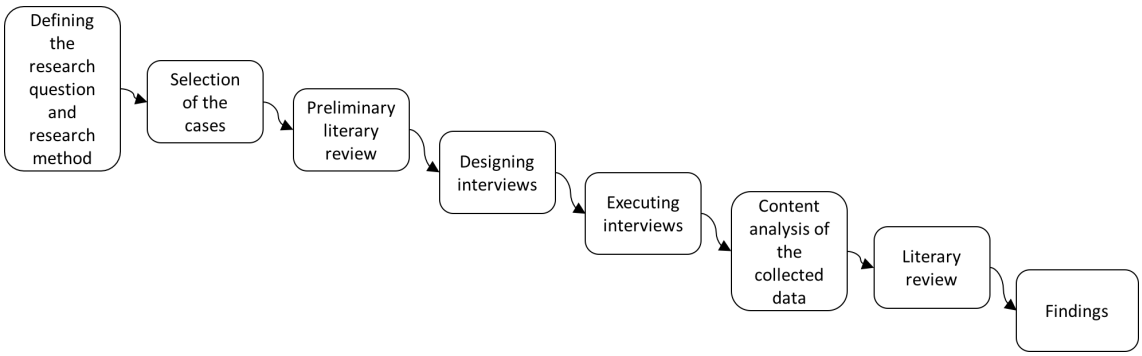

Figure 1.2 *The research process.*

The research was started with the definition of the preliminary research questions and selection of the research method. After this, the suitable cases were selected. The reasoning behind the selection of the cases was that both of them represented situations where an IS acquisition was conducted quite recently and it was considered as a success inside the acquiring organization. Hence, cases provide a good basis for a study on how different features of IS acquisition actually affect the final IS and its acceptance in the organization. Though one of the cases is conducted in a private and other in the public sector, this is not considered as a significant factor in the data analysis, as it was seen that no relevant generalization of the differences of these cases can be concluded by comparing only two cases with each other.

After this, the research was continued by analysing the existing theory on the topic. This was done with an attempt to form a general understanding about the particular field of study. That was then used to form the basic concepts relevant to the data collection. As the collection of data in this study was conducted with semi-structured interviews, a framework for the interviews was formatted based on the preliminary theory. This framework is presented in the Appendix A.

After the interview framework was formed, the interviews were conducted within two months in the spring and summer of 2016. As the interviews were conducted at multiple levels of the organizations and with individuals from different roles in the acquisition, but also with different degrees of IS related knowledge, all of interviews did not necessarily cover all the topics of the questionnaire. In addition, when asked the questions were elaborated in more detail. This was seen necessary, as many of the interviewees were not accustomed to the particular situation and were suspected to be more at ease during a dialogic interview. Additionally, the intention was to allow the interviewee to express the matters they thought the most important.

The interviews were conducted in the work environment of the interviewee's and recorded to enable deeper analysis. Altogether 13 interviews were conducted with 15 people. Most of the interviews were executed as individual interviews However, in four of which an another interviewer was present as well. Additionally, two of the interviews were executed as a group interviews. However, all of the interviewees are separated in data analysis. The interviewees are presented in the Table 1.1.

Table 1.1 *The interviewees.*

Case A	**Case B**
Concept owner A	Supervisor
Concept owner B	Care person A
Program manager	Care person B
Project manager, IT	Project manager
Super user	Main user A
Manager, HR	Main user B
	Work organizer A
	Work organizer B
	Care person C

All of the interviews were conducted in Finnish and hence, the content analysis was done in Finnish as well. Quotations collected from the interviews presented in the later chapters are hence, translations. As all of the interviews were recorded they were transcribed afterwards to ease the analysis. Following this a content analysis was done on the collected data. In this study, a data-driven analysis method was used (Tuomi & Sarajärvi 2009, p. 108). The process followed is presented in the Figure 1.3.

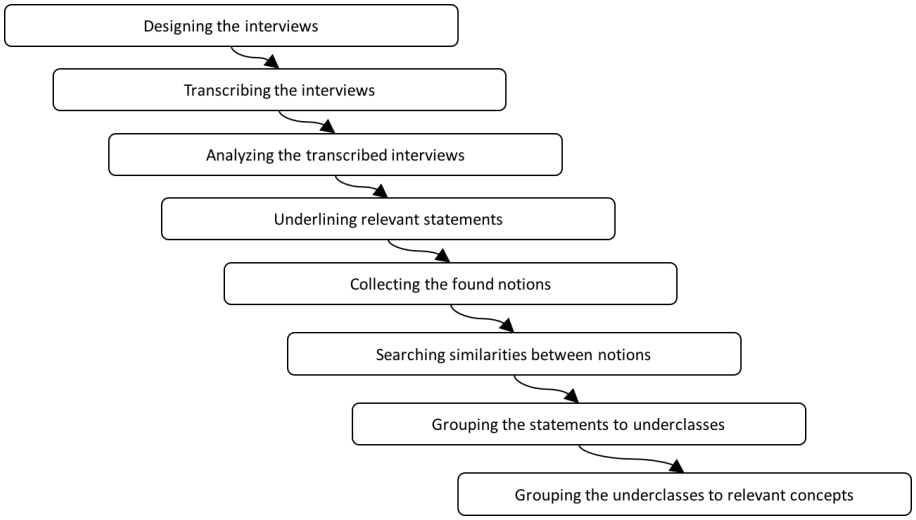

Figure 1.3 *The content analysis process, adopted from (Tuomi & Sarajärvi 2009, p. 109).*

After the data collection, a preliminary analysis of the data was conducted. Then the transcribed interviews were looked over by underlying any relevant notions related to the two research questions of this thesis. After that, these notions were grouped based on their similarities. Of these general concepts were brought up, as the findings of the data analysis.

Besides the data analysis, a theoretical framework was compiled by conducting a literary review both from IS success literature and the IS acquisition literature, to which the findings of the data analysis are compared with. Finally an assessment of the methods suitability for the particular research was conducted in addition to the evaluation of the results and their generalizability. These aspects of this study are presented later in this thesis.

2. MEASURES OF INFORMATION SYSTEM ACQUISITION SUCCESS

Most organizations in both public and private sector are using information systems (IS) (Sharabati et al. 2015). As the popularity and eventually the necessity of IS have grown in different organizations, the purposes of IS use have become more versatile. At the same time, the strategic significance of information technology has become more relevant. Hence, the importance to manage it well has increased. (Benamati & Lederer 2001) However, both the private and the public sector have faced the issue of inadequate budgets concerning IS and hence, the pressure to gain as much as possible for those systems acquired, has multiplied. (Campbell et al. 2009)

2.1 Acquisition of information systems

The trend to focus on the core competence of the company has led to a situation where the most common way to renew or invest in a new IS, is to acquire it from an outside provider (Gorla & Somers 2014). This again has increased the need to understand this complex process of IS acquisition, to enable successful acquirements. Especially as the challenges do not limit to the actions of finding the suitable system, but as Benamati and Lederer (2001) point out the role of managing the acquisition process is important as well. For example, badly managed acquisitions can lead to long implementation processes, which can produce a product that is old before it has even been in use. (Benamati & Lederer 2001)

Hence, all acquisitions are not the same. Especially as ISs acquired are often different. For instance, Saarinen and Vepsäläinen (1994) have divided information systems into three different categories: routine systems, standard applications and speculative investments. All of which respond to a different type of organizational need. Routine systems usually contain quite clear requirements and there is low uncertainty of their functionality. Hence, acquiring them is often considered quite straight forward. Standard applications on the other hand, have some organization specific requirements, that are often designed for a specific industry. Systems that

are specific to one company and its processes are then the speculative investments, which behold high uncertainly in the functionality and hence, are harder to describe and often to acquire (Saarinen & Vepäläinen 1994).

2.1.1 IS acquisition process

An acquisition process refers to the action of acquiring a product or a service from an outside provider (TTL-Julkaisusarja 2005). In an IS acquisition it refers to the action of purchasing an IS product or a service. According to Rosacker and Olson (2008) the actions on an IS acquisition can be divided into the conceptualization, planning, execution and termination of the acquisition. These phases can be detected from most of the IS acquisitions. Similar division is used in the publication of Finnish Information Technology Associations model of IS acquisition (TTL, at present TIVIA) (2005). In this model, the acquisition of an IS is divided into the initialization of the acquisition, selection of the product, supervision and finishing of the IS acquisition (TTL-Julkaisusarja 2005). These are presented in the Figure 2.1.

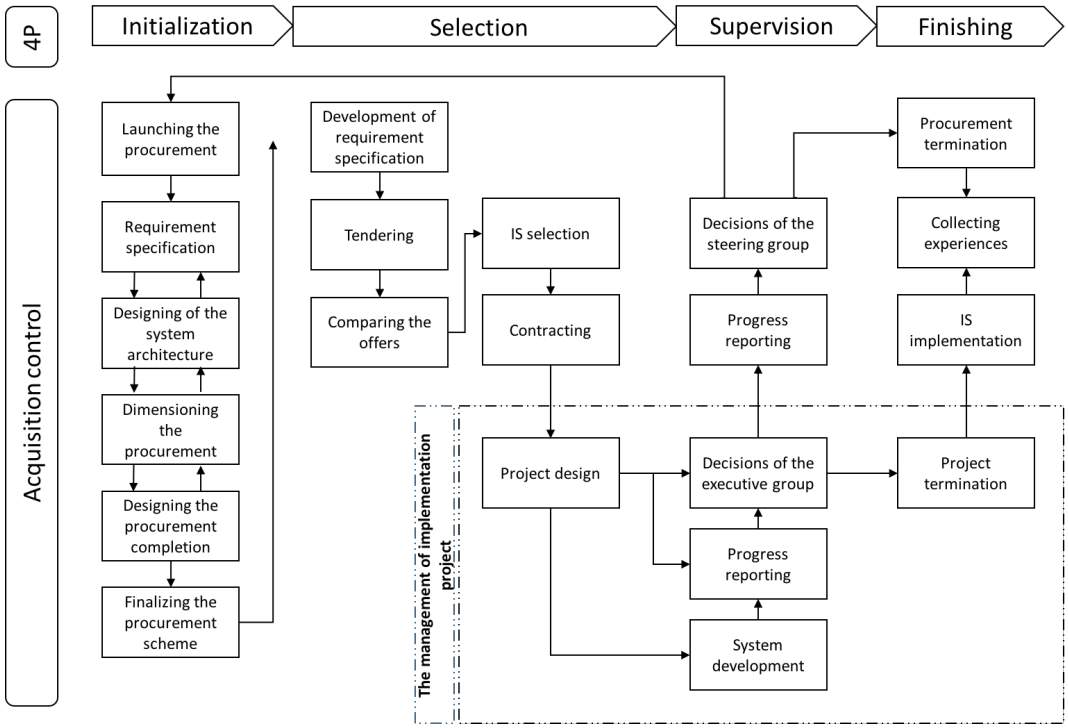

Figure 2.1 *TIVIA model of the process of IS acquisition, translated from (TTL-Julkaisusarja 2005, p. 9).*

In the initialization phase of an IS acquisition, the acquisition is prepared, in order it to be accepted as a feasible investment. Hence, in this phase the goal is to produce

an executable plan, how the IS acquisition can be conducted and the arguments, why the acquisition should be conducted. (TTL-Julkaisusarja 2005, p. 21) To produce a feasible IS acquisition plan, the need, goals and the possible benefits of the acquisition must be clearly stated. Additionaly the needed resources must be analysed, so that the benefits parallel to costs can be compared and the rationality of the acquisition fully evaluated. All in all, this phase of the acquisition generates a preliminary implementation plan, which will be sharpened, if the acquisition is accepted. (TTL-Julkaisusarja 2005, p. 10)

After the acceptance of the acquisition has been made, the process advances to the selection phase, where the suitable supplier is selected. This is often done via tendering. (TTL-Julkaisusarja 2005, p. 11) How the tendering is conducted is, highly dependent on the organization and the sector it operates in. Especially as in the public sector, the legislative requirements concerning the tendering are often stricter. This is mainly due to the fact that public procurement is a big customer to IT vendors in western countries and hence, public procurement compared with the private one is more regulated to guarantee the equal treatment of vendors. Hence, public sector procurements are often more complex, as the requirements for the openness and fair treatment of all possible vendors are higher than in private sector acquisitions. (Moe & Newman 2014)

The purpose of the IS acquisition supervision, after the suitable vendor has been selected, is to make sure that the acquisition is advancing in the desired, direction at the desired pace. However, it is often extremely difficult to reliably evaluate the completion percentage of the acquisition, which often makes this phase very difficult to manage (Goldfinch 2007). Nonetheless, a good implementation plan is an important tool, as it helps to comprehend, whether the preliminary results the supplier has produced, are acceptable (TTL-Julkaisusarja 2005, p. 73). Additionally, it is important to recognize, that the advancement of the acquisition project is not dependent only on the advancement of the system development. Organizational problems can arise during the implementation as well, even though the acquisition itself would be cost-effective and technologically easy to implement. (Iivari 1986)

During the finishing phase of the acquisition, the acquisition project is compared with the acquisition plan, to make sure that all the agreed functionalities exist in the implemented system. Additionally, the experiences of the project are collected to support improvement of the acquisition process in the future. After this, the project is often terminated, but the adjustments of the operations continue. (TTL-Julkaisusarja 2005, pp. 76–78)

On the other hand, according to Moe (2014) the procurement of IS consists of the following functions: formulating business requirements, developing requirement specification and finally purchasing. The purchasing then can be seen to contain the next functions: tendering, vendor selection and signing the contract, receiving and inspecting the product and eventually addressing the organizational issues. (Moe 2014) This process is presented in the Figure 2.2.

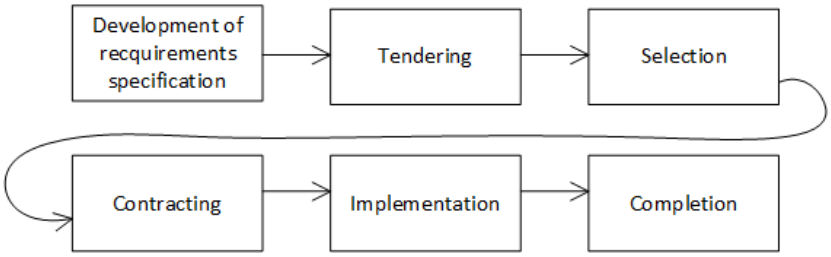

Figure 2.2 *Procurement process (Moe 2014).*

Moe's (2014) model of public sector procurement however, is not all inclusive. For instance, though the requirement specification is presented as the first step of the public acquisition process, the need for the new information system has to be realised before this. As the requirements need to be identified before any specific demands can be set (Moe & Newman 2014).

From these three depictions of IS acquisition processes Rosacker and Olson (2008) give a more general depiction of the acquisition process, whereas the TIVIA model and the model presented by Moe (2014) focuses more on the acquires perspective, especially from the managements point of view. However, both of these models attend mainly to the actual acquisition project though IS acquisition can be considered also in a more strategic level.

The acquisitions as an entity can be divided into the planning, systematic improvements of operations and the actual IS acquisition (TTL-Julkaisusarja 2005, p. 17), which is often referred to as IS procurement. Though this thesis concentrates on the procurement of information systems, in the context of IS success the strategic planning and operational chance cannot be excluded. Hence, here the term IS acquisition and the IS acquisition project are used. The TIVIA model of IS acquisition in its entirety is presented in the Figure 2.3.

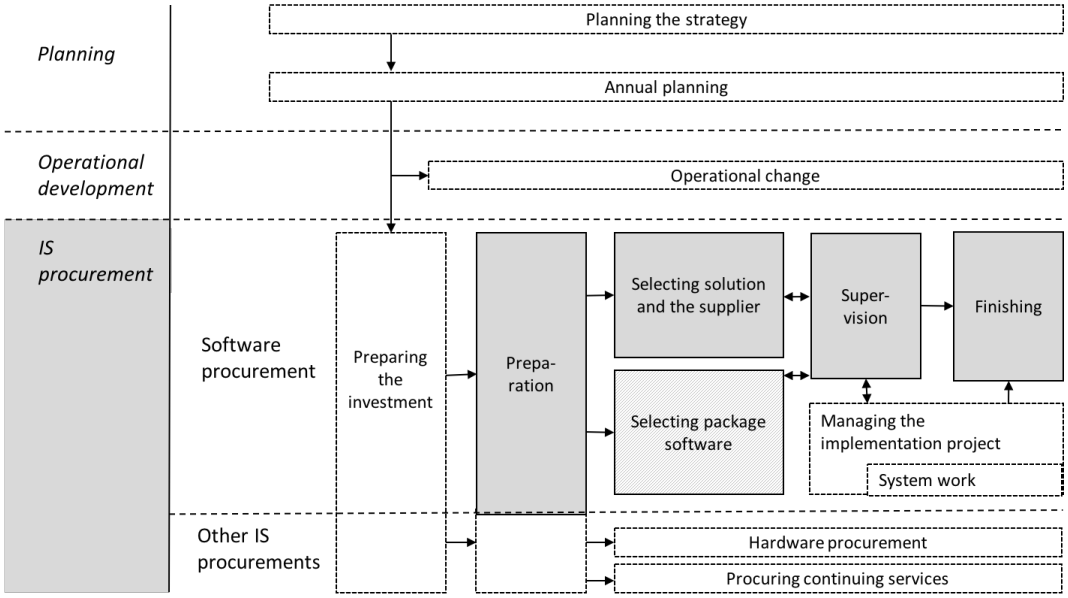

Figure 2.3 *Procurement process (TTL-Julkaisusarja 2005, p. 17).*

It should be noted that though the IS acquisitions often follow a certain pattern, the acquisition process is often highly dependent on the type of software to be acquired. For example Saarinen and Vepsäläinen (1994) point out that acquiring speculative systems can rarely succeed by buying a software package and only fitting it to the organizational needs. On the other hand, the features of organization can have a significant effect as well. For example, public and private organizations might have different needs or demands concerning how new IS can or should be acquired. As Moe and Päivärinta (2013) point out governments have set regulations for public acquisitions and hence, place demands on the acquisition process as well.

2.1.2 Stakeholders of IS acquisition

The stakeholders are often defined as organizations, groups and individuals who are engaged in a value creation of the organization and hence, are able to affect or are affected by the organizations actions (Freeman et al. 2010, p. 9). However, this does not mean that all stakeholders would have the same degree of power or control concerning the actions conducted by the organization. Additionallynot all stakeholders are affected by the organizations actions in the same degree. This is due to the fact that different stakeholders have different roles in the organizations processes with which they help the organization to achieve its objectives. (Wilson & Howcroft 2005)

There are typically three different stakeholder groups identified in IS acquisitions:

the developers, users and managers. Of these the developers develop the system, managers pay for it and users use it (Petter et al. 2012), while having their own interest and perceptions conserning the IS (Wilson & Howcroft 2005). However, although the focus in IS literature is attending to the previous groups, IS stakeholders include other groups and individuals as well. These are for instance policy-makers, activist, government agencies and professionals (Currie & Whitley 2016). In some degree the amount of stakeholders is also connected to the field the organization operates in. For example, in the public sector, the obligations the particular organization has, can to some degree affect the amount of stakeholders involved. However, this does not mean that private sector wouldn't have its own requirements as well (Campbell et al. 2009). Nonetheless, it is important to comprehend that the definition of stakeholders extends beyond the managerial area of responsibility.

Additionally, the IS project can in some extent determine the amount of stakeholders. As especially in acquisitions with multiple vendors, the amount of stakeholders involved, can be quite different from the amount of stakeholders, in occasions where there is only one vendor involved (TTL-Julkaisusarja 2005, p. 74–75). In this thesis, the focus is on single vendor IS acquisitions and hence, the multiple vendor situations are not considered.

Nonetheless, the amount of stakeholders cannot be determined at the beginning of the acquisition. As Currie and Whitley (2016) note, the number of stakeholders is context and time dependent. Typically, IS acquisitions are long lasting projects and hence, it is quite likely that the stakeholders change during the acquisition. Due to this, organizations cannot pre determine the list of the stakeholders. This however, does not mean that the extent of stakeholders should not be studied, but that the stakeholder analysis should be conducted whenever new environments are detected. (Currie & Whitley 2016)

The takeholders can also have multiple roles. These can be for instance, users and developers. The roles can also be related to the positions or competence related to the topic of the IS acquisition (Currie & Whitley 2016). This leads to the notion that different stakeholders can have very different values and perspectives concerning the IS acquisition (Baccarini 1999). These are not always communicated or considered, but can affect the acquisition quite substantially. However, these perspectives can change over time, and especially in cases were the opinions concerning the new IS are negative, it is important to notice them, so that the organization can intentionally aim at changing them. Before substantial issues arise. (Currie & Whitley 2016) Hence, the stakeholders matter in IS acquisitions. They are the ones that can affect the result of IS acquisition but also the ones that have to work with the new IS,

or in the worst case refuse to use it (Currie & Whitley 2016). All in all, users and other stakeholders have a significant role in IS acquisitions.

2.2 Defining IS acquisition success

Though IS acquisitions are becoming constantly more strategic and common, the rate of successfully implemented IS systems has not gone up (Standish Group 2015). The knowledge concerning IS acquisitions however, has increased and the topic stays relevant in IS literature. Nevertheless, there seems to be no clear or unified understanding of what makes an IS acquisition successful or how the success should be measured. As IS acquisitions entail the selection, development and implementation of an information system, the definition of success becomes even more difficult, as all of these functions affect each other, but are relevant indicators of success on their own as well. (Cooke-Davies 2001) Hence, when addressing IS acquisition success, it is important to note that the success can be evaluated at multiple levels (Hallikainen & Chen 2005).

According to Baccarini (2004), there is no clear definition or a way to define whether an IS acquisition is successful or not. Additionally, there is no commonly agreed method for measuring it (Baccarini et al. 2004). Especially as the evaluations conducted are often dependent on the evaluator's opinions and perceptions of success (Goldfinch 2007). One of the most common ways to define IS acquisition success, is to measure, whether the acquisition resulted in achieving the desired objectives, whereby the relevance of the acquisition was rationalized before its acceptance (Hallikainen et al. 1998). However, it is not always the case that the arguments behind the project are actually relevant to the organization or can be used to define the success of it. IS acquisitions after all are often complex and long lasting projects, that involve several phases with their own success measures and definitions. (Hallikainen & Chen 2005) Additionally, IS acquisition projects often involve several different stakeholders which again can have highly conflicting expectations concerning the project (Baccarini 1999).

One way to divide different success factors of IS acquisitions is to divide the success into two categories: the project management success and the product success. The project management success focuses on the success of the project process and especially on the cost, time and quality objectives, whereas the success of the product refers to the final result of the project, i.e. the success of the information system (Baccarini 1999). Cooke-Davies (2001) call these as success of project management and success of operations management, see Figure 2.4).

Hence, it is not possible to define project success only based on whether the cost, schedule and technical objectives are accomplished. Rather a wider range of needs of all significant stakeholders should be considered. Most of the stakeholders after all, are affected by the operational changes in the organization owing to which, these should be carefully considered in the definition IS acquisition success. (Baccarini 1999)

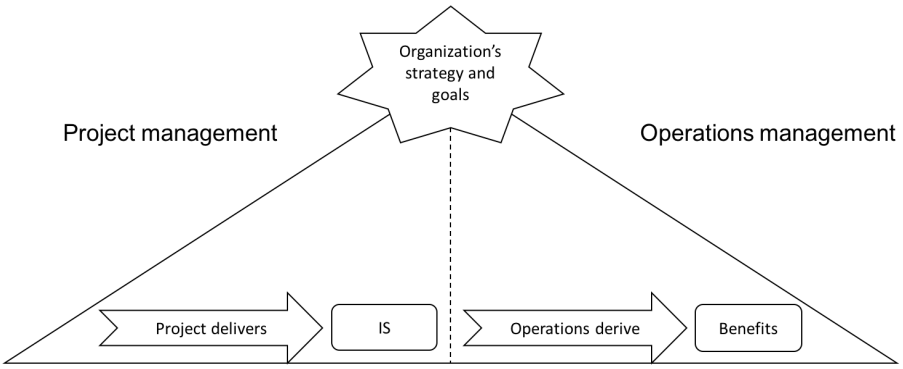

Figure 2.4 *The division of project and operations management (Cooke-Davies 2001).*

Though both project management and operational management have a great influence on whether a project can be defined as successful, the IS itself should not be excluded from the success definition. Hallikainen and Chen (2005) have taken this into consideration by defining the success of IS acquisition to consist of success of the IS investment, the success of the IS implementation and the success of the IS functionality. DeLone and McLean on the other hand focus more specifically in IS and its success factors, which according to them are the system quality, the information quality and the service quality. Perception of these then lead to the desire to use and eventually to use of the IS, which according to their model will create net benefits to the organization (DeLone & McLean 1992).

As both the successfully implemented acquisition project and successfully managed implementation, in addition to the system use, can improve the system success, these different aspects of success should be considered as an entity. Particularly as the IS itself does not produce benefits, but the conjunction with the procurement process the business development process and the IS development process do (Hallikainen & Chen 2005). Hence, the evaluation of the IS acquisition success should not be limited to the characteristics of the IS or the IS acquisition, but also the organization and its individuals should be considered.

2.3 Success of acquisition project

It is quite commonplace for IS acquisitions to be conducted as projects (Hallikainen & Chen 2005). Hence, one aspect of the success of an IS acquisition is whether the executed project is successful. The success of completion of the project is therefore one of the critical factors whereby the success of IS acquisition can be defined (Ram et al. 2013). Though the most common way to define whether acquisition project has been successful is based on time, cost and quality objectives of the project (Davis 2016), an IS investment project is more than that. For example, Hallikainen and Chen (2005) point out that besides its resources an IS investment project is an entity which includes organizational norms and values as well as project specific contextual factors, not only the resources allocated to the project.

Additionally, the goal and purpose of the project should be considered (Baccarini 1999). For this there should be a clear understanding about the objectives of the project, especially as if the project objectives are not reached even though some improvements are gained, the definition of the success of the acquisition project is questionable at the very least (Atkinson 1999).

The study of success factors that lead to project success has been ongoing for the past 40 years. However, a comprehensive answer to this is still inconclusive. As Cooke-Davies (2002) suggests, the question should be divided into three different conundrums: "What factors lead to project management success?", "What factors lead to successful project?" and "What factors lead to consistently successful projects?". (Cooke-Davies 2001) Hence, there are multiple factors affecting IS acquisition success but also multiple ways to take it into consideration.

2.3.1 Success of project management

Project management refers to the action of managing a set of tasks, events and resources in an attempt to deliver a significant outcome (“Project management software” 2009). As project management is the tool with which the project is followed through, it is a vital part in the process of selecting and implementing a new IS. Hence, project management success is one of the features whereby the success of IS acquisition can be defined. However, though project success is considered the core of project management, what makes project a success remains unclear. (Baccarini 1999)

According to Baccarini (1999) project management success has three components: meeting time, cost and quality objectives; the quality of the project management

process and satisfying the needs of the project stakeholders. (Baccarini 1999). On the other hand Shang and Seddon (2000) conclude project management aspects to be how well the project was finished, in what kind of time frame it was finished and whether it stayed in budget. These aspects are typical with other types of projects as well. For some reason these are harder to obtain in IS acquisitions (Goldfinch 2007).

The cost aspect of the project success defines whether the acquisition project was completed in the range of the budget. It can be considered as significant success measure because if the costs of the system acquisition are surpassed the return of investment, which is an important factor of any significant investment, might not be fulfilled. (Baccarini 1999) Especially as in large IS acquisitions the investments are often significant in comparison to the organizations incomes and when exceeded the costs can easily even be doubled. Additionally, in the public procurement cases, the sanctions when the project prolongs, are not enforced even when the vendor is not able to fulfill the requirements in the contract (Goldfinch 2007), there is a possibility that an acquisition leads to significant loses.

When comparing internal and external projects, the definition of accepted costs can vary. External projects should be easier to complete on given budget as it should be agreed on the contract, whereas in internal projects it is harder to even define what actually are the final cost. For instance, there can be many costs that should be allocated to the project but are treated as general expenses. (Baccarini 1999) Hence, the definition of the project cost can be quite unclear. However, it still has a substantial role in the definition of IS acquisition success.

The time aspect of the project success, i.e. finishing the project on schedule, can be measured based on the project plan and whether the project was completed before or after the set completion date (Baccarini 1999). The time objective of the project management success is relevant, as in the field of IS, the evolution of different systems is fast and when IS acquisition projects are too long or get prolonged, there is a risk that the implemented system is outdated even before it is fully integrated into the organization. Not to mention the possible frustration among different stakeholders. (Shang & Seddon 2000) Hence, staying within the limits of time frame given to the project, can be seen as significant force concerning the success of the whole IS acquisition. (Baccarini 1999)

Succeeding in keeping the cost and time under the limits is not an easy task. Nevertheless Shang and Seddon (2000) point out that the final costs or time frames are not all that matters, but how well the acquisition was conducted in the first

place has a role as well. The project performance can refer for example to how well different conflicts were managed, and how well risks were taken into consideration and acted upon (Baccarini et al. 2004).

According to Baccarini (1999) successful project management requires both effectiveness and efficiency. Efficiency can contain matters such as the anticipation of project requirements, using resources sufficiently in order that right tasks are accomplished at the right time and in the right way. Adressing the arising issues when they are detected, coordinating and considering the needs of different stakeholders, keeping changes in minimum, making sure that the project does not disturb the corporate culture and completing the project successfully i.e. avoiding post implementation issues. (Baccarini 1999) With these should be noted, that not all of these are simply project success measures as some of them can be classified also as variables contributing to the success.

It is also important to consider, that though project management success can have a positive effect on IS success, it most likely cannot prevent IS failure if the chosen system is not compatible with the organization. Project managemetnts negative effect is possible as well, as poor project management can lead to a complete failure of the acquisition. (Baccarini 1999) On the other hand even if the project in its own is considered a failure based on budget overruns or overspending, the end result can be considered success. It is also possible that at the beginning of the systems life cycle the IS is considered a failure, but eventually, after objective revaluation it seen a successe, that might not even be linked to the technical qualities of the system. (Goldfinch 2007)

Therefore stakeholder satisfaction can be classified as a significant success measure of IS acquisition project management. This entails that the project satisfies the needs of the key stakeholders, which are the client and the project team. (Baccarini 1999) However, this does not mean that other stakeholders should not be taken into consideration. Anyway when focusing on the project management aspect of the IS acquisition success, the project team is the main definer of project implementation success, because even if the system would eventually fulfill the defined requirements the project implementation can still be a failure from the perspective of the project implementation (McLeod & MacDonell 2011).

Baccarini (1999) takes this into account in his definition of project management success, as a quality aspect of the project management. In this context, quality focuses to the fact, whether the result of project is, what it was expected to be. (Baccarini 1999) In cases where the acquisition project is otherwise conducted successfully, if

the project does not achieve what it was supposed to, defining it as success, would be questionable.

Hence, the project success has three significant success factors: achieving the objectives in the given budget and time frame. All acquisitions defined successful though do not fulfill all of these (Baccarini 1999), which rises a question, do these measures actually matter. After all gained benefits can be hard to define and even harder to proportion to the acceptable cost and time limits, which makes following these measures difficult (Hallikainen & Chen 2005). On the other hand, can be pondered if the success is not based on the fulfilment of these measures, but that the unacceptable limits related to them, were not crossed.

2.3.2 Success of IS development

Success of the IS development defines whether the development process has resulted in a system that fullfills the stated needs of the organization (McLeod & MacDonell 2011). Thought IS development was seen successful from the process point of view it cannot be sufficiently defined without comparison to the business processes of the organization. It is for instance possible, that when the implementation of the system is considered successful, the end result is an unused system, if it does not answer the strategic needs of the organization. Unused system though cannot really be considered successful (Baccarini 1999).

Hence, while analysing whether IS development is successful, it is important to compare it with the business process re-engineering (Dwivedi et al. 2015). Especially as in large systems, it is recommended that the system should not be vastly customized, as then the system maintenance can turn into expensive and continuous project. In this kind of situation the benefits of the IS might not exeed the burden of the required updates. (McLeod & MacDonell 2011) Hence, it is often recommended that the system itself would not be modified but the business processes would be aligned with the system (Axelsson et al. 2011).

However, this requires that when selecting the suitable system the ability of the system to support the organizations needs should be carefully evaluated, so that the system actually provides the needed competence at least after the business process re-engineering (Hallikainen & Chen 2005). Therefore one of the success measures of the IS acquisition is how well the system was selected. Due to the complexity of the IS acquisitions, the selection of the best possible system is hard to evaluate. Additionally, it is almost impossible to define, whether some other system would have eventually been better than the one that was selected (Atkinson 1999). When

defining the success of the selected IS or its development, it is almost impossible to do by comparing with the other systems. Hence, IS development success can mainly be analysed based on the benefits it has generated compared to the old system or simply how well the development followed its execution plan (Baccarini 1999).

Nevertheless, as Ram et al. (2013) point out it is more relevant to focus on how well the organization is able to align its processes with the system. However, though the success of business process re-engineering can be qualified as a success measure, it cannot be evaluated straight after the systems implementation, as it takes time for the users to get accustomed to the system and the new processes, not to mention making them operationally sensible (Ram et al. 2013).

Additionally, IS development success can be determined based on how much development the system needs after the actual acquisition project is finished. In many cases this kind of development turns out to be very expensive for the purchaser as vendors tend to ask high prices from development outside the actual contract. Hence, the level of development after the acquisition project is officially finished can be considered a significant indicator of the IS development success and be part of the definition of the IS acquisition success all together. (McLeod & MacDonell 2011)

2.3.3 Success of meeting expectations

Though the project would have been managed successfully and the development of the IS was seen as a success, it might not be enough to determine whether the IS acquisitions project has be successful (Cooke-Davies 2001). This is due to the expectations related to the project. For instance, if the expectations, realistic or not, are too high, even a successful project can be seen as a failure (Baccarini et al. 2004).

When considering whether the expectations of the acquisition are met it is important to take the user satisfaction into consideration as well. Usually, the user satisfaction is however, closely linked to the expectations, as users who do not expect substantial operational improvements to their work can be very satisfied with IS, that provides higher benefits than what the user expected. Hence, making sure that the expectations of the users are realistic is important. (Baccarini et al. 2004) However, gaining the acceptance for the project requires, that the benefits of the system are not underestimated (McLeod & MacDonell 2011).

Usually, the success of meeting expectations is quite hard success measure to define, especially if there is a clear definition and understanding on why the IS acquisition

is conducted in the fist place. Especially as sometimes organizations end up paying for systems that end up being unused (Myers et al. 1997). When organizations do not define why a certain system is acquired, the objectives of the acquisition might be lost during the acquisition (DeLone & McLean 2003). This creates problems relating to the realisation of the expectations, which can be significantly different than what the acquisition is aiming to yield.

Meeting the expectations concerning the system is not easy to define, especially as IS acquisitions tend to have multiple stakeholders who can be either positively or negatively effected by the new IS. Hence, both the acquisition project as well as the operational success must meet the stakeholders satisfaction. To create a circumstance where the expectations of different stakeholders are met, the project management team needs to identify who are the stakeholders and what kind of expectations they have, but also try to influence them so that the stakeholders are eventually satisfied with the projects results. (Baccarini 1999)

All in all the success of meeting the expectations set on the acquisition is an important measure of the IS acquisition success. It can be considered entailing both expectations concerning the project and the product aspects of the success and hence, it can be used to summarize whether the IS acquisition project has been successful (Cooke-Davies 2001).

2.4 Success of operational performance

Though the project success is an important factor when defining the success of an IS acquisition, without the successful implementation of the IS to the organization, the desired benefits, which are usually the main reason for IS acquisitions are conducted, will not be realised (Hallikainen & Chen 2005). Hence, the operational success of the acquisition is another important feature of the IS acquisition success and should be considered after the system is fully integrated into the business processes and the users have had enough time to learn how to use the system. (Xin Dai & Zhiyuan 2013)

The operational success of an IS acquisition can be considered to consist of a successful system, its successful integration to the business processes and of the benefits which the implementation and use of the system generate. Of course, most of these are affected by the actions done during the IS acquisition project. For instance, a functional system is dependent on the selection and implementation of a suitable system. However, the success of the IS can be defined only during the operational phase, same as the evaluation of the gained benefits and the systems suitability to

the organization and its needs (Xin Dai & Zhiyuan 2013).

2.4.1 Success of IS

One element of the operational success is whether the system itself can be considered successful from the point of view of the organization (Petter et al. 2012). According to Baccarini (1999) success of the IS can be divided into three components: meeting the project owner's strategic organizational objectives, the realisation of the users' needs and realisation of stakeholders' needs related to the product. One measure for these is the usefulness of the system, as it can be considered the degree to which an IS improves individual performance and eventually also organizations performance (Bravo et al. 2015).

Usefulness is dependent on the fit between the IS and the task it is meant for. This can be measured with following attributes: how well the information is up-to-date and detailed, how easy the IS is to use and how reliable the technology of the IS is (Bravo et al. 2015). The level of usefulness of the system can vary in different sections of the organization, as IS can provide different benefits for different users or the benefits can be focused only to a certain user group. (Gorla & Somers 2014) Additionally, the usefulness is rarely fully objective consideration of the situation as the considered usefulness of the system is quite closely linked to the expectations the different stakeholders had before and during the acquisition (Baccarini 1999).

The usefulness however, is not the only measure of IS success (Sebetci & Cetin 2016). For example, the IS success model created by DeLone and McLean (1992) is one of the most used criteria when defining IS success. It describes the way different multidimensional factors influence each other and eventually lead to the use of the IS, which then creates benefits for both individuals and organizations (DeLone & McLean 1992). The updated model of the DeLone and McLean's model is presented in the Figure 2.5

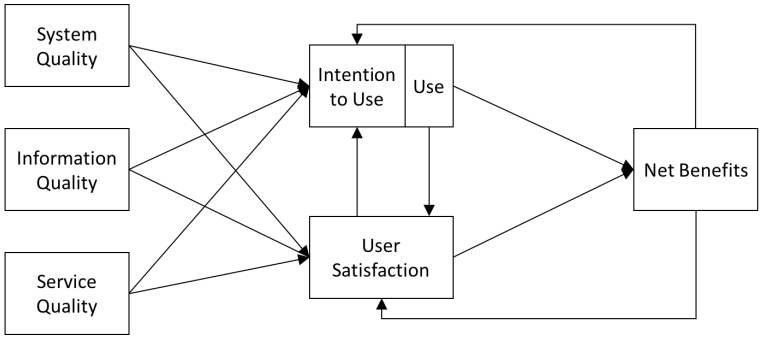

Figure 2.5 *DeLone and McLean model of IS success (DeLone & McLean 2003).*

In the model the system quality, information quality and service quality of the system are considered to lead the intention to use the IS, user satisfaction and ultimately to increased intention to use the IS. This again can increase the user satisfaction and intention to use and so on. Finally, the use and user satisfaction of the system derive benefits from the use of the system (DeLone & McLean 2003).

Though DeLone and McLean's model of IS success provides a sufficient framework to analyse how different features of IS can affect its success, the particular model does not take into consideration what success of an IS means from the point of view of the user or the organization. Though the model highlights the net benefits or in the old model the individual and organizational impact, it does not ponder on what these benefits could be. (Seddon 1997) As the intention of the IS is to support the organization by reducing the cost of products and services while improving the quality, efficiency and effectiveness of the organization, these measures of success are multiple (Mulyani et al. 2016). However, without a successful IS these benefits are difficult to gain. Hence the model in the Figure 2.5 has gained a lot of criticism (Seddon 1997). Nonetheless, it manages to summarize many important factors that should be considered when measuring the IS success and therefore is used here as a basis of IS success definition.

System quality

In the IS success model of DeLone and McLean the system quality refers to the ability of the system to process information, for instance IS reliability and online response time (DeLone & McLean 1992, p. 64). Superior system quality is expected to lead to an experience of ease of use (Davis 1989) and therefore, the system quality can lead to a higher user satisfaction. This can create positive impacts on both individual and organizational improvement (DeLone & McLean 2003). Consequently, system quality is considered an important factor of IS success, as without a sufficiently operating system, its use will most likely not produce benefits.

According to Nelson et al. (2005) system quality can be defined with five key dimensions: accessibility, reliability, flexibility, response time and integration. These are presented in the figure 2.6

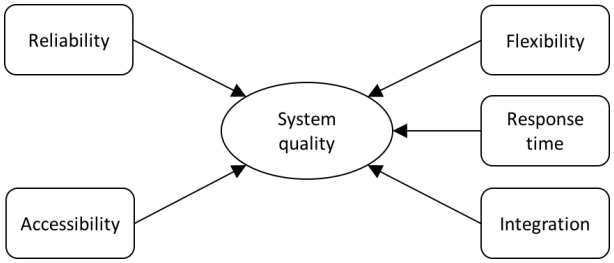

Figure 2.6 *The factors of system quality, modified from (Nelson et al. 2005).*

Of these, especially accessibility and the reliability are dependent mainly on the system and its functionalities. The response time, flexibility and integration on the other hand are more task related. (Nelson et al. 2005)

All in all, system quality is dependent on the system functionalities but also the environment it is used in. Hence, for the system quality to be good, the IS needs to support the processes it is meant for. This requires more than well operating system, which means that system quality is more related to its ability to support desired processes than its quality on its own. (Nelson et al. 2005) These processes however cannot be supported without someone using the system. Therefore, can be interpreted that, system quality is more important as motivator of use than as a success measure on its own.

Information quality

Another significant motivator of the IS use and thereby an enabler of benefit realisation is the information quality. Because, it is not enough for the system to function effectively, but it is also important that the results of the system reflect the real world (DeLone & McLean 1992). The information quality can be defined with following characteristics: the accuracy, completeness, consistency, timeliness, currency, relevance, uniqueness, consistency, security, privacy and obtainability of the information. (Lee et al. 2002) However the main requirement from the organizations point of view, is often whether the information supports good decision making. (Lynch & Gregor 2004, Nelson et al. 2005)

However, to evaluate the IS information quality, it is not enough to consider its usefulness only in decision making. As even if the system would provide reliable information, if the users do not believe the information the system provides, the actual level of information quality has no significance (Lee et al. 2002). As the sensibility of using the IS is still often determined by the users, the benefits of using the IS are dependent on whether the users think that the information they gain

from the system supports their actions. If the users do not trust the information the system provides, it is unlikely that the benefits of the system use should provide, will be achieved. (Petter et al. 2008) Hence, the information quality is an important encourager of IS use, but not a sufficient measure to indicate IS success on its own.

Service quality

The service quality on the other hand can be defined as the gap between the customer's expectations and perceptions of the service performance (Gorla & Somers 2014). Hence, the service quality is highly dependent on the attitudes and assumptions of the user. This means that the perceived service quality is as much dependent on the expectations, how good the servises should be, as on the actual service level. In IS acquisition the service quality is an important factor both during the acquisition project, as well as when the IS has been taken into use. (Lee et al. 1986) These two though cannot be evaluated separately as, the acquisition project can influence the attitudes of the project team and these perceptions can be spread inside the organization and affect the attitudes after the acquisition as well (Emam & Madhavji 1995).

During the IS acquisition, service quality is an important success factor, as it is closely linked to the customer's perception of the vendor's willingness to cooperate and provide the best possible solution they can. (McLeod & MacDonell 2011) Additionally, good service quality can strengthen the trust, that though the system would not provide all the necessary functions in that particular time, the development is continuous and that the system will improve over time (Caceres & Paparoidamis 2007). However, if the service provider is not willing to take into consideration the small problems of the end-users (Gorla & Somers 2014), can this diminish the perceived service quality and eventually satisfaction to the IS (Mečev & Goleš 2015).

Service quality can also be defined by the zone of tolerance. This represents the range between the desired service desired by the customer and the level of service, which fulfills the customers' demands, but does not reach all the desired features, the customer would like to have. (Gorla & Somers 2014) No matter the definition of service quality though, as well as the system quality and information quality it can have a great influence on the users' motivation to use the new IS. If the use yet supports the organizations larger objectives the positive effects of the quality features presented above can be considered as relevant indicators of IS success.

User satisfaction

User satisfaction, i.e. the IS ability to fulfill user's needs in a satisfying way (De-

Lone & McLean 2003), can be considered as the critical indicator of IS acquisition success, at least when it supports the organizations operations (Sharabati et al. 2015). When, considering user satisfaction as a IS success factor, it is important to take into consideration, that there can be multiple stakeholders with different needs concerning the system. Hence, for the user satisfaction to be good, both the needs of intended users and external stakeholders should be satisfied, at least to some degree. (Baccarini 1999)

All in all, user satisfaction is an entity that is compounded of many different factors. First and foremost of these is the users' experience of the perceived usefulness, of the sytem i.e. how much they think they can improve their work performance, ease their work amount or benefit from the IS in any other way. (Seddon 1997, Carter et al. 2015) In this the system quality, information quality and service quality, in addition to the users' attitudes have a great role. (Carter et al. 2015) According to Sharabati et al. (2015), when considering the user satisfaction of an IS there are actually three different components to be noted. These are the processing, the content and the usability of the system, presented in the Figure 2.7

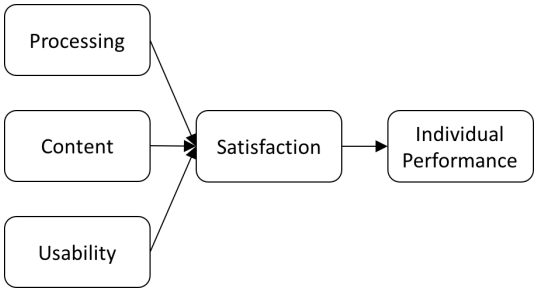

Figure 2.7 *User satisfaction of IS (Sharabati et al. 2015).*

Hence, user satisfaction consists of all the experiences related to the system and the interactions with it (Sharabati et al. 2015). The users' view of the level of processing, content and usability are though highly dependent on the users' expectations concerning the new IS. Therefore, user satisfaction is somewhat dependent on the successful change management as well. (Carter et al. 2015)

However, user satisfaction is not a stable condition, as users' will need expectations of benefits of future use as well, to be motivated to continue to use the system. Hence, users will use the IS if they believe it will provide the best benefits in the future. This means that though the new IS might be difficult to use at first, the believe that the new system will generate substantial benefit in the future, the use motivated by the user satisfaction, might be high. Therefore, can be concluded that the expectations

of future benefits of use can have significant effects on the user satisfaction and lead to increased desire to use the system (Seddon 1997) Increased desire to use the system again can increase the actual use, which if done correctly benefits the organization. Hence user satisfaction is a relevant indicator of IS acquisition success.

Use

Use is one of the most utilized ways to measure the success of IS, as a system that users want to use, is presumably beneficial to them. (DeLone & McLean 1992, Davis 2016). However, the use in itself does not necessarily create benefits for the users or for the organization. Hence, the IS use though vital for the IS acquisition to be successful, is a difficult measure of success. Especially as the use of the system can provide different kind of benefits to different stakeholders. (DeLone & McLean 2003)

When defining IS acquisition success based on the level of IS use, caution is adviced. For example if the IS is poorly designed, or it is not entirely suitable for the tasks it is supposed to be used for, the users might be forced to spend more time with the IS related tasks than they did before. In this case, the time of use is higher, but it does not mean that the benefits would be higher as well. (DeLone & McLean 2003) On the other hand, if the IS reflects the users' needs, or the processes related to the new IS are re-engineered to support the IS use, the time of use, compared to the time before the new IS, can be shorter, while the benefit realisation is greater. (Somers & Nelson 2001)

Sometimes the time of use however, does not reflect the system suitability at all. This is the case especially when the users do not have sufficient knowledge how to use the system. (Somers & Nelson 2001) The issues though are not always IS related, as the management has its own role as well. This is the case especially with compulsory systems, where the attitudes of the management concerning the use of the system can easily define how the use is conducted. (Seddon 1997) In the case of voluntary IS, the role of the individuals perceived usefulness of the system has a greater role (Lynch & Gregor 2004).

Defining the system and the focus of measurement however, does not solve the issue of how IS use can indicate the IS success. Especially as, even if the IS is used, there are no guarantees that any benefits will be realised through the use. This is the case when the IS is not suitable for the organization (Seddon 1997). An IS acquisition issue hard to detect and difficult to act upon. Another indicator of issues in the acquisition is an unused IS. This might be connected to the lack of training or to a complexity of the system. All of which can lead to user resistance and eventually

avoidance of the use (Goldfinch 2007). Hence, the use in itself can tell very little about the IS acquisition success (Carter et al. 2015). The difficulty is hence to be able to define in which occasion the use can be exploited as a success measure and what other factors need to be considered for the conclusions drawn from it can be regarded as representation of reality. (Goldfinch 2007)

2.4.2 Success of business process alignment

For the IS to generate benefits for the organization, it is vital that the new IS is integrated to the organizations operations (Ram et al. 2013), as without this the use of the system might not provide results that are actually useful for the organization or to its objectives (Axelsson et al. 2011). This means, that when evaluating the success of an IS acquisition, a careful consideration how well the business processes are aligned to the new IS and how well they encourage the use of it, should be done. Especially as it is often more sensible to change the business processes than to fit the new system to the old processes, this does not mean that the changes in the organizations operations would be easy to conduct or to accept (Ram et al. 2013).

Hence, if the organization manages to integrate its business processes to the new IS and does this in a way, with which also the users of the new IS are satisfied with, is this a clear sign of the IS acquisition success. Especially as the benefits the new IS can generate are often closely linked to the organizations ability to use the system in a way that fulfills its strategic needs. (Ram et al. 2013)

The significance of business process alignment is also one factor that is vastly recognized in the IS literature as indicator of success. As Chan and Reich (2007) conclude, organizations that give attention to the alignment of IS and business processes usually outperform the organizations that do not give attention to this process. However, business process and IS alignment is not all inclusive indicator of operational success of the IS, as to actually align business processes to support the use of the new IS there are multiple other factors to consider as well. (Chan & Reich 2009)

For business process alignment to be a success, it is vital that it is done in a way that the change processes are constantly in-line with the organizations strategic objectives. For this there should be common understanding of the organizations strategy in every level of the organization (Chan & Reich 2009). However, this is not always the case and hence, there is a risk that the alignment of business processes to the IS can be done incorrectly. Especially if the strategic objectives of the organization are not consistent in all sections of the organization (Xin Dai &

Zhiyuan 2013). Additionally, it is possible, that changes in the business processes are done following the terms of the new IS. This again can lead to a situation where the operational environment or the strategy of the organization is not fully considered. In worst case, this can cause organization to lose its business focus and hence, forfeit its competitive position (Chan & Reich 2009).

Therefore, radical changes in IS acquisitions can provide notable benefits, but only if the factors affecting business process re-engineering are considered as an entity. These factors are the organizations strategy, technological structure of the organization, management processes, individuals and their roles. (Chan & Reich 2009) Hence, it is not enough to make sure that the business processes and the new IS are compatible, but this change should be put into practice also in the level of individual members of the organization. As not fully deployed changes can easily stay superficial, especially as the strategic objectives of the organization are often quite distant from the users. (Xin Dai & Zhiyuan 2013)

From the point of view of the IS acquisition success this means, that for the business process alignment in IS acquisition to be successful, the users of the new system should use the system in the way it was meant to. Additionally, users should understand why this is done, so that in the future they do not start cutting corners just because they do not understand the reasons, why the system is used in a certain way. Moreover, the whole organization should have a clear understanding about, what is the strategic significance of the IS. (Dwivedi et al. 2015). One measure for this is the extent of the resistance of change. As the eventually though the guidelines for change can come from the upper levels of the organization they are executed by the individuals willing to follow these new processes (Baccarini et al. 2004). In addition, if the business process alignment is conducted successfully, the benefits the new IS was desired to generate besides the lack of resistance, are also a significant indicator and measure of IS acquisition success.

2.4.3 Realisation of desired benefits

Though the IS and its alignment to the organization are useful indicators of the success of IS acquisition, when analyzing the IS acquisition success the gained net benefits are eventually the factors that define, was the acquisition actually worth the effort (Sedera & Gable 2004). According to DeLone and McLean (1992) the effects of the IS use in the organization can be divided into individual and organizational benefits (DeLone & McLean 1992). To reliably define the IS success it is important to recognize both of these, even though the objective of the acquisition can focus on either one.

However, in the DeLone and McLean model of IS success, there is no clear indicator of what constitutes as individual or organizational benefit (Seddon 1997). Usually the benefits are connected to the goals of the acquisition, which can be connected to the desired benefits of IS acquisitions that support the current strategy; IS acquisitions that create competitive advantage and new opportunities for the organization or IS acquisitions that enable business process re-engineering projects. Hence, the benefits are or at least they should be largely dependent on the goals of the acquisition. (Hallikainen & Chen 2005)

Shang and Seddon (2000) on the other hand focus on defining exactly what, the actual measures of operational benefits are. In their study Shang and Seddon (2000) recognized the following aspects to be sufficient indicators of IS success from the benefit's point of view: operational benefits, managerial benefits, organizational benefits, IT infrastructure benefits and strategic benefits. As the particular study focuses on the enterprise resource planning systems, all of these benefit categories cannot be generalized to have role in all IS acquisitions. However, they provide a sufficient framework with which to analyse the gained benefits from the acquisition after the new IS has been implemented into the organization.

Of these, the operational benefits contain aspects such as cost reductions as well as productivity and quality improvements (Baccarini 1999). Cost reductions can be gained via automation of tasks. The new IS or the redesigned business process can provide cost savings as well. (Dwivedi et al. 2015) The IS can also simplify complex tasks and hence, decrease the time required to complete them, which can lead to productivity improvements as well as to improved quality, as the steps where the user can make mistakes are decreased. (Shang & Seddon 2000) It is typical for organizations to desire some operational benefits from new acquisitions and usually these type of improvements can even be quite easy to notice, unlike for instance increased profitability which often is the final objective behind IS acquisitions (Dwivedi et al. 2015).

Managerial benefits on the other hand can refer to performance improvements, better resource management or to improved decision making (Shang & Seddon 2000) and eventually increased profitability of the organization (Petter et al. 2012). Of course all ISs cannot have significant managerial effects especially if the IS is not intended to improve or help management. However, as new IS systems are often acquired based on the strategic objective of improving competitiveness, managerial benefits, especially improved decision making is an important part of this (McLeod & MacDonell 2011). From a managerial point of view new IS can also enable new talents to surface (Petter et al. 2012).

Benefits of new IS to the IT infrastructure can be for example increased IS capability, flexibility or even cost reduction (Shang & Seddon 2000). In some cases, the new IS can even enable conducting completely new operations. Additionally, new IS can support organizational change, facilitate learning and help the organization to build a common vision. (Davis 2016) As Atkinson (1999) points out, from the organizational point of view, satisfied users and a content project team are important, as positive atmosphere in the organization can have a positive effect on the IS's impact. (Atkinson 1999; Mulyani et al. 2016) Strategic benefits on the other hand entail for example business growth and improved innovations (Shang & Seddon 2000), but are often acquisition related an cannot be generally defined.

IS acquisitions are typically a part of strategic business development. Hence, the idea behind the IS acquisition is often to gain technological capabilities for the organization to achieve its strategic objectives (Hallikainen & Chen 2005). Therefore new IS investments need to be aligned and supportive of the acquiring organization's strategic goals. (Baccarini 1999) However, this does not mean that the level of strategic importance is the same in every acquisition, or the desired benefits always focus on all the different aspects mentioned above. Usually in different acquisitions the benefits are different for different stakeholders and often all of which cannot be considered (McLeod & MacDonell 2011). This can lead to a situation where some of the user groups inside the organization are satisfied with the system whereas others are not. (Dwivedi et al. 2015)

All in all, after the acquisition project has ended and the implementation of the new IS has been accomplished suitable measures for defining the Ioperational success are the consideration whether the new IS is actually something the organization needs (Hallikainen & Chen 2005). Some attention should also be focused on how well the system is in-line with the organizations current and future strategy. The IS should also improve the operations that it was meant for while the cost should stay at an acceptable level. Not to forget the users, who should be satisfied. Hence, it can be concluded that there are multiple factors effecting and defining whether new IS can be evaluated to be successful. (Dwivedi et al. 2015) Most of these factors also correlate with each other and though positive accumulation is possible there is always a risk that even with several successes and gained benefits, no less than one failure, for instance too high maintenance costs can result in the IS acquisition failure (Goldfinch 2007).

2.5 Evaluation of IS success

Evaluation of IS acquisition is often a highly contextual process conducted in an organization to determine whether the IS under study is good or not. This process can be formal or informal and the amount and type of people involved is highly dependent on the particular evaluation process and its objectives. (Hallikainen & Chen 2005) Evaluation of a new information technology is important, as usually such a large amount of organizations capital is used on IT (Sedera & Gable 2004). However, though in many organizations rationalize and evaluate investments before the investment decision is made, a comprehensive evaluation of the results of an IS acquisition project are rarely made after the IS acquisition is completed. Typically the evaluation efforts even decrease when systems go through their life cycles (Hallikainen et al. 1998).

The problem however, is not only the lack of evaluation. For instance in some cases, when IS acquisition is conducted, the results are not accepted inside the organization. Especially as in acquisition projects the people involved typically have their own objectives concerning the acquisition, for example hopes for career advancement. Hence acknowledgment if the evaluation indicates that the acquisition has been a failure might be extremely hard to admit. (Goldfinch 2007) Hence, it is possible that the results of an evaluation are not accepted even though the evaluation would have been conducted sufficiently.

All in all, IS success is a judgment, which consists of variable opinions of different groups inside an organization. Of course everyone's opinion might be impossible to consider (Baccarini 1999), but it is important to recognize the key stakeholders that are affected by the new system and decide which stakeholder groups are consulted when the success is evaluated (Dwivedi et al. 2015). For instance, if only project management perspective is considered, the focus of the evaluation could be only on the resource consumption of the project, as from the managerial point of view a successful project is one that is completed in time and on budget. (Baccarini 1999, Dwivedi et al. 2015, Petter et al. 2012))

The top management on the other hand seems to focus mainly on the value of the IS and its outcomes. As these are often intangible by nature, it is quite hard to measure the success of IS in a way that can satisfy the top management. (Dwivedi et al. 2015) The users then tend to focus on ability of the system to meet the requirements they have set for it (Baccarini 1999). Hence, the users might focus only on whether the system makes their life easier or not, when evaluating the IS success (Seddon 1997). To avoid bias evaluation, the stakeholders and the evaluation

criteria should be set out at the beginning of the project and be updated during the project implementation (Davis 2016). Additionally, these criteria should be clear to all of the team members. Furthermore, the planned evaluation process should be accepted by the organization to avoid its abandonment, if the results are not pleasing to all. (Baccarini 1999)

However, besides defining the evaluation criteria beforehand, it is important to understand the roles of higher and lower level objectives. For example, in some cases it is considered acceptable that the budget is over exceeded and that the system does not fulfill all its requirements, if the acquisition makes meeting some higher level objectives possible. These can be for instance changes in the organization processes that would not be possible without the new IS. (Baccarini 1999)

Currently, the IS evaluations are focused on the processes rather than the outcomes the IS produces. However, from the acquisition point of view, the focus is mainly in the acquisition project and its success rather than what assets are received from the investment. (Petter et al. 2012) Nevertheless, when it comes to the user, the main success factor concerning the new IS is how beneficial users consider the use of the system, which however, cannot be measured during the acquisition (McLeod & MacDonell 2011). Besides taking the timing of evaluation into consideration, it is also important to differentiate between the system being usable and the system being actually useful (Petter et al. 2012).

Technical outcomes and adaptation impact are two factors Lynch and Gregor emphasize as important factors of IS measurement (Lynch & Gregor 2004). Anyway measuring IS success can be done in either a qualitative or in quantitative way (Myers et al. 1997). Though the financial aspects are often one of the most popular ones (Atkinson 1999), the qualitative aspects can sometimes be linked to the profitability and provide deeper understanding of what are the actual benefits of a new IS. As a whole, IS acquisition success measures are extensive and most of them correlate closely with each other. For instance, when measuring IS availability and performance also the efficiency of use should be considered. If the users are not using the system efficiently, though the system performance is considered good, the IS and its use might not be producing the benefits, which could be expected based on the IS performance. (Myers et al. 1997)

As noted before, IS systems do no function in a vacuum but are a part of the organizations culture and processes. This again can have a great influence on the measurement results. For example, the focus of the IS evaluation can be closely dependent on the organizational interests, which can be: costs and benefits, organi-

zation's competitive position or industrial relations. The focus of the evaluation on the other hand is strongly dependent of the purpose of an evaluation addition to the person who is responsible for performing it. (Hallikainen & Chen 2005) On the other hand, sometimes only the perception of the IS can define whether it is evaluated as a success or not. Hence, evaluation process might not even be conducted before making the conclusion concerning the IS success (Gorla & Somers 2014).

At the same time, there is also a possibility that the acquisition project and the resulted IS are both failures, but due to external events for example economic growth, the IS acquisition is seen successful, even though without the external factors it would clearly have been a failure. (Baccarini 1999). Additionally, the IS itself has a great deal of impact on its evaluation. For example, the size of the system can define how many expectations there are for it. Additionally, the characteristics of the acquisition project can affect how critically the acquisition project is evaluated. For example, in cases where the acquisition project has faced substantial difficulties the evaluation might even ignore some significant issues (Hallikainen & Chen 2005) due to the attitude that at least the project was pull through despite of the difficulties.

When considering factors influencing the IS evaluation and the results of it, the time is one of the most significant. This is because the success of IS acquisition is strongly linked to the time when the success is measured (Hallikainen & Chen 2005). Hallikainen (1998) suggest that evaluation should be done at least in the following phases of the acquisition: in the project proposal state, during the milestones of the development project, when clear development problems occur, at the implementation, periodically during ongoing system use and when problems occur during the use phase of the system. (Hallikainen et al. 1998)

Therefore, the success of an IS acquisition cannot be comprehensively defined instantly after the implementation. In most cases right after the acquisition project, when the users are not yet accustomed to the new IS and the changes in their work processes are ongoing, it is likely that if compared with the stated goals of the project, the desired benefits are not yet realised. Therefore evaluation of operational success of IS too early can lead to a conclusion that the acquisition was a failure (McLeod & MacDonell 2011). Hence, it is important to consider the effects of time in IS evaluation. However, in the case of project management, the success is quite easy to define even during the acquisition project whereas the success of the product is definable only after it has been fully utilized in the organization. (Baccarini 1999)

The need to measure the success in different times during the IS acquisition project and the IS's life cycle is one major reason why the evaluation of IS success tends

to be considered difficult (Hallikainen et al. 1998). Especially as the focus on the success measures and the results of the evaluation can vary in different times. For example, it is typical that cost and time are considered significant priorities during the project execution and the user satisfaction after project completion (Baccarini 1999). On the other hand, commitment to a certain technology might turn out to be a problem in the future, but this might be impossible to force right after the IS acquisition project completion. (Hallikainen et al. 1998)

Additionally, system developers and project managers can have a quite different attitude on what constitutes as a successful project. This is caused by the fact that the developers tend to focus on the system, which when working the way it was intended to work, is considered successful. No matter how much the project went over schedule or over budget. (Dwivedi et al. 2015) Additionally, it is often hard to define not to mention measure the information systems functions (Myers et al. 1997) Hence, there can be several different expectations concerning the system in different parts of the organization, due to which the result of the evaluation can turn out to be an opinion of a small group within the organization and not objective interpretation of the system success (Hallikainen et al. 1998).

However, even in the case where there is an ambition for objective evaluation the factors that can determine the success of IS are various, intangible and hard to define (Hallikainen et al. 1998, Zhang et al. 2002). Especially as the success has both soft and hard dimensions of which the soft are for instance job satisfaction, enhanced reputation and happiness and hard such as cost and time. Usually of these the hard factors are quite easy to define, but focusing on them can easily lead to deficient results. (Baccarini 1999) Additionally, the gained benefits are often hard to connect to the profitability of the organization (Zhang et al. 2002). Hence, traditional accounting measures for instance, do not provided sufficient enough results (Petter et al. 2012).

Measuring IS success can also be costly and difficult for the organization to perform, or at least considered as such (Petter et al. 2012). For example, as usually product success is measured based on the criteria whereby it was selected (Baccarini 1999), but the amount of competing ISs is huge and hence, it is hard and in some cases even impossible to determine whether the chosen system was the best possible system after all (Hallikainen et al. 1998).

As the IS success is a complex matter it is difficult to define whether a system acquisition is successful in its entirety though some parts of the success can be agreed upon. After all, IS success measures are often one-dimensional and hence, do

not cover the success factors with deep enough understanding. (Petter et al. 2008) This means there are both different degrees to success as well as failures (Lynch & Gregor 2004). However, this does not mean that evaluation should not be conducted at all. Especially as the evaluation is not made for the evaluation's sake, but to help the organization to realise what kind of improvements can be done. Hence, the evaluation can help the organization to lear from success as well as from mistakes in order that in the future IS acquisitions could be conducted with better certainty of success (Hallikainen & Chen 2005).

2.6 Summary of the IS acquisition success measures

Though there are multiple ways to measure an define IS success, as Petter et al. (2008) conclude, IS success is not a simple yes or no -question as different factors of IS success have different correlations between each other, but also different meanings in different occasions. Hence, the significance of the context where the IS is evaluated in, should not be forgotten. Especially as the benefits of IS acquisitions are often realised in the course of a long time (Hallikainen & Chen 2005).

However, though the time is an important variable of the IS acquisition success, this does not mean that the measures of success would change over time, though especially the success measures linked to the project are evaluable only during the project. After the project is finished the factors related to the project do not continue to change. Operational success measures on the other hand, should be evaluated in more occasions. The measures recognized in this thesis are presented in the Table 2.1

As can be detected from the Table 2.1, the IS acquisition success measures can be divided into two different categories: to the success of the acquisition project and to the operational success. The IS acquisition project success is similar to most project success measures, related to IS field or not. The operational success of IS acquisitions is though clearly more IS related, as a successful IS is vital part of success in this. Besides the IS being operational an beneficial for the users and the organization, it though should also fulfill the objectives that it was meant to. Hence, operational success encompasses, besides the success of an IS, also the success of business process re-engineering, which makes it possible for the organization to gain the benefits the system was supposed to provide.

However, as Petter et al. conclude when IS acquisitions are evaluated, there is usually a tendency to focus only the on net impacts of the acquisition. (Petter et al. 2008) This is problematic as the new IS is rarely isolated of the organizational environment and hence, changes in processes, personnel or strategic objectives can

Table 2.1 *Measures of information system acquisition success.*

IS Success		
Project success	Success of the project management	Success of completing the project
		Success of time, cost and quality objectives
		Success of conflict management
		Success of risk management
		Success of stakeholder consideration
	Success of IS development	Success of system development
		Meeting the acquisition objectives
		Success of expectations management
Operational success	IS success	Sufficient IS quality
		Sufficient information quality
		Sufficient service quality
		User satisfaction
		Success of use
		Success of fulfilling user needs
	Success of business process alignment	Success of strategic alignment
		Success of context consideration
	Realisation of desired benefits	Operational benefits
		Managerial benefits
		IS infrastructure benefits
		Strategic benefits

have substantial effect on the attitudes and results of the success measures. Due to this, it might be hard to define objectively, whether IS acquisition is successful or not. However, usually organizations have clear opinions on the matter, even though as Hallikainen and Chen (2015) conclude, after IS acquisition there might not even be a formal evaluation concerning the IS success.

Hence, though IS acquisitions are usually defined as a successes or a failures, the acquisitions are rarely fully successful or unsuccessful. As the success of an IS acquisition project can even be defined in many different ways, it is possible to define a project as both success and failure. For example, the project can be concluded within the given budgetary and cost limits and hence, be considered as success, even if the system itself would be defined as failure. On the other hand, project can be a failure but the resulted system a clear success. (Baccarini 1999). Therefore, when measuring IS acquisition success, it is important that there are clear objectives defined before the project, which then might help the evaluation the define the success more objectively (Hallikainen & Chen 2005).

3. SUCCESS FACTORS OF INFORMATION SYSTEM ACQUISITION

In the literature, there are multiple studies focusing on different success factors of an IS acquisition, as well as studies proposing best practices to conduct IS acquisitions of certain IS products (Axelsson et al. 2011). However, there is still no clear, reliable or generally accepted method, which could help organizations to conduct successful IS acquisitions time after time (Goldfinch 2007). This is partly due to the issue, that finding different best practices and critical success factors is often easy, but following this type of instructions can lead to over-simplified conclusions, where the context of the acquisition is not considered enough (Wagner et al. 2006).

However, though the intentions behind IS acquisition are commonly good, the results often do not compare with the desired results. Because of this, the acquisitions are often considered as a failures (Nelson 2007). Acquiring a new IS typically entails multiple risks as the system itself might not be suitable, but as Benamati and Ledered (2001) point out, also the implementation, application and support for the new system contain their own uncertainties and avoiding these though vital is often hard to accomplish.

Therefore, the usage of best practices and critical success factors is considered better than nothing solution for the pursuit of IS acquisition success (Axelsson et al. 2011). Of these two, best practices refer to the usage of former knowledge and experiences to define viable ways to implement IS and solve possible issues. Usually this is done with a formalized best practice process, provided by the vendor or outside consultants. By using best practices, there can be expected to be more consistency in the acquisition and hence, the probability of a successful IS is higher. (Axelsson et al. 2011) Critical success factors (CSFs) on the other hand, are tools for achieving success by performing certain actions, that are known to be important in reaching IS acquisition success. However, these factors can be considered as CSFs only if they can be connected to improved results in performance. (Ram et al. 2013)

In this study, the focus is on the critical success factors of IS acquisition, as these are more general and commonly agreed enablers of IS success. The best practices on

the other hand, are often designed for a certain system and provided by a specific vendor, due to which there is possibility that the vendors are the winners in using them, gaining the most by recommending the use of best practices to their clients (Wagner & Newell 2004). However, it takes more to be successful than using best practices or critical success factors (Axelsson et al. 2011). Nevertheless, while the success rate of IS acquisitions is not increasing, some solutions should be found to support organizations in their IS acquisitions.

Though public and private sector face different types of demands concerning IS acquisitions, in this study the differences between these sectors are not considered, as the intention is to form a generic understanding of different critical success factors in the field of IS acquisition. This is done because from the project management point view, these sectors are somewhat similar. (Rosacker & Olson 2008)

3.1 Business plan and vision

There are multiple reasons behind IS acquisitions: new needs, expected qualitative and quantitative changes and legislation (Hallikainen & Chen 2005). However, the reason for IS acquisition is often rationalized by referring to the improved organizational performance and profitability (Dwivedi et al. 2015). As IS investments are rarely made without justification for the investment, there usually is a clear vision of what the organization is trying to achieve by acquiring a new IS (Nah & Delgado 2006). Additionally, there is, or at least should be an explicit plan, how the objectives of the acquisition are to be realised (Somers & Nelson 2001). Therefore, for the IS acquisition to be successful there should be a coherent understanding about the objectives of the IS acquisition as well as the ways to get there.

Clear goals and objectives

As mentioned above in the IS literature it is considered important that there are clear goals and objectives concerning the acquisition, but also to have measurable expected results for the organization to be able to evaluate, whether the acquisition has actually reached its objectives (Nah & Delgado 2006). Clear goals and objectives are important for the IS success also because they can help the decision making during the IS acquisition project and hence, help the project to proceed in the desired direction. Even if there are multiple stakeholders involved. (McLeod & MacDonell 2011)

Additionally, clear definition of the IS acquisition's desired outcomes is important, because new IS should be aligned to the business and IT strategy of the organization

and accomplishing this without considering what kind of requirements this sets on the new IS or the acquisition project, is often impossible to do (Nah & Delgado 2006). Besides the understanding of what the acquisition should be providing to the organization, the definition and common agreement of the objectives is important, so that the expectations concerning the acquisition will be realistic. As IS success if often defined by comparing the hoped-for results with the actual outcome, it is important that the objectives of the acquisition are not set too high or low. (Baccarini et al. 2004, Somers & Nelson 2001)

3.2 Project management

Top management support

Besides the definition of clear goals and objectives of the IS acquisition, the top management support is considered one of the most important critical success factors of IS acquisitions (Dwivedi et al. 2015). Top management support is necessary, in order for the project to get the allocation of necessary resources. However, for this, the top management must see the benefits of the new IS. This means that the top management support is closely related to the definition of the objectives and hence neither of them, cannot be seen as sufficient measures on their own. The importance of this is emphasized by the fact that a lack of top management support is considered as a clear indicator of project failure (Zhang et al. 2002). Though top management support is important when the project is initialized, it is not enough to guarantee success, as the management should also be involved in the acquisition project (Somers & Nelson 2001). Especially as even though there is a tendency to believe that most of the IS acquisition issues can be fixed with managerial structure improvements (Goldfinch 2007), the involvement of top management during the IS acquisition project is important as well.

The roles of top management in IS acquisition project are for example: forming an understanding about the IS, establishing reasonable goals for the IS in the future, commitment to the successful introduction of the new IS and the communication of goals for all employees. (Somers & Nelson 2001) Especially in IS acquisitions, where the final system is used across different segments of the organization, it is important that the top management gives its support. This is to make cooperation with different sectors possible. Additionally, top management support can be of substantial help in clearing out disputes between different stakeholders and hence, prevent large scale resistance. (Zhang et al. 2002) In this the top management should be responsible for understanding the acquisitions effects and benefits in a larger scale and from many different perspectives (Hallikainen et al. 1998).

This means that besides enabling project execution and ensuring organizational benefits, managers should take into consideration the user satisfaction and various opinions of different stakeholders (Hallikainen et al. 1998). This is strongly linked to the staff's ability to learn how to use the new IS (Xin Dai & Zhiyuan 2013) and how to help the organization to gain the most of it. Hence, top management should analyse, whether the system can be integrated into the organization and whether users are able to learn, how to use the system in a way that creates benefits for the organization (Hallikainen et al. 1998).

Division of responsibilities

Additionally, it is important that top management is committed to the division of responsibilities. For instance the project manager should be given enough power to act in unforeseen situations as they see the best. Nevertheless, this does not mean that the top management, the owner of the project or organization in itself should not take interest on both the performance of the project and its outcomes. (Davis 2016) When top management has approved the acquisition project they should provide comprehensive support for the project team, so that the project can be successfully implemented and the acquisition successfully completed (Somers & Nelson 2001).

Though top management support is often emphasized as a very important factor of IS success, this is mainly the case only during the IS acquisition. For example, in ERP projects top management support is the most predicting aspect of success in the early phases of the project (Somers & Nelson 2001). As Dai et al. (2013) point out, that the role of top management decreases while the importance of the staff increments, especially in the operational phase. Though important, the top management support should not take focus away from the operational usage, where the system itself can play more important role of motivating to use than the management, especially if the system is not compulsory to use.

Besides the top management support, the project management is one of the critical success factors identified from the IS literature (Nah & Delgado 2006) Especially as most of IS related risks have to do with management, not technical issues (Ram et al. 2013). Hence, project management can be classified as one of the key actors of avoiding risks in IS acquisitions (Baccarini et al. 2004) Two of these are budget and time overruns, that are typical especially in cases where the agreements of the objectives of the project differentiate between different members involved in the acquisition. This is the case also when there is no clear project management structure to supervise, that unnecessary changes are not made during the development process. (Somers & Nelson 2001)

To avoid issues relating to contradicting goals, there should be a clear understanding of whom are responsible for decision making and held accountable if bad decisions are made during the IS acquisition project (Xue et al. 2008). This is important especially as for the IS acquisition to occur fluently, it is important that the project team is not required to get approval for every decision they make (Baccarini 1999). Additionally, as in IS acquisitions there are often multiple stakeholders involved, it is important that the project is coordinated sufficiently across all these parties. Even though some of the responsibility relating to the consideration of the different stakeholders is on the top management, taking these needs into consideration during the acquisition project requires project management as well. (Nah & Delgado 2006)

Viable implementation plan

When considering how good project management can increase the possibility of a successful IS acquisition, five different management aspects can be recognized: a formal implementation plan, a realistic time frame, a periodic project status meetings, an effective project leader, in addition to a project team, which are stakeholders of the IS to be acquired. (Zhang et al. 2002) Moreover, Nah and Delgado (2006) point out that besides having a realistic time frame it is important that the timelines should be enforced and projects process to be monitored, for example by an executive team. For all of these tasks there are many possible management tools and procedures that can be used to help the project management to accomplish them. (Somers & Nelson 2001)

Project scope management

Project management has an important role also in the scope management of the IS acquisition. This means that project manager should make sure, that the scope of the acquisition does not excessively expand during the acquisition, even if new needs would be discovered. The scope management is vital for the acquisition because the larger the IS acquisition is, more likely it will be unsuccessful (Standish Group 2015). Additionally, when project scope expands during the acquisition, it is likely that the decisions to include new properties is smaller than the actual IS acquisition and hence, more carelessly evaluated. Furthermore, large IS acquisition projects are hard to monitor, and hence, it is hard to notice when things are not going as they should. In this, the scope management is an important feature of IS acquisition project management. It can also be hard to find people responsible, when issues occur. (Goldfinch 2007)

All in all, the significance of the size of IS acquisition is still high. According to the Chaos report released by Standi's Group (2015) the size of the IS acquisition can

have a significant effect on project success as from large software projects only 6 percent were considered successful, not to mention the grand sized projects where the success percent is only two. If it is compared whit 60 percent success rate of small projects, it is quite easy to presume that there is a clear connection with the size of the IS acquisition project and the result it provides. Hence, in the case of large acquisitions, division of the project to smaller and more manageable entities can have an effect on the IS acquisition success.

Furthermore, it is important to note, that the features of the acquisition are closely connected to the system acquired. As in mature systems especially when the system is implemented without substantial modification, the project will have different needs and requirements than a completely new system. Additionally, even the challenges concerning the acquisition project can vary between mature and new products (Saarinen & Vepäläinen 1994). Ram et al. (2013) conclude that in mature systems the functionalities and features have potential to fit better to the organization, as the functionalities are already developed and hence, easier to define and communicate. However, implementing only mature systems is not a solution for IS acquisition success, as these types of systems have their own risks. For instance, it is possible, that the new IS will be old dated even before the implementation and hence, unable to provide the desired improvements of organization's operations. (Ram et al. 2013)

Risk management and learning

Besides the maturity related risks, the main risks concerning the IS acquisition according to Baccarini et al. (2004) are: commercial and legal relationships, economic circumstances, human behavior, political circumstances, technology in addition to technical issues, management activities and controls and finally individual activities. (Baccarini et al. 2004) These however, are not the only possible issues. For instance, when pursuing a better success rate of IS acquisitions one significant risk, unmentioned by Baccarini et al. (2004) is the organizations inability to learn from its previous IS acquisitions and hence, vulnerability to be more prone to repeat its previous mistakes. This might be caused by lack of incentives from the management. For example, sometimes too strong or misleading conclusions are drawn from individual experiments, which can cause a vicious circle of repeating the same mistakes acquisition after acquisition. However, it stays unclear what organizations should learn from IS acquisitions to be able to avoid failure. (Goldfinch 2007) Nonetheless, risk management and learning are clear indicators of IS acquisition success.

Though there are multiple ways to address a risk concerning the IS acquisition (Baccarini et al. 2004), for the success of an IS acquisition is often even more important

that possible problems are identified beforehand (Dwivedi et al. 2015, Goldfinch 2007) Therefore, a clear process on how to handle risks should be in place. One process model is presented by Baccarini et al. (2004) and it contains the following steps: establishing the context, identifying risks, analyzing risks, evaluating risks, treating risks, monitoring and reviewing and finally communicating and consulting people about them. Hence, there are tools and processes that organizations can use, when it comes to risk management. The issue however, is not how to handle the risk, but to actually execute the risk management process, as the risks are easy to ignore until they are realised. (Baccarini et al. 2004)

Resource allocation

As mentioned before, top management has many different and important roles in guaranteeing IS acquisition success, one of which is the resource allocation for the IS acquisition (Zhang et al. 2002). If an organization is not willing to dedicate sufficient amount of resources for the acquisition, it usually turns out to be a problem (Somers & Nelson 2001). Especially as unreasonable budget and schedule in addition to personnel shortfalls, are considered one of the top risks of IS acquisition projects (Baccarini et al. 2004). Particularly it is quite common to underestimate the needed resources at the beginning of the IS acquisition project. This inability to secure resource commitment is though difficult to note in the beginning of the acquisition. However, it is not sensible to grow the amount of resources during the acquisition either. (Somers & Nelson 2001)

Project champion

Besides adequate resources it is vital that the acquisition project has a person who is committed to the process change inside the organization during the project (Axelsson et al. 2011). According to Somers and Nelson (2001) in many cases of IS implementation success, the success is linked to a presence of a project champion who takes the responsibility of marketing the project to the users (Somers & Nelson 2001) and supports the management during the acquisition project (Nah & Delgado 2006). However, having a project champion no matter how a significant role he or she has, is not enough. Team work between different departments and people involved, including vendors and possible consultants is important factor to guarantee a successful project implementation as well. (Ram et al. 2013)

3.3 Change management

When acquiring a new IS, it is important that the chosen system will fulfil the needs for which it was acquired for. However, besides the suitability concerning the organization's needs, the IS should also fit to the organization, in order it to become a part of the organizations new way of operation and culture. As it can be costly to fit the system to the organization, especially from the updates point of view, the business processes should be fit to what the new information system can support (Somers & Nelson 2001). This requires systematic change management. Especially as the benefits of the new IS might not be achieved, if the new IS is not successfully fitted to the organization (Davis 2016). No matter the possible benefits large-scale changes can cause resistance, confusion, redundancies and errors. These however, can be avoided with change management. Unfortunately inside the organization, the change management is rarely considered in vast enough extend, which can have negative effects on the IS acquisition success. (Somers & Nelson 2001)

Business process reengineering

As was pointed out, business process reengineering is vital part of IS acquisition success, especially when acquiring large systems. Usually this type of ISs require vast process change and alignment of the new IS and processes. (Zhang et al. 2002, Nah & Delgado 2006, Axelsson et al. 2011) Especially as when acquiring a new system, there is a risk that a gap exists between the functionalities of the system and the processes of the organization (Axelsson et al. 2011). Hence, focusing on the way employees work and think, is an important factor of guaranteeing IS acquisition success (Dwivedi et al. 2015).

However, for this to happen education should be provided to the users, so that they get understanding of how the new IS works and will affect their work. (Nah & Delgado 2006) Nonetheless, if the needs of different stakeholders are not considered early in the project and the effects of the required changes are not analyzed deeply enough, there is a risk that the process changes conducted might support the new system, but not the organization (Baccarini et al. 2004). This is the case especially in occasions where organizations acquire package softwares without careful consideration and hence, the final product does not satisfy the information or business process needs of the organization. (Somers & Nelson 2001).

Besides considering the organization's needs, the organization's culture and its ability to respond to needed change willingly, should be considered. As Ram et al. (2013) point out, the cultural factors can affect organization's readiness to perform the required changes when needed (Ram et al. 2013). For this following factors can

be seen important to pay attention upon the organization's willingness to reengineer, its readiness for change, its capability of change, and ability to communicate the change. (Zhang et al. 2002). Additionally, implementation of the change and its timing should be planned. Moreover the improvement of business processes should be started before or at least at the same time as the IS acquisition. (Dwivedi et al. 2015).

However, business process reengineering cannot be done if the organization does not have a clear business plan or vision of what it wants to achieve in the future and what the role of the new IS will have this vision (Ram et al. 2013). Hence, though ability to align business processes with a new IS is important also consideration, whether these changes are beneficial for the organization should be done. Especially as if the system acquired is not suitable for the organization, there is a risk that the changes it induces are not beneficial, even if they would have been successfully carried out. Nonetheless, after the analysis of the suitability of the IS is conducted, it is important for the process change, that the change is clearly supported by the management. Moreover, the team or the people responsible of communicating the change should have enough courage to stand up to the critics of the project, for the change to be carried out successfully. (Axelsson et al. 2011)

Hence, when new IS is acquired, it is important to notice that the only change is not the new IS, but that there are multiple other aspects effected as well. One way to analyse the different levels which should be considered is presented in the Figure 3.1

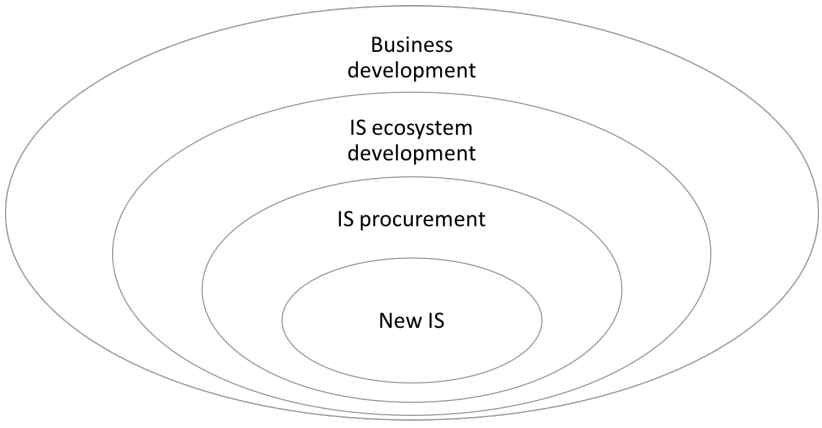

Figure 3.1 *Different development levels of IS acquisition, adjusted from (Hallikainen & Chen 2005).*

However, it should also be noted, as the study of Ram et al. (2013) points out, that business process re-engineering has no measurable correlation with the operational

benefits of new IS. However, it is likely that this is due to the effects of business process re-engineering on other factors that are considered measures of IS acquisition success. These are for example the alignment of a business with the new system and the change management of the organization. (Ram et al. 2013)

Managing expectations

While the strategic role of IS increases, the expectations concerning new IS have become more unrealistic. (Baccarini et al. 2004) As one of the biggest problems that lead to IS failure is the overblown and unrealistic expectations concerning the new IS (Goldfinch 2007), managing stakeholder expectations is a management strategy critical to IS success enforcement (Baccarini et al. 2004). Especially as in some occasions failure of an implementation of IS is considered to be solely due to its inability to satisfy the key stakeholders' expectations. (Somers & Nelson 2001)

As users are constantly becoming more demanding when it comes to new IS, the managers have even greater responsibility to manage the expectations concerning the new IS than ever before. At the same time, this task has become more challenging as the new ISs are often not meant to be used by only a few people but in some cases even by the whole organization. Hence, there are more types of users to be considered. Different types of users again have often quite different expectations concerning the new IS. (Staples et al. 2002) For instance, users that have good technological competence are expecting technologically state-of-the art systems, that fulfil their needs sufficiently, whereas users with less knowledge of information technology are focusing on the usability aspects of the new system, both of which should be considered (Miller 2000).

Though managing expectations has become more demanding, it is agreed that managers who use effective strategies to manage expectations can enhance the success of the IS implementation. For managers this means that expectations should be high enough to gain top management support for the acquisition, but not too high, that the users will not be satisfied with the system when it is finished. However, as some studies suggest that high expectations concerning the system increase the success and others that they do not, it is hard to define clear rules concerning what to do. Nevertheless, it is more commonly agreed that unrealistically high expectations lead to lower user satisfaction. Moreover, it is noted that users with unrealistically low expectations are more dissatisfied with the final than users with realistic expectat, the ions. Hence, much attention should be paid to keeping expectations at a realistic level. (Staples et al. 2002) All in all, taking user expectations into consideration can have a significant positive effect.

How should managers then take the expectations into consideration during IS acquisitions? First of all, the strategy where managers intend to get users "on board" by exaggerating the benefits of the new IS, is something not to do, as this tactic can create unrealistically high expectations. Instead managers should make sure that users are involved in the acquisition. When users are involved, the expectations are often more realistic than when the expectations based only on the information provided by the management, especially as the managers can have unrealistic expectations concerning the new is as well. Staples et al. (2002) also suggest that managers should pay close attention to the following features of the system: the system usefulness, information quality and ease of use, as the user expectations and dissatisfactions are often related to these. (Staples et al. 2002)

The need for managing expectations is hence quite obvious, as if the expectations are not managed sufficiently during the IS acquisition, the acquisition results in dissatisfied users, unwillingly to use the new IS (Somers & Nelson 2001). Therefore, it is important that the users are involved in the acquisition project. Efforts should also be focused on making the users have good enough comprehension concerning the change and its effects but also the reasons behind it. (Axelsson et al. 2011) This way the expectations are more related to the actual changes and not for example on rumours. However, this requires dedication to communication (Davis 2016).

Communication

Hence, communication is an important aspect of the IS acquisition success. Good communication refers both to the communication inside the project team and the communications inside the organization. The communications with the stakeholders outside the organization should be considered as well (Ram et al. 2013). This is the case especially between the vendor and the client organization, but the communication with the users should not be forgotten either (Davis 2016). For example if the users think, that their feedback or concerns are not listened to or acted upon, the attitudes towards the new IS can be quite negative and affect the felicity of the project all together (Nah & Delgado 2006).

Especially if employees are not given enough information concerning the changes in the business processes, can this lead to the atmosphere of uncertainty and eventually rebellion over the changes. This means that for a IS acquisition to be successful, it is vital, that the business process reengineering is conducted in a way that management is willing to answer the employees' questions and share information concerning the process changes. (Zhang et al. 2002)

Consequently, communication is important aspect in guaranteeing the commitment

and cooperation between the stakeholders. (Somers & Nelson 2001). Organization should also focus on the way the communication is conducted, to get the best possible result of it. For instance, communication should be open to guarantee honesty between different stakeholders (Nah & Delgado 2006). To encourage interdepartmental cooperation, which too, is an important aspect of the communication (Somers & Nelson 2001), a clear communication plan should be formed before the acquisition project is even started (Ram et al. 2013).

Training and education

IS acquisition projects often tend to focus on the process of gaining a good information system and either transforming it or the business processes in a way that the implementation of the IS can be done successfully. This however, does not consider how the users of the system will respond to these changes or accept them as a part of their daily lives. To address these kind of risks in the acquisition, it is important to ensure good training and education for the users. However, according to Zhang (2002) the need for education and training is often underestimated or frequently given less time than necessary mostly due to schedule or cost pressures of the project. Although training is known to help the users to understand the significance, goals and long-term perspectives of the IS, this is rarely given enough attention (Somers & Nelson 2001), even tough training programs, that are intended to enhance user's skills concerning the new IS, are vital for the organization to reach its managerial, financial and performance targets (Zhang et al. 2002).

All in all, users should have a better understanding, how their work is related to the new IS. The main purpose for this is to improve the knowledge and expertise of employees to improve their efficiency and eventually profitability. (Zhang et al. 2002) Therefore, it is important that the users are aware, how they can use the system in a way that can improve their work performance and basically help them do things faster or better than before. However, the training should not focus only on how to use the system in the most efficient way, but how to change previous routine to support the new business process created around the new IS (Somers & Nelson 2001, Ram et al. 2013). Helping the users to get accustomed to the new business processes should hence be payed attention to in the training implementation, as when IS education is done in a hurry, it is possible that it is conducted without a clear understanding about the business processes, which the users should follow and therefore the benefits gained can be diminished (Zhang et al. 2002).

Using coping mechanisms

Besides providing an education concerning the use of the new IS and the changed

business processes, there are also other ways the users' attitudes towards a new system can be affected and hence, the IS success improved. For example, Benamati and Lederer (2001) present five different coping mechanisms that can help the organization to overcome the issues with fast changing IS environment. These mechanisms besides the education and training are: acquiring consultant support, employing vendor support, utilizing internal procedures and exploiting endurance. Last of which Benamati and Leder do not consider a suitable mechanism, but point out that it is still often a used tactic to cope with IT change.

Of these especially the education and training in addition to focusing on the internal procedures was seen to reduce predicted IS related problems (Benamati & Lederer 2001). The internal procedures refer to the developing of processes that could aid the evaluation, acquisition and implementation of new IS. On the other hand, consultant help and endurance were seen to correlate with the escalation of problems and hence, can be concluded, that all coping mechanisms presented above cannot be considered as improvements of IS success. Benamati and Lederer (2001) also point out that when using vendor support organization should consciously allocate resources to the supervision of the vendor, for this mechanism to be useful. This however, is not always possible and therefore this mechanism should be used with care. All in all the coping mechanisms of Benamanti and Lederer (2001) are not themselves important factors of success. Misusing them though can create substantial issues and hence, taking them into consideration can be important.

3.4 Competence

Competence in an IS acquisition context refers to the capabilities and knowledge required to manage IS acquisitions successfully. The lack of competence can have notable negative effect on the final system as well as the acquisition project. Hence, the need for capable project team, experienced consultants and vendor are factors that should be ensured throughout the IS acquisition. (McLeod & MacDonell 2011)

Competence of the organization

Organization's competence concerning IS acquisitions is considered a significant factor when it comes to project success (Jennex & Adelakun 2003). As managers are often responsible for the decision making during the acquisition project, their competence is emphasized even more. However, many managers tend to overestimate their capabilities and competence to manage large IS initiatives in addition to their ability to follow organizations objectives (Dwivedi et al. 2015). Therefore, the lack of knowledge might not even be noticed during the acquisition project, even though

it can have a substantial effect on the final result.

Besides the managerial competence Somers and Nelson (2001) note that it is important for the success of the IS acquisition that in the project team holds enough competence and that there are both people with competence on business processes and people with sufficient technological understanding (Somers & Nelson 2001). Especially as projects, that are conducted only by the IT department, there is a risk that the business process alignment is not taken into consideration. This again can lead to a technically excellent system that does not support the organizations business processes or an IS that is otherwise unsuitable for the organizations use (Rosacker & Olson 2008). The lack of technical knowledge on the other hand can result in poor IS (Somers & Nelson 2001)

Hence, knowledge, skills, abilities and experience of the project team members can be considered crucial to the success of the IS acquisition. (Somers & Nelson 2001) For instance, in the study of Nah and Delgado (2006) project team composition and competence were found to be the most important success factor of IS implementation. Therefore, it is important that people with knowledge about the needed functionality and the operational procedures are involved in the acquisition project. It was also pointed out that it is necessary that the project team's competence is fully trusted, so that they can make decisions in a fast phase without constantly needing to apply approval from their managers. This however, does not mean that sharing of information can be forgotten, but the project team should be competent enough to manage the basic level decisions on their own. (Nah & Delgado 2006)

Competence of partners

Additionally, the vendor's competence to produce the product agreed upon in the contract is a vital part of the success of the system. Moreover vendor should have previous knowledge about similar IS projects. However, the ability to produce a suitable IS does not guarantee ability to provide a good customer service or a competence to help the customer to communicate their needs or participate in collaboration with all parties involved (Gorla & Somers 2014). The vendor's ability to consider the project from both the business point of view as well as from the coding perspective is important. Especially as programmers have a tendency to become quite exited of new programming methods, due to which there is a risk that the vendor is motivated to provide only a technically superior system, no matter how well it responses to the customer's needs. This however can be avoided if the vendor side management is competent enough to manage their team. (Goldfinch 2007)

One way to analyze vendor's competence is by looking into best practices. Even

though as Wagner and Newman (2004) point out the vendor might use best practices to their own advantage. The best practices however can be considered as a signal of understanding and knowledge of the particular system (Wagner et al. 2006). On the other hand, especially in larger IS acquisitions there are consultants involved in the acquisition process, and their competence can have a great effect on the final IS as well. Often the best practices are provided by the consultants, especially if the IS is a package software and the adaptation of the software to the organization is done by the consultants (Axelsson et al. 2011). Hence, the consultant competence and understanding about both the client's business and the functionalities of the IS is important when consultants are used during the IS acquistion. Especially as, using consultants is still a common way to ensure that there is enough knowledge to carry out IS acquisition successfully. (Ram et al. 2013)

3.5 Cooperation

For the customer to be satisfied with the acquired IS, it is vital that the acquiring organization can trust the vendor and its ability to provide the best possible IS the organization could get. Especially as without trust, even if the vendor has the capabilities to provide a sufficient IS, the customer might not consider it as such, if they do not believe in the vendor's capabilities. (Jennex & Adelakun 2003) One way to take this into consideration, is to stress the significance of cooperation during the acquisition project.

Strategic relationship

For the collaboration to be beneficial, the relationship between the customer and vendor should be strategic in nature, so that there is a need for a mutual trust. Successful completion of the project should also be in the best interest of both parties. (Somers & Nelson 2001) Strategic relationship often has a positive effect on the trust between the customer and vendor, and it can also influence the quality of the vendor's support for example response time, active participation and desire to provide their competence as comprehensively as possible (Zhang et al. 2002). This again can have a positive effect on the IS output performance and hence, the IS success (Ram et al. 2013).

Using consultants

However, creating strategic relationships with the vendor is not always necessary, as many occasions in IS using consultants as implementators of the IS, is quite typical. Hence, the cooperation between different stakeholders does not limit to

the interactions between the customer and the vendor. Nevertheless the role of a consultant can be very different compared to the vendor as consultants can be the messengers between the customer and the vendor and hence, hold the key to fluent communication among all parties. When the consultants have understanding about the IS and its suitability to the organization, they can be of substantial help when the IS is implemented into the acquiring organization. However, there is not a common agreement on whether consultants are actually beneficial for the IS acquisition success. Especially as it is not certain that the consultants have enough expertise to actually support the organization with its IS acquisition. (Somers & Nelson 2001)

User involvement

However, no matter how good cooperation exist between the vendor, consultants and the IS acquisition project team, for the IS to fit the organization and gain acceptance among its users, user involvement and collecting feedback from the users are important predictors of IS acquisition success (Nah & Delgado 2006). Hence, the user involvement in software development is considered one of the key factors of IS acquisition success. Nevertheless studies related to the benefits of user involvement have produced quite conflicting results concerning whether the user involvement can actually improve the IS success. These results however, can be explained at least to some extent by the type of user involvement as some types of user participation can produce more benefits than others (Bano & Zowghi 2013)

User involvement refers to the participation of users in the development and implementation process of the new IS (Zhang et al. 2002). As information systems are acquired with the intention to serve the end-users (Myers et al. 1997), their opinions' should be taken into consideration during the system selection and development (Seddon et al. 1998). Especially as some studies point out, a lack of user involvement can lead to a failed acquisition project (Zhang et al. 2002). However, taking users into a consideration is not an easy task. First of all, the term user can have many different meanings. Users can have multiple roles inside an organization and hence, the role of IS can vary among them. Furthermore, IS acquisition process has multiple different stages and though user involvement is often taken into consideration in the early paces of the acquisition for instance in the requirement development, users should be considered in the later phases as well. Especially, if the users are excluded from the acquisition after the IS has been selected, the feeling of not being heard can easily lead a resistance of the system later on. (Lynch & Gregor 2004)

The degree of user influence can be divided into two elements: the type of influence and the depth of the user participation. The type of user participation depicts the nature of the method used to extract the views of the users. The depth of the user participation on the other hand refers to the stages of the acquisition process in which the users are considered, the frequency of which it is conducted and whether the opinions are actually used in the acquisition process. The degree of influence presented in the Figure 3.2,is then the composed outcome of the type of user participation and the depth of it. (Lynch & Gregor 2004)

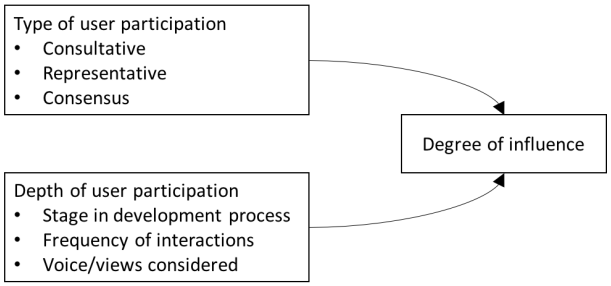

Figure 3.2 *The degree of influence (Lynch & Gregor 2004).*

However, besides the opportunity to take users' needs into consideration, user involvement can also increase the perceived feeling of control and this way decrease the possible objection of the system. (Zhang et al. 2002) Nonetheless, user involvement is not an easy way to guarantee IS acquisition success as the level and type of participation given to the users can have a substantial effect on the way users perceive their opportunity to effect on the acquisition and the needed type of user participation can be difficult to determine beforehand. (Lynch & Gregor 2004)

User involvement nonetheless, is important because focus on this particular matter requires the comprehension of the users and the other stakeholders as well, especially as the different stakeholders might have different needs (Moe & Newman 2014). Hence, planning of user participation can help with comprehensive stakeholder consideration. To do this a plan of whom will be included in the acquisition is required and how the views of these stakeholders can represent the view of all users in the most sufficient way. (Lynch & Gregor 2004)

3.6 System analysis, selection and technical implementation

Though the factors concerning the project implementation are often vital for the success of new IS acquisition, the significance of the system should not be ignored.

As Somers and Newman point out, the success of IS acquisition is defined quite early in the acquisition process as the selection of suitable system has a significant impact on whether it can be successfully implemented in the organization or not. Hence, it is important to prepare the selection process and implement it with care, so that there is a solid foundation for the acquisition project, from the views of organizational information needs and processes but also from the point of view of the budget, timeframe and the goals. (Somers & Nelson 2001)

If the acquired IS is at least in some way able to fulfil the needs it was anticipated to or the need to redesign the system or business processes is small, there is better possibility to implement a successful IS. This refers also to the hardware requirements as the system should be suitable for the technical environment of the organization so that the projects work load does not focus fully on providing interfaces between old and new systems (Zhang et al. 2002, Ram et al. 2013) Additionally it is important that the data from the old systems is converted successfully, which is often considered a critical issue when it comes to the successful implementation of a new IS. (Somers & Nelson 2001)

3.7 Summary of the success factors of IS acquisition

The literature has recognized multiple different success factors of IS acquisitions. Some of which are relevant for the acquisition project to be followed trough and some critical for the new IS to be integrated to the organization, so that the benefits the IS can generate are attained. In this thesis the success factors of IS acquisition have been divided into six different sub-areas: business plan and vision, project management, change management, cooperation, competence and system suitability. These are presented in the Table 3.1.

Though all of these factors have been considered significant in the IS literature, they all do not have equivalent role in all acquisitions. Different factors can have different roles in different phases of the IS acquisition, and the role of different factors can even vary between projects (Goldfinch 2007). Additionally, all of these are not always vital for the successful IS implementation, as for instance using consultant help, is often linked to the knowledge needs of the acquiring organization.

However, the factors presented in the table 3.1 are often emphasized as critical success factors for the acquisition and lack of them is often connected to the failure of the acquisition. However, it is important to notice, that these success factors do not provide a short-cut to success, though when realised they can provide help and improve the probability of success. Hence, if an organization handles its contextual

Table 3.1 *Success factors of IS acquisition.*

IS Acquisition Success Factors	
Business plan and vision	Clear goals and objectives
	Commonly agreed objectives
Project management	Top management support
	Formal implementation plan
	Resource allocation
	Division of responsibilities
	Scope management
	Realistic time frame
	Risk management and learning
	Effective project team and management
	Project champion
	Status meetings
Change management	Business process reengineering
	Managing the stakeholder expectations
	Communication
	Training and education
	Considering user satisfaction
	Using coping mechanisms
Cooperation	Strategic relationship
	User involvement
	Using consultants
Competence	Organizational competence
	Managerial competence
	Project team competence
	Vendor competence
	Consultant competence
System analysis, selection and technical implementation	System suitability

aspects sufficiently, the critical success factors can provide better circumstances for the successful IS acquisition. This means that success factors of IS acquisitions do not provide one fits all solutions and can over-simplify the acquisition process especially if the context of the acquisition is not considered thoroughly enough. (Axelsson et al. 2011).

Hence, it can be concluded that there are multiple factors recognized in the IS literature, with which IS acquisition success probability can be enhanced, but all acquisitions are different and therefore their successes cannot be fully relied on the realisation of different success factors. Nonetheless following the guidelines provided here can be expected to help in the IS acquisition and therefore be significant to recognize, at least so that organization can learn which factor are important to certain types of acquisitions. In order that they will be able to focus on those in the future and thereby improve its success rate in future IS acquisitions.

4. CASES

This study covers two information system acquisition cases, one from the private and the other from the public sector. The case A is an acquisition of a human recourse (HR) management system conducted by a private, globally operating company and the case B is an illustration of an IS acquisition consisting of an operation management system and a mobile application, carried out by a municipality in Finland.

4.1 Case A

The case A represents an IS acquisition where organization renewed its old human resource (HR) management system by replacing it with a cloud based solution. The attempt was to standardize the HR function in the whole organization both in Finland and abroad, and additionally ease the work load of management by helping them to manage their subordinates in different locations more effectively. As it was expected that when *"everything is in the same tool, it forces the process in to a global model, which makes sure that there is a certain way to do things." [Program manager A]*

Though the need to renew the HR system arose inside the HR-unit, it was common knowledge that the old way to carry out the HR related tasks, was ineffective and did not support the global way of thinking, which however, had been an aspiration for the whole organization for quite a while. Hence, when the need for the new system was articulated, there were justifiable reasons behind the need for the new IS. This however, did not mean that there were no opposition concerning the investments, even though the old system was not sufficient for the HR's needs. Therefore, gaining the top management support for the acquisition, which did not directly benefit the actual businesses, was not an easy task. *"But though the discussions were hard, when the investment was approved, especially the business side was excited." [Program manager]*

Ready, Set, Go –The 1st release

Due to the scope of the acquisition, the IS implementation was divided into three

different releases, all of which were dealt with as independent acquisition projects. During the time of this research two of the three releases were completed and both of them were considered as successes. Due to these circumstances, this particular case actually contains two different though closely linked IS acquisitions.

After the need for the system renewal was realised and accepted, the organization faced significant changes and due to these, the acquisition was put to hold until the situation settled. Then the first release of the acquisition process, started to advance rapidly. As HR functions are bound to the HR process's annual clock and the goal was to implement the new HR functions before the new cycle would begin, the schedule for the project was extremely tight. This meant, that the system needed to be implemented within half a year. As the project was officially launched in autumn and was finalized before the turn of the year, a lot was carried out in a very short period of time, as one of the interviewees points out: *"We did this in a very fast half-year cycle and the whole project was in a way, squeezed in to this pressure cooker mode, a where from the start we were in a hurry and the first visible results needed to be ready very fast." [Program manager]*

At this phase, the project was managed by the organizations IT department. *"There was the core team which was the same for all of the modules. Then the more detailed planning was conducted in smaller work groups. Basically, the core team was responsible for the systems general design and made sure that the project was on schedule [..] the specialist then were the ones responsible for the detailed factors." [Super user]* Hence, the team contained specialists also from the HR functions that the acquisition affected. Additionally, a group of users were selected to be active participants in the acquisition. As the process of analysing what the renewal of HR systems could provide had been started already before the acquisition process was launched, by collecting feedback from the users. Hence, *"the users that were the most enthusiastic of giving feedback, good or bad, were sought to be used as testers" [Manager, HR]*, throughout the acquisition project

Besides the team formed inside the organization, an outside project manager was brought to lead the project and manage the cooperation between the organization's project team and the outside consultants, who also operated as the integrators of the new IS. However, some complications arose between the project manager and the project team, which lead to a situation where the project was not really advancing the way it was planned to. Eventually they *"were forced to change some individuals in the first release, as at that point the mindsets, roles and the expectations, did not meet and the required competence was clearly insufficient. This in no way means that that by changing some individuals the project was successfully completed, though*

there were some complications in the roles and by reducing the number of people involved, the project was easier to manage." [Program manager, IT]

Unfortunately, this was not the only issue. When the particular system was sold to the organization, it was done with spectacular presentation, depicting how the system could look and work. When the development of the system was actually started the team of consultants did not include the individuals who actually sold the system. This lead to a situation where the project team experienced, that the project was actually advancing backwards. Especially as when the development started, all that the consultants had to show, was an Excel sheet nowhere close to the product, that was actually purchased. *"It was such a huge pain in the ass, the feeling that I have no clue why are we using so much time on some Excel and we had so many meeting and so many hours were wasted just by staring at that Excel sheet. Hardly anything is that boring." [Project manager, IT]* This was quite a shock to the project team, which expected that in a cloud based solution and with an agile development plan, there would have been more to start with than what the consultants were able to produce.

This lead to a time of frustration, especially as it became evident that the consultant team, no matter what their references stated, had no experience concerning the tasks they were supposed to do. *"There was this young guy who was clearly learning how to do the job, no matter what his references or CV claimed, it could not have been true [Project manager, IT]*, as he lacked the necessary experience for the job. *"However, the expectations were quite high in the first place, as there was this presumption that the consultants would just arrive and know what is the best for the organization. That they come and tell that this is how you should do it [..] this however, did not happen, but on the other hand, we had ordered a technical consultation though we were expecting a process one, and hence, the expectations and the reality did not really meet." [Project manager, IT].*

When this was compounded to the fact that the particular provider was not the choice of the HR, but designated by the upper level management, the team work was somewhat difficult for all. However, after the first iteration, when the specialist from the HR finally received the first version of the interface, the communication with the consultants became more fluent. As one member of the project team points out: *"The first day we saw the actual system, the concept owner printed the screens and basically just drew where different modules should be located, and how they should be named. After this, the project advanced in giant steps." [Project manager, IT].*

At this phase, the competence of the project team came into play. As the team had

substantial rights to make decisions concerning the functionalities and the outlook of the IS. The project advanced quite fast. *"Anyhow, in cloud based services one cannot define everything beforehand and hence, it is important that there are right individuals making the decisions on what works and what does not. Because you cannot know, what is technically possible beforehand." [Manager, HR]* In this, the maturity of the system had a great role as well, as it was quite easy to implement the desired functions stated by the organizations project team.

Though the resources given to the acquisition were not overflowing, the project was pushed through in the given time frame. Due to this, when the project was finished, it was considered as success partly only based on the fact that that *"the team did not break under the pressure, as if this had happened it would have been a very big failure" [Program manager].* However, the possible failure was avoided and due to this, the project, despite it difficulties, was seen to be a success.

The new IS is here

When the development of the modules acquired in the first release was finished, also the training of the HR personnel had been conducted. This was done already with the previous iteration, to make sure that all of the main users would have good enough knowledge of the system to provide support to the managers. Especially as only an educational document was provided to the them. There were also clear division of responsibilities, where the main users of the system were responsible for helping the managers using the system and then the super users were dedicated to helping the main users of the different regions. However, for some reason most of the inquiries concerning the issues in the system went directly to the super users and hence, burdened wrong individuals of the HR personnel.

Despite the difficulties with the support functions, the feedback concerning the system was positive and *"especially the managers above all users were clearly satisfied [Concept owner A].* Even though *"the new system requires more work as managers have to visit the system more often. On the other hand, they have to use only one system now." [Super user].* Hence, the system has lightened the burden of managers as it was intended and therefore the new system is seen as a positive facelift for the HR function all around the organization.

Though the system users inside the HR and the users outside the HR function were pleased with the new IS, this was not the case among the support personnel, as *"it was one of the main things [..] the fact that the system was easy to use from the manager point of view and in some ways this has been achieved as some work-arounds had to be made." [Concept owner A]* This meant more work for the support

personnel, which was then emphasized even more, as with the new system HR had gained more IT related tasks.

Hence, during the acquisition and the IS selection, the goal to ease the workload of the business was emphasized over the HR support personnel. However, the work required for the IT related maintenance came as surprise, especially for the main users of the new IS, but to the HR as a whole as well. Due to this, the HR was not prepared for the increase in the work load, which again lead to a high level of dissatisfaction.

All in all, the transition to the cloud based HR solution enabled the HR to unify its functions, as one of the interviewees points out: *"We have many businesses and many countries that worked independently with their own processes and their own software. Now we have brought them together to the same processes and the same tools. Managing this has been the biggest thing by far." [Concept owner A]* Additionally, the new matrix organization structure was finally possible to manage, which *"wouldn't even have been possible with the old systems." [Project manager, IT]* Additionally, *"the transparency has increased tremendously" [Concept owner A]* and as this was one of the main goals of the acquisition, it signaled that the acquisition achieved what is was meant to. Hence, this IS acquisition was seen as a success.

Though the end result of the IS acquisition was considered successful, the acquisition project was extremely hard for everyone involved. Hence, before the particular release was terminated, the organization *"made a full "autopsy" for the whole project and pondered why particularly this project turned out to be so difficult" [Project manager, IT]*, in order that the same kind of mistakes could be avoided in the future.

Time for the 2nd release

After the first release of the IS, the HR started to prepare for the second release. After it was accepted by the top management, a similar acquisition project was launched. However, as the basis for the system was already made, adding new modules was somewhat easier than in the first release. Furthermore, as the project team was already familiar with each other, the team worked quite well together. Especially as, *"there were significantly better group of consultants available than in the first release"*. Hence, the consultants attending the development of the modules of the second release were somewhat more experienced than in the first release. Therefore the new members were easier to accept the group. Moreover as the system was familiar after the first release, the development work was somewhat easier to conduct.

Although in this release there were no clear conflicts between the project participants or similar lack of knowledge than in the first release, this acquisition project was not conducted without issues either. This time the issues were technical and mainly related to the novelty of the modules included in this release. In this case the experience of one of the consultants was the key to solving arisen issues as one member of the project concludes: *"This release, was mainly pulled through owing to this Super Goofy, whose technical competence and sharp IQ got us through the issues we were not even any way prepared for. Basically without him we would probably still be rolling our thumbs unaware of what is happening." [Program manager]* Nonetheless, some valuable time was lost.

Latest thoughts

As a whole, the second release as well was considered successful even though the modules implemented are not yet as finished as they could be. Nonetheless there has been positive feedback concerning the second release as well. Additionally, the HR personnel was more prepared to the work, that the new modules acquire. The modules that were in use during the time of the study, have also increased the efficiency of different HR functions. For example *"in the old systems [the calculation of pay] could have taken weeks and now it can be completed in few hours. [Project manager, IT].* Moreover, *"we have clearly found some new talents among us [..] as now that the information can be found from one place, it can also be processed and hence, used." [Program manager].*

Though the current state of the HR's IS development is considered good, there is continuously more pronounced demand coming from the upper management to use the acquired IS in a more strategic way. After all *"the [acquisition] was mainly a strategic one, IT-strategic but also strategic from the point of view of our values and strategy as a whole" [Concept owner A].* However, to fully respond to this demand, the last release of the acquisition should be conducted. Nonetheless, currently the HR is recovering from the vast changes it has already been through, before initializing the final state of the full acquisition.

"All in all, the acquisition is clearly a success, even though it is often easy to focus on the things that do not work, but we have gained so much already." [Concept owner B] Anyway *" it seems that we knew what we were doing, at least in the large scale of things and we have managed to implement the IS the way it was intended to." [Manager, HR]*

4.2 Case B

The case B is an acquisition of a new IS of an elderly home care unit of a municipality in Finland. The unit is part of the social services of that particular city and serves over 2000 clients a year. While the care needs of the clients have been building up in the recent years, the organization of the care has become more challenging. With this and with the desire to improve the processes in mind, an idea of ICT-based solution arose in the home care unit and was politically supported by the city's committee.

In the particular municipality, propositions of new IS acquisitions are brought to the city's CIO's office, where they are evaluated, and possibly their funding accepted. Besides the aspiration to help the organization of work with an IS based solution, there was also a desire to improve the processes all together. Hence, the acquisition studied here is only a part of a larger renewal project inside the home care unit. However, the actions unrelated to the acquisition of the operations management system and the mobile work management application are excluded here.

Lost in requirements

When the acquisition was accepted, a project manager was chosen inside the home care unit. It was seen suitable for employing a person with knowledge of the field of operation. However, this limited the options to employ a project manager with experience of IS acquisitions. After the appointment of the project manager, the actual definition of the acquisition and the requirement specification for the product started in various different project groups. As the number of people was quite large the communication between different groups was not fully fluent and though the project manager aimed to keep the operations coherent, the were not mutual understanding about the requirements document between different groups. *"At least I felt that it was really challenging to follow through with this project, to get the right information from right people." [Project manager]*

In spite of the noticed difficulties, when the final requirement specification was finished *"so many quarters say that the call for orders was good [..] Unfortunately, most of the people who handled the document were in no way related to the home care. Hence, if the same kind of acquisition was started now, and if the people who are now in the same positions as the ones who were responsible then would do it now, they would not understand it in the least. They have no domain knowledge of the matter and hence, the result would not change at all." [Main user B]*

Additionally, the unification of the works of different groups was conducted not by

the groups themselves but by an employee of the city's CIO's office companied by the project manager. Eventually, the requirement specification was published as a call for tenders by the city's logistics department responsible for the tenderings conducted by the city. Who again did not have comprehensive understanding over the acquisition or its objectives.

Though the call for orders was considered good by the people involved in making it, this was not the case, as the tendering of the IS did not go through without a complaint from one the vendors involved. First it seemed that the complaint would only delay the acquisition, but eventually the city lost the case and for a while it seemed that that the possibility to acquire the new IS in the first place was lost. However, another option was eventually realised. Since the city in question owned the shares of a National Centralized Purchasing organization (NCP), it was able to acquire the system through the NCP.

Development begins

Eventually, the city signed a contract with NCP, which again had a contract with the system provider. Hence, the city obtained the system it desired, but only via a third party operator and without a direct contract with the system provider. This diminished the independence of the acquirer as all the communications were expected to go through the NCP officials, but *"the NCP let the things to proceed under their own steam and [..] issues never advanced this way." [Main user B]* Furthermore, as the NCP did not tender the system only for the home care unit under study, but for other municipalities as well, the cooperation between different parties was not close by any means.

In the IS development phase the team allocated to the acquisition was more compact than in the earlier phases of the acquisition. Nonetheless, this did not improve the mastering of the big picture of the acquisition as there were significant issues concerning the communication between different parties. This was mainly due to the NCP requirement, that all communication should go through them, though NCP did not actually have enough resources to support the actions it was requiring. *"They did not even give any explanation of why they were three months late in their response [..] I kind of got the sense that the NCP thought that we were nothing and that is why things remain unsolved." [Main user B]* Hence, the development process was slowed down remarkably, as both the vendor as well as the acquiring organization were forced to wait in vain, as NCP did not transmit their messages in the way it was supposed to.

This caused significant frustration, especially in the acquiring organization and even-

tually lead to situation where the communication between the vendor and the acquisition team was conducted unofficially, without NCP's permission. *"Even though we were actively in contact with the NCP, the matters did not advance and hence, it was quite natural that we went straight for the vendor [..] Especially as the support the NCP was supposed to give, worked poorly and they did not seem to have the ability to pass on the responses vendor had given to our requests." [Main user B]*

Nonetheless, the home care unit was expecting that even without fluent communication, the vendor knew what they were doing. Especially as the contract concerning the acquisition was somewhat exactly the same as their requirement specification made by the project team. As the vendor *"had just picked suitable parts from our requirement specification. They had not even corrected the misspellings from them" [Main user B].* However, even though the text in the contract seemed good, the understanding about its meaning, was not coherent between all the parties of the acquisition. As the vendor did not even have a previous knowledge of the field of health care services, the misunderstandings in the contract were harder to solve. *"In sum, we have wasted hundreds of hours just because the terminology was not collectively clear to all." [Main user B].*

Finally, the situation was partly resolved by adding a new requirement matrix on the contract. Nonetheless, besides the contract change *"we had to have many long conversations [..] I remember that me and a representative of the vendor spoke at length and I explained what we mean with these concepts and what we mean with certain things. So that they could understand that what we include under a term and hence, what we are supposed to get, when we require things with these particular terms." [Main user B]*

However, the misunderstandings concerning the terminology were not the only issues. As the NCP hindered the communications between the project team and the vendor's development team, the discovered issues in the operations management software, were not taken into consideration by the vendor's development team. Finally, after a long period of persuasion the vendor agreed to come and look how their development version actually worked in the real environment and realised that even the basic concepts in the system were not suitable for the home care unit's needs.

After this, the development of the operations managements office system was started afresh. As the system was supposed to be quite finished at that time, the acceptance of the issues from the vendor's side in such a late state of the development caused *"this unexpected re-development of the optimization functionality, due to which the project stretched by almost a year." [Project manager]*

Luckily, the development of the mobile application was considerably easier, especially as the development team of it was actually interested in the opinions and desires of the home care unit. *"Basically if something was asked, it was ready in two days. There was this totally different attitude towards the development and the developers clearly knew what they were doing. They even called us and asked opinions and so on." [Main user B]* and hence, the development of the mobile application stayed on track.

Implementation, at last

Though the development of the operations management office software was prolonged by almost a year, both it and the at that point more finished mobile application were taken into use before the development was ready. Before this though, for the nurses to be able to use the mobile application, smart phones were introduced. *"Let say within a week they said that now the phones will come and then they came and were just handed out there." [Care person B]*

After the nurses were somewhat accustomed to the phones, education sessions were held concerning the new mobile application. However, as one nurse points out *"At that point, when they tell you that soon you will have this new system, but you do not know when or what it will be like, all types of education sessions are quite pointless, because no-one wants to internalize something of which they do not have a full certainty of" [Care person A].*

Especially as the nurses were aware of the prolonged acquisition and there were some suspicions if it would ever actually be finished. As most of the nurses had not used smart phones before, the education concentrated mainly on the guidance how to even use the phone, as *"the smart phone was a totally utopian concept to most of the nurses, so they needed a lot of guidance concerning how it works and what one can do with it" [Supervisor]*, not to mention encouragement that they actually have the capability to learn how to use it.

After all of this, the IS was finally implemented. First in a pilot area and afterwards in the whole municipality. At the time of study, the system has been fully operational about a year, but it has been partly in use almost a double of that time. In the start, due to the prolonged development of the office system, the optimization functionality of the IS did not provide acceptable results and due to this the optimization was done partly by hand and then entered to the system. On the other hand, mobile application used by the care people has been in use for almost two years and even though there still are some deficiencies, the system is the main channel via which the care people do their reporting concerning the customers. In its entirety, the project

is considered as an exemplary successful acquisition.

The aftermath

Though the smart phones were unfamiliar to most of the nurses, the feedback concerning them was positive from the start. Even though as one member of the project team noted that *"the first version was simply bad. However, the nurses were happy" [Main user B]*, as it eased their work load. Because *"[the system] has simplified the work a lot as now you can look at the customer information from the phone when something comes to mind" [Care person A]* and hence, the nurses do not have to remember as many details as they used to.

Before the new IS, the recording of the customer visits was done on an office computer at the end of the work day, from the notes nurses did during their customer visits. As there were few computers available, valuable work time was lost as all nurses could not do their recordings at the same time. *"In the new system time has been saved by eliminating the double entry and queueing to the computers." [Project manager]* Hence, *"it has eased the work a lot and saved a lot of time." [Care person A]* Additionally, nurses did not have to spend as much time in the office, as most of the required recordings could be done during the work day.

The office system on the other hand *"has many good but also bad sides" [Work organizer B]*. Partly due to the fact that the system was taken into use before it worked the way it should have. Hence, the individuals responsible for using the system never learned to trust that the system could actually help them with their tasks. Especially as the optimization of work, one of the main functionalities of the IS, did not work in the beginning. For instance it calculated the *"routes as the crow flies. However, if you give a half kilometer range to a cyclist [the cyclist] might not be able to go the way the crow flies." [Work organizer A]*. Due to this kind of features of the IS, the mistrust concerning it was significant. Though currently *"[i]t is substantially better [..] than what it was" [Main user A]*. All in all, the system is still disliked by the people responsible for using it.

For instance, even though *"after [the nurses] realised that they can manage [the smart phone] and understood what they can do with it, no-one would give [the smart phones] away" [Supervisor]*, the nurses feel that the *"the old way was better, seriously" [Care person C]*. Especially as though the office system has improved significantly, the usage of it does not respond to the vision *"that all you have to do is to push a button and the work lists are ready" [Work organizer A]*, which was what was "sold" especially to the work organizers. Additionally, the results were not what the optimizers were used to and hence, *"I just tried doing similar lists that I was used*

to and then I became blind to it in a way. I modified them way more than what was necessary." [Work organizer B]

As there were so many issues with the optimizing tool in the beginning, the work optimizers do not fully believe that it is any better now. These trust issues have even in some occasions resulted in optimizers doing the optimization both in the old and the new way, as one of the organizers stated: *"I will not give [my paper lists] up, even if I am supposed to!" [Work organizer A]* and party due to this *"there is no longer time for me to go to the field. Before [the new system] I had the time" [Work organizer A].* Hence, even though the intention of the acquisition was to decrease the time spend with the optimization, this has not happened.

Additionally, when the optimizers do not modify the results of the new IS, the nurses object by not following the routes optimized for them, as one of the main users pointed out: *"It is quite common that [the nurses] change the order [of the customers]. This is particularly part of the changing the way of thinking." [Main user A].* However, the responsibility of changing the way of thinking is given to the area managers and currently the atmosphere is that *"if someone has done the work in a certain way for the past ten years, the world does not collapse if they change the lists a little, the main thing is that the customers are taken care of." [Main user A]*

The fact that the nurses do not always follow the optimized order however, is not the only issue, as the system gives quite strict time windows for switching between customers. Due to this, many nurses leave their customer a bit early, to have enough time for the transition. *"Because it takes so much time to go the distances, the nurses feel they need to leave from the customers earlier than planned [..] However, it sometimes seems that the visits are shortened, not because the nurses are in a rush but because they think that they are in a rush." [Work organizer B]* This again has led to decreased customer times and hence, become a problem, as now the customers might not get the amount of care they have paid for.

Nonetheless, the changes in the work processes enabled by the phones among other actions done besides the actual IS acquisition, have enabled the increase in the time spend with the home care unit's customers. As when the acquisition was in the planning phase, one of the main objectives was that with the new system the time spend in the actual patient care should increase so that it would cover at least 60 percent of the nurses' work day. As now this indicator of efficiency has risen from 56 to 59 percent the acquisition, at least in the management level is considered as a clear success. Even though, as the project manager of the acquisition concludes,

"this is such an entity that everything affects everything. It is getting quite hard to say with certainty that this is because of [the new IS] and that the savings we have gained are linked to the usage the new IS." [Project manager]

Hence, the situation is quite contradictory, as in the higher levels of management the acquisition is considered an exemplary case of successful IS acquisition. *"It has gone well, of course" [Main user A].* Meanwhile the nurses experience that they have been forced to these new processes, that do not even take their or their customers' needs into consideration. One of the nurses concludes that *"customer-oriented this has not been in a two or three years, only the percentages matter." [Care person C]* Hence, though the goals have been reached, rises the question whether the measures of the success actually tell the whole truth. All in all, as one of the members of the project team states: *"One can only see it in a few years, no-one can evaluate it fully right now, especially as the system is not yet in the shape it should be." [Main user B]*

4.3 Success measures of IS acquisition

The selection of the particular cases was made because both of these cases were considered as successful examples of an IS acquisition. Hence, both of these acquisitions under study were considered successes at the organizational level. However, the concept of success inside the organizations did not fully correlate with the official statement given by the organization. Additionally the measures of the success varied quite significantly between the two cases under study.

Nonetheless, there were some similarities with these cases as well. Firstly, in both case A and case B there was a clear mentality, that as the project team survived the challenges it faced during the acquisition project and managed to push the project through the finish line, the acquisition was a success. Even though, in either of the cases, the system is not yet in such a state as it was supposed to be. As one member of the case B's project team concludes: *"Of course this is a successful acquisition, we have got something." [Main user B]* This perception was quite common especially among the people who were involved with the acquisition project, who all considered the actual acquisition project successful, even though for example in the case B, the project exceeded its budget, time frame, and though there *"are still some issues that are under settlement by lawyers." [Main user B].* On the other hand, in the case A, the HR manager is postponing the third release as *"the acquisition has been such a horrible experience." [Program manager]*

However, in both of these cases the arguments with which the success was validated,

were not based on the measures of how well the acquisition project was conducted, but how well the acquisition achieved its objectives. As both of the acquisitions aspired process changes, where the new system had a vital part, was this a significant factor in the success evaluation. In the case A, *"we now have this global system and global mode of operation" [Program manager]* and *"the transparency has increased substantially" [Concept owner A]* which *"absolutely was one of the measures of success" [Program manager]* in this acquisition.

The case organization B on the other hand, strived for increased efficiency by acquiring a new system to enable a quite radical change in the daily routines of the nurses responsible for the municipality's home care. Based on the measures used, this as well was accomplished. *"I think this [acquisition] is a success, just from the point of view, that the work our home care does has made a jump in more modern direction and has met the current needs." [Project manager]*

The ways the evaluations were conducted however, were quite different. As in the case B, the evaluation of success focused mainly on the increase in the time spend with customers, compared with the time other tasks for example reporting, transitions between customers and divergent training sessions absorbed. According to this measure, the nursing homes efficiency has increased and obtained the desired level. In the case A, the measures were not as specific as in the case B, though *there were these calculations how much time can be saved [..] [in the old system] it could take days or weeks to do a certain work, which now can be finished within a few hours" [Project manager, IT].* In addition to that *"[the new system] has gotten good feedback" [Concept owner B]*, *"and even spontaneous positive comments" [Concept owner A].* Which can be considered to mean that the objective to ease managers HR related tasks has been obtained.

Hence, can be concluded that in the case B, the success is evaluated at a higher level of the organization whereas in the case A, the evaluation is focused more in the experiences and perceptions of the individuals using the system. Especially as in the case B, the management is really satisfied with the improvements the new system has enabled, whereas in the case A, the management *"[at first] was really happy, even on the business side, but now there have been complaints that the full potential of the system is not yet realised" [Program manager].* Whereas in the case A, the users of the system are happy with the changes and in the case B, the users think that things were better before the IS arrived.

However, the situation is somewhat more complicated than that. As in the case B, the home care unit acquired both an office system and a mobile application, of

which, the mobile application is extensively liked and the office software disliked by most. As the mobile application has helped the nurses with their daily tasks, by lightening their memory load and by helping them to acquire the information they need faster, it is quite understandable that this part of the change caused by the acquisition is not objected. The office software on the other hand, still has some major issues and hence, does not operate in the way it should and therefore, it does not help the work organizers as it was meant to. Additionally, it is not really purposed of helping the nurses and they know it.

One of the main objectives of the office software was to first help the work organizers with their task of arranging the daily visits to the customers, in a more efficient and hence, time saving way. This was one of the intentions of the mobile application as well. As now the nurses do their reporting straight to the system, during their visits. This has removed the double recordings and hence, increased the time the nurses can spend with customers.

However, this does not mean that the nurses would have more time to spend with their current customers, but for them to have time to take care of more customer as the care needs of the municipality have grown. However, the nurses do not see this as a positive thing. *"Nothing is good enough any more [..] you can have this kind of disaster day every once in a while, as long as all the days are not like that [..] It is a fact, that you cannot take care of people when you are tired, as you start to make mistakes, and when there have been several of these horrible days, it is terrible to go home and know, that you have done your work poorly." [Care person C]*

This raises the question, can the increased hours spend with customers actually indicate, that the conducted acquisition is a success. Especially as now the nurses record the necessary information during the customer visits and not afterwards. Though this increases the time spend with the customer, it might not indicate that the time used to actually care for the customers would have increased. Additionally, though it is clear that some changes had to be made in the home care unit, to respond to the growing care need and the particular IS acquisition did solve these issues from the managerial point of view, not considering the users in the evaluation might have later consequences. Especially as even now the nurses feel the need to *"change the order of the visits" [Main user A]* and the work organizers modify the work lists often more than necessary. These both are actions deteriorating the benefit realisation of the acquisition.

All in all, can be concluded that in the case B, the opinions concerning the system are more divergent than in the case A. Though there are unsatisfied individuals

in the case A, as well, as similarly to the case B, the users of the system whose workload increase due to or through the new IS, are not satisfied either. In the case A, the HR gained the new responsibilities of which the organizations IT department hand previously handled and as the expectations of the system were more in a way that the system provider will take care of everything, these new tasks came as a surprise. This is something with which the individuals who had gained these new responsibilities are not very happy with.

Hence, in both of the cases, the individual perceptions of the IS acquisition success are strongly related to the benefits the individuals have gained. In the case A, most of the users are satisfied, as the system has eased their work load, whereas in the case B, the users are satisfied with the phone that helps them with their tasks, but not with the office software as its attempt is to increase their work load.

As a whole, from the interviews five different aspects were found with which the success of the particular acquisitions can be defined. These are: project execution, business process re-engineering and realisation of the acquisition objectives from the user and organization point of view. These factors are presented in the figure 4.1.

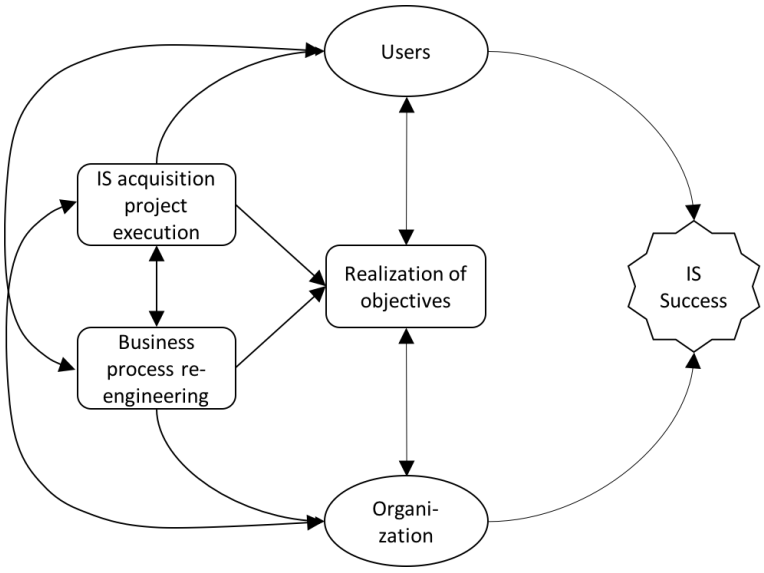

Figure 4.1 *Success measures of IS acquisition.*

Of these, the project execution was seen as a substantial factor of success as the success of completing the project no matter how well it was completed, was seen as an enabler of future development. As the systems were implemented the organizations have the possibility, that with IS development and change management the yet unfixed problems can be solved. After all, the project execution and hence, the

implementation of the new IS, have already enabled significant process changes in both of the cases. At the same, time the new processes made the rational use of the new IS possible. In the case A, these were mainly the enabling of matrix organization formation and introduction of the global HR processes. In the case B, these were more related to the changes in the work routines of the nurses. Nonetheless, the new system made these changes possible.

However, the IS acquisition or the process changes would not have been possible without the stakeholders involved. Firstly, the management, referred as an organization in the figure 4.1, made the IS acquisition and process changes possible by leading the organization through the changes. On the other hand, these changes, that the new ISs have enabled and in some way forced, are also affecting the management in both of the organizations. This is the case with the users as well, as they are the ones affected most, because now they have a new system to use and new processes to follow, but also the possibility to not use the system or follow the new processes, based on their perception of the realised objectives of the acquisition.

Hence, can be concluded, that in these cases the official success of the acquisition was defined by the organization and more specifically the management, based on the realised benefits they had defined for the acquisition. As the objectives were realised in both of the cases, the IS acquisitions were considered successes. However, also the users of the system have formed their own perceptions of the acquisition, based on the expectations they had. These expectations however, do not necessarily correlate with the objectives of the acquiring organization. Hence, they have formed their own opinions concerning the success of the acquisition based on the benefits they have or have not gained.

In the case A, both of the benefits from the organizational and individual perspectives have been considered in the evaluation of the success of the acquisition. This is mainly due to the fact that both of these were taken into consideration when defining the objectives of the whole project. In the case B, on the other hand, the objectives were stated at a quite abstract level and hence, the users were not so closely considered in the success evaluation. For now however, this might not be an issue, but as the users have the power to affect the realisation of the organizational objectives, the fact that they do not find the new system entirely beneficial for them is a risk, as though the objectives of the acquisition are now realised, the increased efficiency is not sustainable, if the users are not committed to operate efficiently also in the future.

All in all can be concluded, that IS acquisition success based on these cases is

two dimensional. There is the success defined by the organization and the success defined by the individuals. Both of which are mainly dependent on whether the acquisition provided the benefits it was expected to. However, these benefits are highly dependent on the actions of the different stakeholders of the system as well as the development of the new IS and the business processes. Hence, the success itself is time-sensitive and can vary based on the time of the study. Additionally, it seems that the success of the actual project has no clear role in the IS acquisition success as it strikes to have a role only as an initiator of the slow process of hopefully positive organizational change.

4.4 Success factors of IS acquisition

Though the successful execution of IS acquisition project did not have a significant role in defining the studied cases successful, some significant factors were emphasized in multiple interviews. These were the competence, cooperative attitude, communication, user involvement, change management and the scope of the acquisition (see Figure 4.2).

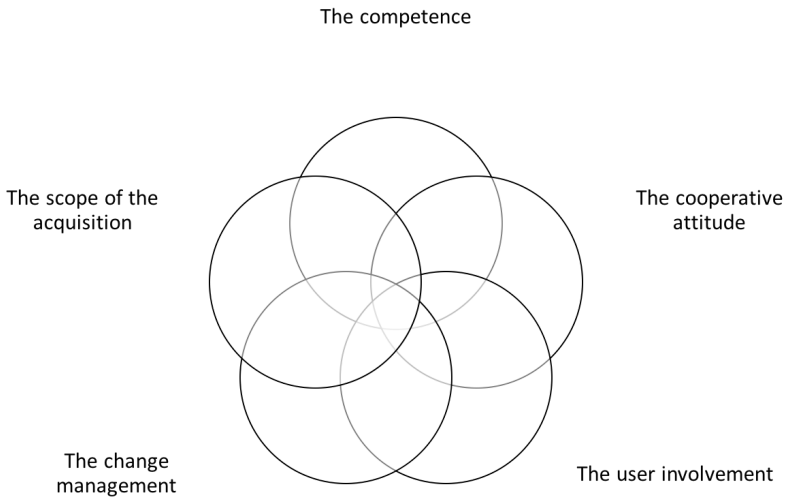

Figure 4.2 *The success factors of IS acquisition.*

The scope of the acquisition was quite different in the two cases. Though, both of the acquisitions were vast, in the case A, the entire acquisition was divided into smaller implementations. In the case B, in turn, there was a large IS acquisition while also other radical changes in the organization were made at the same time. In the case B,

it was quite clear that there were no distinct understanding about the acquisition as an entity, whereas in the case A, the division of the acquisition to releases and then to separate modules, seemed to help the project team to comprehend, what they were doing but also whose responsibility the different tasks were. Additionally, the division of the acquisition provided the case organization A the possibility to learn from the previous releases and hence improve their actions in the second release.

However, the division of the project in the case B, might not have been even possible. Hence, the reasons behind the lack of overall control of the acquisition throughout the acquisition process might be related to other factors as well. Based on these cases though it seems that with a more compact acquisition, the project completion with a success is more probable.

The importance of competence in the efforts of acquiring an IS that can fulfil both the needs of the organization as well as the needs of the users, on the other hand, was considered as a relevant factor throughout the acquisition process, in both of the cases. In the case A, the acquisition was conducted by the organizations IT department together with the HR function. Hence, there were people with knowledge from both the business processes and IS functionalities. Additionally, before the requirement specification the organization had done a vast analysis of current processes and future needs of HR units and hence there was knowledge of the needs of the users as well. This was a help when making a sufficient contract with the system provider.

In the case B, there were multiple parties involved during the requirement specification. However, as one of the members of the project team concluded: *"They had no domain knowledge of the matter " [Main user B]*. Because of this, the requirements and eventually the call for tenders was separated from the actual needs of the home care unit. This again, might have had an effect on the final system to which the nurses are not entirely happy with.

Additionally, in the case B, the vendor's competence concerning the field of social services was nonexistent. As *"they told us right from the start, that they do not have anyone [with knowledge of the field of social services" [Main user B]* Due to this, the needs stated in the requirement specification were not fully understood by the vendor. *"Because the terminological differences were so significant" [Main user B]* Hence, at the beginning of the acquisition, the knowledge concerning the operational needs of the home care unit were not comprehensively understood on either side of the acquisition. This finally resulted in complications fitting the system into operations and eventually to a year of extra development.

The lack of competence of the IS acquisition partner was an issue in the case A, as well. As in the case A, the IS implementer, in this case, a group of consultants, did not have the necessary competence to do their work sufficiently. As they were *"clearly learning how to do the job" [Project manager]* This though did not prolong the acquisition project or prevent the organization from gaining a working system. However, it might have restrained the organization from gaining the best possible solution. The role of consultant competence was distinct also during the second release. Though, then the team was more experienced which was afterwards seen as the reason why the second release was even completed. *"I think that if this [one consultant] would not have found [the problem in the software] we would still be rolling our thumbs and pondering what is going on. [Program manager, IT]"*

Hence, in the case A, the competence and the lack of it, were mainly focused on a few individuals involved in the acquisition. In the case B, on the other hand, the role of competence was brought up at a higher level and was not focused on specific individuals. However, as the project manager in the case B, did not have previous knowledge, as *"I had not worked with the IT before, at all" [Project manager]*, can be pondered if this affected the advancement of the project or influenced the success of the final IS.

Thus it is important, that all the parties involved have the sufficient competence of the operations to which the system is acquired for. This is important so that a mutual understanding about the objectives of the IS can be created. Additionally, both sides of the acquisition should have an adequate level of IT related understanding, so that the customer comprehends what it can ask from the developer, but also for the developer to be capable of producing the required features stated by the customer organization.

The competence though is not enough, but the cooperative attitude between the vendor, consultants, the case organization and other parties involved, was emphasized as well. Especially in the case B, where there was the NCP operating between the case organization and the vendor developing the IS. Because *"the NCP seemed to think we are nothing. Matters just stay unattended. Mostly they did not even ask how things were going or how satisfied we were with things." [Main user B]* This attitude from the NCP's side and the vendors quite nonexistent interest concerning the development of the office software, led to a situation where the first throughput the vendor had to offer, did not respond to the organization's needs in the least. *"I think that the visits that they did in here finally initialized the understanding [..] that the first system was not fully functional in the least." [Main user B]*

However, the vendor's system developers responsible for the development of the mobile application were clearly more interested in the cooperation. *"There were very skillful developers [In the mobile application development team], and they even called us and asked opinions and so on." [Main user B].* When considering the cooperation's effects on the IS success, the mobile application is the one thing the users are actually satisfied with.

On the other hand, in the case A, the consultants involved were actually located inside the case organization, *"We basically sat with the consultants and made the definitions, what we want from the system" [Concept owner A]*, which provided better opportunities of cooperation between the case organization and the system developer. This might be part of the reason, why the difficulties concerning the cooperation did not arise in similar manner than in the case B.

Additionally, the user involvement in the IS acquisition was considered as an important factor in the success of IS acquisition, especially in the case A. Users of different levels and locations had been involved in the acquisition already before it was officially started and they were kept along throughout the acquisition. As in the case A, the IS development was done in an agile manner, the users were included as testers after every sprint. Owing to this, the development team gained a lot of important information concerning the users' actual needs, but also how they should take different cultures into consideration. All of which might have had a positive effect on the final system and act an explainer of the positive feedback the system obtained.

In the case B, the users were not closely involved in the beginning of the acquisition. After the system was implemented into the pilot area the nurses however operated as testers of the system, while simultaneously learning to use it. Nonetheless in this phase of the acquisition, the noted issues were already quite hard to fix. However, though the lack of user involvement in the beginning of the acquisition project can be considered as a significant explainer of the issues in the currently operating IS, it is quite difficult to separate, how much it is due to the lack of user involvement and how big of a role the vendor's insufficient competence beholds.

All in all, in the case A, the end users were happy with the implemented system right from the start, unlike the users in the case B. One explanation for this can be the fact that in the case A, the users actually had the possibility to affect the result of the IS acquisition. On the other hand, the user involvement during the acquisition project in the case A could have made the users more receiving to the change. This could again have affected the perceptions of the success. Whichever

the reason behind it though, the user involvement can presumably have a role in it.

However, fitting the new system into old procedures was not the intention in either of the cases. Hence, developing the new processes and helping the users to follow these arose as an important factor in ensuring the IS success. In the case A, the process design was initialized already before the IS acquisition was started. As the individuals involved had the opportunity to give feedback and had the experience of affecting their future situation, most of the users were supportive of the new system and its processes from the start. *"There became a lot of positive feedback [..] even from the CEO" [Super user]* Additionally, as the old way of doing things was not very effective, the changes to which most of the users needed to get accustomed to, were positive ones.

In the case B, on the other hand, the process changes were more significant. *"From the point of view of the nurses it was a huge change to their work day and daily routines." [Supervisor]* This however was not in itself a problem, as the nurses got used to the new way of conducting the reporting via phones quite well, as it clearly helped their daily task. Getting used to the new work optimization however, did not go as fluently. Especially as the system did not follow the old way for which the nurses were accustomed to. For example the routine where, *"the [certain customer] has been visited always at seven, and therefore the [customer] must be visited at seven now as well" [Main user A]*, was a habit that was hard to change.

However, following a new order of visits, demanded by the organizations management, was not the only issues. Because while the management demanded new ways of operation, the customers had their own demands as well. Hence, the nurses were left between two contradicting demands. Especially as the nurses think that they have to honor the customer's wishes to provide a good service, but they received complaints from the management, if they did not follow the optimized route. That however, did not take the customer's desires to consideration in any way. This puts the nurses at a very difficult situation, that has presented itself in problematic ways.

Now there are work organizers who know the clients and their needs and hence try to optimize the routes in such a way that the nurses can follow their optimized route. *"We have such good percentages because [she] has optimized them, it has nothing to do with this system, but owing to her fixing the lists every time" [Care person C]* Because of this though, the time spend with the optimization task has increased. *"Nowadays I do not have time to go to the field at all" [Work organizer A]* On the other hand, those work organizers, who are not familiar with the customers of their optimization area, use the optimization result and find it satisfying. *"Sometimes*

[the IS] even makes lists, that in my opinion, do not have to be changed at all"

However, in these locations the nurses do not follow the route given to them and hence feel they are overworked, as not following the optimized route means longer transitions. Though the management is aware of these issues, *"[they] think, that if someone has followed the same routine for the last ten years, the world does not collapse even though they would change the lists a bit. The main thing is that the customers will be taken care of." [Main user A]* Hence the current attitude seems to be that hopefully in the future the new nurses will adopt the intended way of operating and eventually the whole home care unit will adapt to the new processes.

However, the current situation hinders the organizations possibilities to realise the full potential of the new IS, which if both the nurses and the customers were to be considered more closely, might be solved. Though there have been change management efforts in the home care and the pressure to follow the optimization routes has grown, this kind of change management has not given very positive results. Hence can be concluded that for the change management to actually be beneficial, all of the stakeholders involved should be considered, as now the nurses cannot change their operations because their customers are unwilling to change theirs. On the other hand, why should the customers change their requirements concerning the service, if they gain nothing from it.

Hence, poor change management can lead to a situation, where the users of the system are not satisfied. This can again cause negative side effects that can affect the realisation of the IS acquisition objectives. Therefore an attention should be made on the particular matter. As though in both of the cases the new system in some ways forced the new processes into use, individuals often have ways to go around them, if they are not motivated to follow them. Issues of this kind though might not be detectable right away. Hence can be concluded, that change management can have effects on both the realisation of the objectives of the organization as the users. As long as everyone is willing to find solutions that are beneficial to all.

In a summary, five success factors of IS acquisitions were found: the scope of the acquisition, competence of the parties involved, cooperative attitude, user involvement and change management. Of these, the scope of the acquisition and the competence, are factors that were seen to be significant throughout the acquisition. These were also the factors, that were clearly dependent on the decisions made in the beginning of the acquisition process and were seen to have most effect on the success of project execution. However, the competence was connected to the success of the IS as well.

During the acquisition project the cooperative attitude and user involvement, were

seen vital for the project to be completed at all. Moreover, these were pointed out, as relevant factors in ensuring sufficient quality of the final IS. The communication was closely linked to the cooperation, as it was seen as a hindrance of it. Additionally, it was pondered in the interviews, whether the communication had an effect on the IS as well.

The change management on the other hand, rose as an enabler of fluent operations after the IS implementation. In the case A it and the user involvement were especially connected with the users quite good acceptance of the changes in the processes. All in all, found factors of IS acquisition success, can be linked to both the IS acquisition success defined by the organization and the IS acquisition success perceived by the users. Hence, they can be considered significant factors in ensuring IS acquisition success.

5. CONCLUSION

In this chapter, the main findings are compared with the findings of the literary review. Additionally, the meanings of the findings are pondered and their significance and generalizability are evaluated. Finally, suggestions concerning further studies on the subject are contemplated.

5.1 Main findings

Based on the cases under study, the success of IS acquisition can be defined at two levels, individual and organizational. In the literature this division is not as clearly stated, though the literature recognizes, that the stakeholders of the system have different requirements and objectives concerning the new IS. In the studied cases the success in the organizational level was defined based on the realisation of the stated objectives of the IS acquisition. This finding of the organizational definition of IS success, is in line with the findings of Baccarini et al. (2004).

The success of the IS acquisition from the users' point of view, was based on the realisation of objectives as well. However, as Hallikainen (1998) points out, it is quite typical, that the organizations define the IS success only with a few variables. This was the case in the acquisitions studied as well, as the definition of success was based on the realisation of the organization's objectives and hence the organizational objectives did not necessarily cover the objectives of the users. Additionally, the success of the IS acquisition project, which was quite difficult in both cases, was not seen as a measure of success in any way. The main point was that the acquisition was completed despite the difficulties. As the literature divides the success of IS acquisition to project success and operational success, this finding is not in line with the previous literature.

However, this finding should be considered carefully, as both cases were difficult they were completed and hence in some sense the success of the IS acquisition was obtained. In this sense, the findings are coherent with the literature. Nonetheless, as in the cases studied, most of the organizations objectives were realised owing to the fact, that the IS was taken into use, the found success factors of the IS acquisition,

do not seem to have any effect on the success defined by the organization. However, from the users' point of view, the factors found, are more significant.

For instance, the competence acknowledged by Somers and Nelson (2001), Jennex and Adelakun (2003), Goldfinch (2007), McLeod and MacDonell (2011), Ram et al. and Dwivedi et al. (2015) as an important factor in guaranteeing the IS success, in the project execution, but also in the system functionality sense, rose as a significant success factor also in the studied cases. When considering the IS success in the cases though the significance of the competence was mainly limited to the believe that with more competence the system in use could have been better and hence the users' perceptions of the success might have been better. However, in the case A the competence was considered as a factor in the project completion as well. Besides this one notion though, the competence had a little effect on the organizations perception of the success.

The cooperative attitude on the other hand was seen as enabler of fluent communication. Hence, it increased the consensus of the objectives of the system. Therefore, it can be concluded that based on the cases the cooperative attitude can improve the final system and increase the user satisfaction. Again though, the effects on the organizations consideration of success are questionable. This is in line with the theory section as there the cooperative attitude, referred as the strategic relationship was considered to have positive effect on the IS performance (Somers & Nelson 2001, Zhang et al. 2002). A factor that is very important to the users, but can be quite remote to the management.

User involvement as well, is an important factor in ensuring user satisfaction according to the literature (Lynch & Gregor 2004, Bano & Zowghi 2013). In the case A, the users were closely involved in the acquisition and were satisfied with the system whereas in the case B not closely involved and quite unsatisfied. Hence, the findings of this study are coherent with the previous literature. Consequently, it can be concluded, that user involvement during the IS acquisition is beneficial, as it helps the acquisition team to take the users in to consideration, but also gives the users the experience that they have some control over their future work environment (Lynch & Gregor 2004).

Thus, most of the critical success factors found in the cases can be connected to the system and its usability. Consequently, they affect the users' perception of the usefulness of the system and hence its success. This is also noted in the theory, where (Seddon 1997, Bravo et al. 2015, Carter et al. 2015) point out that the users often consider new IS successful if it improves their work or helps them to complete

their tasks more efficiently. The reason why organization should pay attention to these critical success factors of IS acquisition is that IS do not generate the benefits without someone using it. This means that though the organizations objectives would have been obtained already via process changes, enabled by the new IS, the users have many ways to not to follow the new processes. This was quite evident especially in the case B and even though this would not affect the realisation of the objectives at first, it is quite likely that if the users continue to not to follow the new processes it will increase their work load, which eventually can lead to the deterioration of the efficiency. This can again mean that the IS does no longer provide the benefits it was supposed to, even form the organization's point of view.

In this, the change management, one of the main success factor findings of this study, has a significant role. According to the literature fitting the new IS into the organization is important for it to actually become a part of the organizations way of operation and culture (Somers & Nelson 2001, Davis 2016). This means that besides making sure that the acquisition project can produce a sufficient IS, the users' daily processes and needs related to the new IS and the process changes it requires, are evaluated. This should be done, so that the users are actually capable of following the way of operation. In some cases, this might mean the consideration of the customers of the users of the system as well. Hence, based on the findings, the change management should not focus only to explaining how the users' daily task will change, but also what kind of operational strategy the new IS is supposed to support, i.e. to what aspects of the operations should the users invest in.

In consequence, the findings of this study suggest that though success factors recognized here are in some occasions irrelevant in the IS acquisition success definition of the organization, they are significant, for the system to satisfy a large group of stakeholders. This is important because the definition of IS success can represents the view of a very small part of the organization and though success factors might not affect these measures, they cannot be excluded as they are relevant in other ways. Especially as in organization, there can be various perceptions of the success, which should be at least comprehended, so that the organization can be more receiving of the arising issues and redefine their success measures when needed, so that necessary operations will be supported. Additionally the change management and the stakeholders it will have an influence on, should be more closely considered.

Though most of these findings are noted in the previous literature, this study increases the understanding about the organizations view's ability to limit the significance of the usability factors. Additionally this work suggests that the change management, especially in organizations where the users of the system use it to pro-

vide customer service, the needs of the customers should be taken into consideration as well, for the change management to provide sufficient results.

5.2 Evaluation of the findings

Though when conducting a study, the attempt is to avoid mistakes, it is important to evaluate the reliability of the study, after it has been conducted (Eskola & Suoranta 2008, p. 134). As in this study, the data is collected by interviewing a quite small group of people, the results represent only the perception of the interviewees.

Hence, the qualitative nature of this case study creates some limitations to it (Eskola & Suoranta 2008, p. 134). First of all, multiple case study with only two cases hinders the generalization of the results, as based on two quite different cases a general guideline of what are the critical success factors of different types of IS acquisitions, cannot be reliably made. Hence, thought the findings increase the understanding about the IS acquisition process and the success measures of IS acquisitions, these findings cannot be extrapolated to other cases.

Moreover, as the analysis was conducted inductively and inductive deduction is often hard to execute objectively, because observations can be influenced by commonly accepted ideas and theory. (Tuomi & Sarajärvi 2009, p. 134), which might be an issue in this particular study as well. However, this study follows a systematically defined research process which gives the foundation for a reliable analysis of the finings (Eskola & Suoranta 2008 s. 210). Besides this, the thesis aims at validating findings with the quotations of the interviewees and hence the conclusions drawn are connected with the cases not only with the opinions of the interviewer.

Nonetheless, as the conclusions made are based on only a few interviews and as for example in the case A most of the interviewees were involved in the acquisition process, this might have an effect on the way the interviewees cover the topics that arose during the interview. In the case B, there were more end-users involved, but as most of these interviews were conducted as group interviews, there is a possibility that the statements of the interviewees were affected by the other interviewees in the interview. This means, that some opinions could have been stated more strongly due to the pear pressure or that personal opinions were not stated because of the fear of disagreeing with the other interviewees.

Though the limitations concerning the amount of the interviewees and in some ways the variation of roles, in both cases the interviewees covered both users and the management of the organization under study. Therefore, it can be assumed that

opinions from different levels of the organization were considered.

Additionally, as the case studies were conducted in a quite short period of time, the findings made, might not be all-inclusive. However, as both of the ISs under study had been in use for a while, when the study was conducted and the ISs operated already in quite stable environment. The depiction of the acquisition can be considered to be quite comprehensive, as the perceptions of the users had been cumulating for a while after the IS implementation. Therefore, the interviews represented the evolvement of the situation quite well. Nonetheless, focusing only on a short period during which the system has been in use is somewhat questionable. Hence a larger group of interviewees and a longer study period could have been beneficial. Regardless of the mentioned issues, even with this sized material, the results of the success are detectable and hence could be used to find the relevant IS acquisition success factors.

5.3 Research propositions

The study was conducted with an intention to obtain deeper understanding about IS acquisition success and the factors affecting it. However, as the IS acquisition success is dependent on the evolvement of the IS in its operating environment, a study that takes a look at only a short period of time after the acquisition, might not provide comprehensive enough understanding about the IS success.

Due to this, a longer study on how the satisfaction of the users will evolve and affect the benefit realisation inside the organizations could be valuable. Especially as now the changes in the processes have enabled the realisation of stated objectives, but as the benefit realisation is continuous in nature, further development should be studied as well, to give a more comprehensive evaluation of the successes of the studied cases. In particular, as for instance user dissatisfaction can lead to situation where the effectiveness of the users will deteriorate when the more time has passed.

However, as this study limits to two cases, even a more long-term analysis would not provide results that could be generalized in on a larger scale. For this, more cases should be analysed as well. Additionally, expanding the number of cases could possibly provide the opportunity to evaluate whether the IS acquisition success measures are the same in the public and private sector. Though in this case these measures had many similarities, two cases were not seen enough to provide findings relating to the particular topic. Therefore, it would be interesting to conduct a larger scale study comparing the differences of public and private sector IS acquisitions, their successes and the success factors that were considered significant in the acquisition.

Additionally, in this study, only the perspectives of the acquiring organizations were considered. However, as vendors and other stakeholders can have a relevant role in the IS acquisition success, also the factors these organizations, groups or individuals consider important in obtaining IS acquisition success should be structured.

Finally, it would be interesting to study how organizations could learn from their previous IS acquisition successes and failures. As every organization is different, even with the vaster analysis of IS acquisition successes, the entirely generalizable success factors of IS acquisition are hard to conclude. Hence comprehension whether organizations can form their own success factors based on their previous acquisitions would be something that could provide clear benefits for the organizations struggling with their IS acquisitions.

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APPENDIX A. HAASTATTELURUNKO

Kertoisitko aluksi ihan yleisesti millaisesta hankintaprosessista on kyse?

- Miten tähän järjestelmään siirtyminen on teidän näkökulmastanne mennyt?
- Miksi?

Sanoisitko vielä, kuka käytännössä teki päätöksen, että tähän siirrytään?

Millaiset odotukset teillä oli järjestelmän suhteen ennen sen käyttöönottoa?

Mites tämä nykyinen ratkaisu vastaa odotuksiin?

- Miksi?
- (Jos tarpeen) miten työpäiväsi on muuttunut järjestelmän käyttöönoton jälkeen?
  - Miksi/Miten tms.?

Olitko itse mukana tuon hankintavaiheen aikana, eli pääsitkö vaikuttamaan tähän nykyiseen järjestelmään ja sen valintaan?

- Miten?
- Mites tuo päätöksenteko?

Lopuksi vielä, koetko, että hankinta oli kokonaisuutena onnistunut?