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The Implementation Process of IT-Systems and its Effect on User Acceptance

*Master's thesis in the Master's Programme
Management and Economics of Innovation*

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Abstract

As technology continues to develop, IT implementations are still troublesome. This thesis explores IT implementations and how the implementation processes affect the drivers of user acceptance introduced by Venkatesh et al. (2003). This thesis is based on a multiple case study design that examines three IT implementations in depth and draw theory from research on user acceptance, general project management and change management. The findings from the three cases point to that differences in the implementation processes have led to different results regarding user acceptance. The implementation therefore seem work as a moderator, and it is found that urgency and the communicated benefits are two very successful factors that need to be addressed in the implementation. Another important factor seems to be training during the roll-out phase. Interesting factors, that we also want to acknowledge is the importance of reaching the targeted user group. In two of the cases, the responsible for procuring the system where not from the same department and missed out on addressing the direct needs of the users. By integrating the users in the implementation process could therefore enhance the user acceptance. Lastly, we conclude that many organisations are not ready for this type of change, it is therefore important that the provider of the system is helpful and supporting, providing expertise and experience to the local project managers in the organisations.

Acknowledgements

This report remarks our final assignment as part of our education within Industrial Engineering and Management at Chalmers University of Technology. To complete this thesis, we have had support from a tutor and the employees of a provider which have helped us get in touch with their customers as well as describing the product and current situation. This we want to acknowledge, so thank you for making this thesis possible. Further, we want to thank all the interviewees that have invited us into their organisations as well as answering our questions openly. Lastly, we want to thank our tutor at Chalmers University of Technology, who have challenged us, as well as supported our work which have led to better research and this report. Thank you.

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1. Introduction

This first introductory chapter in the report will mostly focus on the background and the research problem. Further, this chapter will present the report’s purpose which will finally result in two research questions. The last section will outline the thesis disposition to give the reader guidance.

1.1. Background & Research Problem

With the rapid development of technology and computing power doubling every 18th month since the 1960’s, organisations have tried, and still tries to leverage the benefits of it (Schaller, 1997, Porter and Millar, 1985). One of these changes that technology brings to new industries is that it creates competitive advantages by leveraging opportunities for organisations to outcompete rivals, either by cutting costs or by product differentiation. But as IT have been developing by being more central for both management and operations, Venkatesh and Bala (2008) also note that it has become more complex. This complexity might be the cause to that as many as 71 % of all IT project implementations were regarded as not fully successful according to the Standish Report in 2015 (Hastie and Wojewoda, 2015). One of the main barriers to organisations not being fully successful are proposed to be the low adoption of employees, this is supported by e.g. Venkatesh and Bala (2008), Overby (2002), and Gross (2005).

Low adoption of employees, or user acceptance as we will from hereby refer to is therefore one of the most researched areas within IT implementations (Hu et al., 1999). Dillon (2001, p.1) define user acceptance as: “the demonstrable willingness within a user group to employ information technology for the tasks it is designed to support” which we interpreter as a user being so satisfied with the product that they use it voluntarily. This is similar to what DeLone and McLean (1992) state in their Taxonomy for information system (IS) success. They describe the user as an essential part to reach organisational impact. HassabElnaby et al., (2012, p. 619) clarify this as they conclude that IT can have “a positive impact on financial and non-financial performance measures”. In DeLone and McLean (1992) taxonomy for IS success, the different links on how to reach organisational impact are introduced, see *Figure 1: Taxonomy for IS success*.

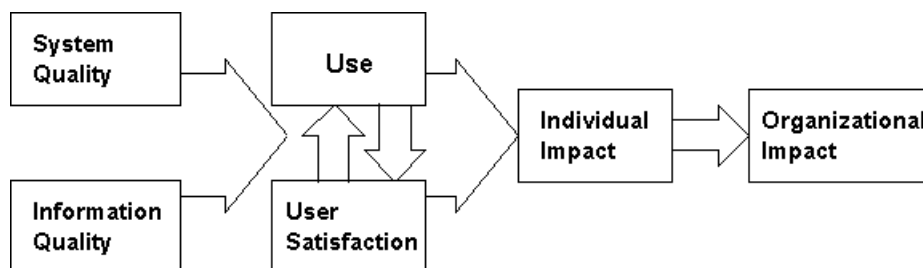


Figure 1: Taxonomy for IS success (DeLone and McLean, 1992)

The model indicates that no matter how good the IS is, or how high the quality of the information is, organisational impact cannot be optimised if there is no comprehensive usage

of the system within the organisation. However, with support of other research, we argue that system quality and information quality are not the main, nor the only contributors to use and user satisfaction (Davis et al., 1989, Venkatesh et al., 2003). Instead, other drivers of success are proposed. Venkatesh et al. (2003) e.g. introduce performance expectancy, effort expectancy, social influence and facilitating conditions which they have concluded to be the most important drivers, this by performing a quantitative study conducting over 215 interviews in four IT implementations over a six-month period.

We argue that this model, as it includes both psychological and organisational matters is more interesting to analyse than the model introduced by DeLone and McLean (1992). They further introduce four moderators: Gender, age, experience and voluntariness of use. However, as the report is published in 2003 and as the society have changed due to technology adoption some of these moderators might be irrelevant, and since these factors mainly touch upon psychological constructs that may not be applicable in Sweden because of cultural differences. Shani (2009) e.g. propose that people are carrying “mental programs” that are different in different nations and cultures. Instead we want to examine how the implementation process will work as moderator to each driver and how that can affect the user acceptance. The focus of this report is therefore to find measures and tools for organisations to use in the implementation process that can affect the drivers introduced by Venkatesh et al. (2003) to optimise user acceptance. Since the provider of the IT system also plays a part in the implementation by delivering a product that fit the organisation both parties will be included in the report and discussed. This, since we argue that both parties can add value to the process in order to affect the drivers introduced.

1.2. Purpose

The purpose of this report is to find measures within the IT implementation process that affect the drivers leading up to user acceptance.

1.3. Research Questions

With the previous background and purpose, the following research questions have been developed:

1. How does the implementation process affect the success drivers of user acceptance?
2. How can the supplier assist the organisation in their implementation process for maximisation of user acceptance?

1.4. Thesis Disposition

The thesis will in the succeeding chapter to the introduction introduce chapter 2. Theoretical Framework that have been developed to answer the research questions. The theoretical framework will firstly develop the notion of User Acceptance before explaining the different drivers in a more exhaustive manner. Lastly, the theoretical framework will introduce a chronologically developed model that will work as a framework for the analysis and discussion.

3. Methodology will discuss how the research have been conducted and discuss its quality to the measures of construct validity, internal and external validity, and reliability. Chapter 4. Empirical Findings introduce the three cases in depth preparatory to chapter 5. Analysis and chapter 6. Discussion. The analysis will be conducted by breaking down the cases according to the implementation process introduced in the theoretical framework. The discussion will further discuss the drivers of user acceptance, and we as researchers will discuss our view on what have happened. Lastly, chapter 7. Conclusion will summarise the analysis to answer the two research questions.

2. Theoretical Framework

This section aims to introduce the reader by presenting previous research on the subject, and important concepts and notions that will be discussed and analysed in the report. First, a conceptual model is introduced, this to give an overview on what the framework will cover and how we as researchers see the process. Next, an enhanced introduction to User Acceptance and its drivers are introduced in two subchapters. Lastly, a subchapter describing the implementation process and what difficulties an organisation can meet is introduced.

2.1. Conceptual Model

The conceptual model visualizes how the different sections of this research affect each other in a three-step sequence. The framework will be built around how the implementation process will affect the drivers, which in turn affect user acceptance that works as mediating variable to organisational impact. The implementation process includes principles of both general project management theories, as well as specific phases that are proposed when implementing an IT system. By examining different cases, the thesis ambition is to show what activities during the implementation process that have an impact on the success drivers. Further, this section will include research on why change projects often fail and how it interrelates with how well the drivers meet the user's expectations.

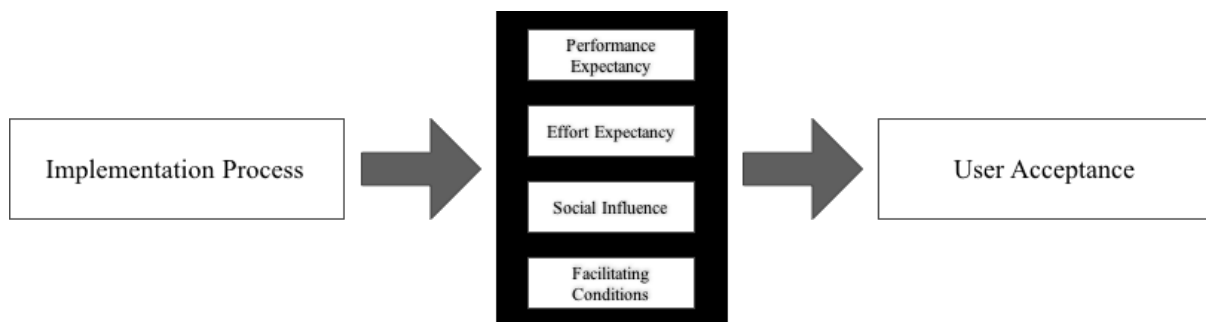


Figure 2: Conceptual Model

2.2. User Acceptance

As described in the introduction, user acceptance is one of the key success factors when implementing a new IT system as it works as a mediating variable for organisational impact, this since the system must be used in order for the organisation to receive a positive impact (Venkatesh and Bala, 2008). Because of this, research on this matter have been conducted since the 1970's (Davis et al., 1989). Evidence strongly suggest that IT is often underutilised when implemented in organisations (Jasperson et al., 2005). It can cause stress, frustration, ineffectiveness and lost work time among users. Studies have shown that as much as 38% of the user's productivity can go to waste and problems with new technology also means that workers cannot take full advantage of their expertise and knowledge (Ceaparu and Shneiderman, 2004). This leads to a string of connected problems. If users cannot take full advantage of an information system, it is hard to evaluate the promised benefits from the supplier as well as justifying the investments put down in the product (Davenport, 1998). It has

also been shown that when information system problems get resolved in a reasonable manner. Users get a fair chance to learn more system functionality, which enhances the business value that can be extracted from the system (Hsieh et al., 2011).

2.3. Drivers of User Acceptance

One of the most quoted models of User Acceptance is the Technology Acceptance Model (TAM) (Venkatesh and Bala, 2008). There have however, been lots of other models developed over the years e.g. (Triandis, 1977, Thompson et al., 1991, Davis et al., 1989). To evaluate these models, as introduced in the introductory chapter of this report, Venkatesh et al. (2003) conducted a quantitative study that drew conclusions on which of the drivers identified in previous research that affected user acceptance the most. Their study resulted in the Unified Theory of Acceptance and Use of Technology (UTAUT). Another aspect worth noticing is that many other user acceptance models are performed on university students, whilst UTAUT are based on employees in actual companies. The model is visualized in Figure 3: Drivers of user acceptance. The drivers are performance expectancy, effort expectancy, social influence, and facilitating conditions which are described in their own subsection below. The dotted boxes in Figure 3 visualize the moderators, also introduced by Venkatesh et al. (2003). With support of the reasoning in the introduction, these moderators will not be further examined as we want to examine how the implementation process affect the drivers. Important to understand is that the researchers have bundled similar definitions used in the previous models together. What definitions these are, will be further described in respective subsection.

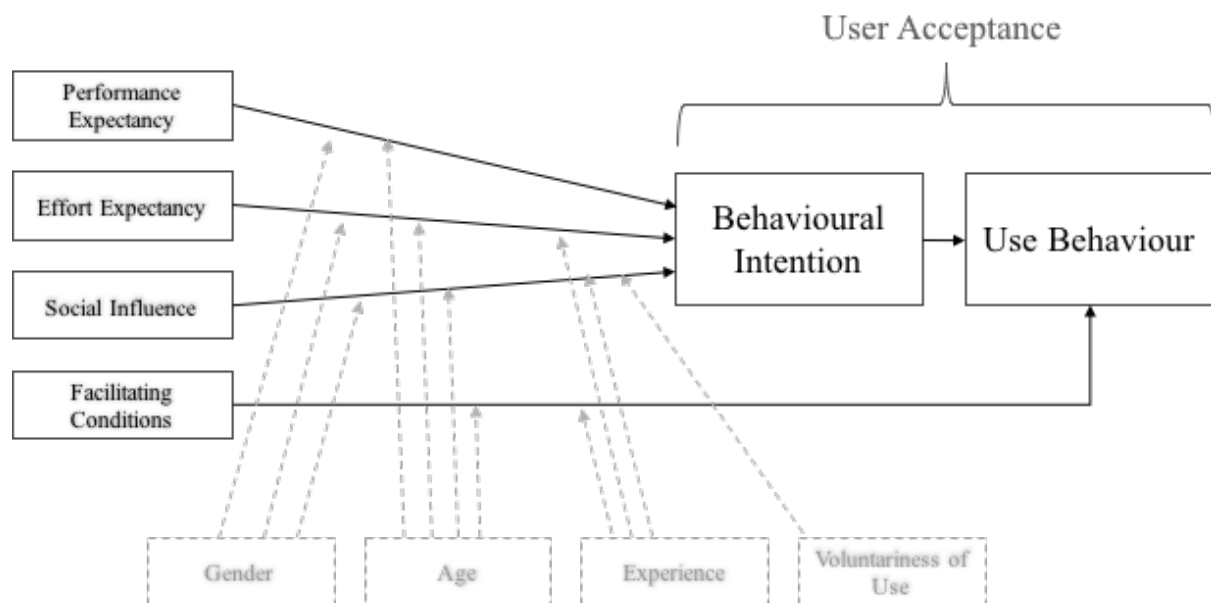


Figure 3: Drivers of user acceptance (Venkatesh et al., 2003)

2.3.1. Performance Expectancy

Performance expectancy is defined by how the users expect the IT-system to increase the performance in their job. Performance expectancy is a construct of perceived usefulness, extrinsic motivation, job-fit, relative advantage and outcome expectations (Venkatesh et al., 2003). Through their research, they conclude that this driver is the single most important

predictor of the intention for users to use the new system. This aspect stayed significant in all cases, both when the usage was voluntary as well as mandatory.

2.3.2. Effort Expectancy

Effort expectancy instead focus on how easy to handle the users expect the product to be. This notion is a construct of perceived ease of use, complexity, and ease of use. As performance expectancy and effort expectancy has significant impact on user acceptance on cases where use is both voluntary and mandatory. However, it is only important during the first time period that Venkatesh et al. (2003) refer to as the post-training period. As the system is implemented and when there is sustained usage, effort expectancy seems lose its importance (Venkatesh et al., 2003).

2.3.3. Social Influence

Social influence is defined how other people in one's surroundings use the new system and how that affect the user. Social influence draw upon three constructs, subjective norms, social factors, and image. These constructs share the notion that they refer to how the individual's behaviour is influenced depending on how they believe others will judge them according to their use of the new system. It seems that that the social influence factor is not important in settings where the new system is voluntary to use. In the mandatory settings, it seems to only be important in the early phases of the project and one of the reasons might be that employees want to be compliant with the rules (Venkatesh et al., 2003).

2.3.4. Facilitating Conditions

Facilitating conditions is the degree that users believes that the organisational and structural processes support the new IT-system. The research suggests that in the model where both performance and effort expectancy are included, facilitating conditions seem to have no effect on behavioural intention but only on the actual usage. The construct is drawn from three previous models where the notions have been addressed as: perceived behavioural control, facilitating conditions, and compatibility. To summarise it implies that there should be a fit between everyone's work style and how the system is used in the organisation. The research conclude that it is significant in the early phases in implementations in both mandatory and voluntary settings, but lose significance over time (Venkatesh et al., 2003).

2.4. Implementation Process

To get structure in the implementation process, a general project management structure, developed by Maylor (2010) is used. The structure is divided into four phases, which are sequenced in a chronological order. As an IT project puts the organisation through change by altering the work processes for users and employee, this in accordance to (Nah et al., 2004). Therefore, change management research will complement Maylor's (2010) implementation process, since his research does not specifically focus on internal projects that change the organisational structures. This is also supported by Senge et al. (1999) as they propose that organisational change often fail due to companies incapacity to both initiate and sustain the

change process. As Maylor (2010) does not address these factors during these phases, and other theoretical viewpoints are therefore needed.

The following structure are structured in accordance to Maylor's (2010) phases which are define, design, and deliver. Maylor (2010) also introduce a develop phase where feedback should be collected in order to support next project. However, as this phase does not involve any work during the change process or the project itself it will not be described, as it cannot be moderator for the drivers of user acceptance presented in chapter 2.2. Drivers of User Acceptance.

2.4.1. Define the Project

This phase mainly focus on what the induced project will result in. Therefore, measurements of success should be set and agreed upon internally. Maylor (2010) discuss how stakeholders have different goals with a project and the importance of plotting these in advance. Other researchers as Aladwani (2001) propose that the management team should carry out an investigation to identify potential resistance for change in the organisation which is similar to what Kotter (1996) propose as he elaborate on the concept on creating urgency throughout the organisation in order to cope with this resistance. To identify resistance, and to understand how different stakeholders see the project following subsection will highlight the importance of plotting the stakeholders, and how a preferable approach to communication that should be used in all phases.

2.4.1.1. The Management of Stakeholders

As each stakeholder of a product have different goals and ideas of what the project will bring, and how it will eventually impact the organisation, an emphasis on this need to be present in the defining phase of the project (Maylor, 2010). In accordance to Nah et al. (2004) statement that IT changes work processes one important stakeholder are the user. Other stakeholders could be shareholders, top management, finance department, or the provider of the system.

It is important to distinguish between these stakeholders as their motivations could be different. Management tend to be motivated by organisational impact, whilst the user, as described in the User Acceptance section instead are driven by personal benefits such as better work performance (Gilley et al., 2009, Venkatesh et al., 2003). Further, Strebel (1996) connect to this, if an employee's tasks will change, the mutual agreement between the employer and the employee need to be renegotiated to fit the new work standards. Strebel (1996) describe this as a key problem when management tries to implement change within an organisation. Therefore, it is important for the organisation to understand this, already in the design phase of the study as proposed by Aladwani (2001). Another stakeholder that is involved is the provider, important to note here is that their agenda might not be the same as the buyer's. As the provider sees the project as finished when the product is handed over to the customer, the customer in projects like these often see that the project will continue to develop over time (De Wit, 1988).

Maylor (2010) have created a model on how to handle different stakeholders in a project. As seen in Figure 4: How to evaluate and communicate with stakeholders. This matrix divide the stakeholders based on their power of the project and on how interested or involved they are in the day-to-day activities. Power can be divided into two different categories, both on how much power the said individual has in the organisation or project, but it could also be how important the person is to the project. So, a developer whose sub-project is the foundation for the other parts would have high power in this aspect. External auditors in areas like finance or environment could also be seen to have high power, so they do not have to be within the organisation or project. The interest aspect is how much individuals know about the project or would like to know. This is often correlating with the impact the project has on that person's work in some way. It is essential to be aware of the different stakeholders and how to communicate with them since the communicated information can manipulate the stakeholder's expectations, and in the long run, the perceptions of the project's success (Basten et al., 2016). A project manager does not want to over-communicate with stakeholders that do not need that information, or on the other hand, missing out on giving information to high-power stakeholders (Maylor, 2010).

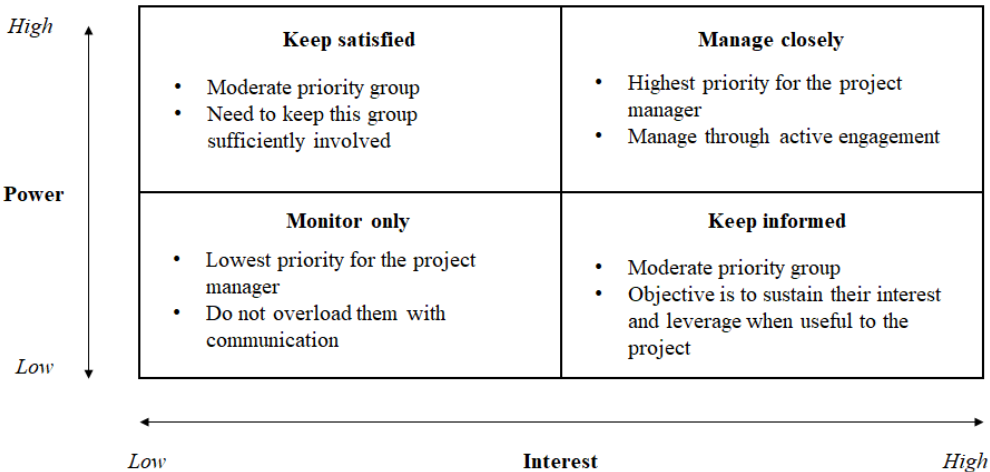


Figure 4: How to evaluate and communicate with stakeholders (Maylor, 2010)

2.4.2. Design the Project

The design phase is mainly about planning in advance for the delivery phase. Maylor (2010) propose that the both the buying organisation and the supplier set goals to get an understanding of how it should be executed. They should also determine who will be involved and when the handover should start, and an estimation when the finish should be. This is similar to what practitioner's address as the feasibility study. Some practitioners argue that there is a trend where organisations see the feasibility study as increasingly important. One reason is that IT systems have gone from being a support systems to strategic systems that can enhance business value (Åslund, 2005). Further, this part of the project is about collecting requirements from different stakeholders so that the user needs in the organisation can be identified and later on satisfied (Pandey et al., 2010).

An important aspect to consider during the design phase that will affect the delivery is the multi-echelon perspective described by (Heyden et al., 2017). They propose that a planned organisational change that is designed and executed by just top-management have very little impact on the employees. The involvement and support by middle management and users are necessary to create support from multiple echelons in the organisation to create understanding and engagement.

A way to create involvement from users is to involve them in an early phase. One way to do this is to create reference groups, where the users can express their ideas and requirements for the solution, which Pandey et al. (2010) describe as necessary for a successful system development.

In order to understand who is going to be affected by the project and thus be involved in some way, the work needs to be divided into manageable parts. Depending on the work structure, different challenges can occur for an organisation. One part of the feasibility study and the design phase is therefore to break down the structure and in advance cope with these challenges. Ebert (2012) propose that by breaking down the organisation or project in different schemes valuable insights can be identified for the project management team. Both groups, tasks, functions and resources that the group need to be aware of can be visualized. Maylor (2010) introduce different breakdown structures which are visualized in Figure 5: Work Breakdown Structure and Figure 6: Functional Breakdown Structure. The Work breakdown structure is often used in medium to large sized projects, and the goal of the structure is to divide the project into detached sub-assignments. I.e. an individual should be able to work on one part without too much impact from another.

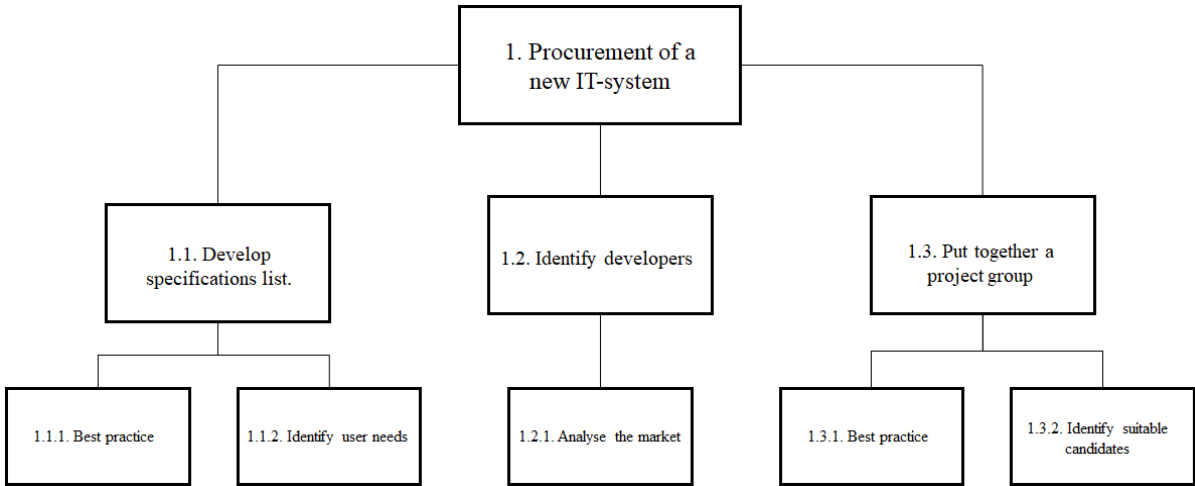


Figure 5: Work Breakdown Structure (Maylor, 2010)

The functional breakdown, see Figure 6, start by dividing the projects activities into the organisations functions instead. The first level in the breakdown could be by financial, technical, personnel and operational functions. The activities would then be spread out from the

functions. It is common that the functions have an overall responsibility for the sub-assignments given to them (Maylor, 2010).

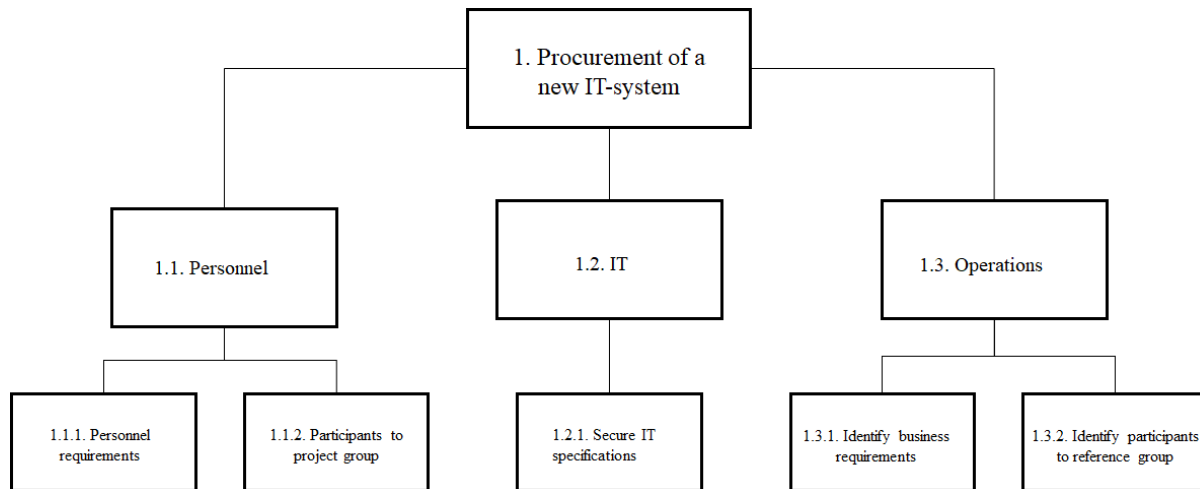


Figure 6: Functional breakdown (Maylor, 2010)

Both structures have some disadvantages that differentiate from one another, no of the structures are preferred, but rather one must be observant on the risks. The work breakdown structure can lead to that the developed sub-parts to the project do not fit when later integrated with each other. The functional breakdown structure instead struggles with integrating the different motives from the departments involved in the project. To cope with these challenges the organisation must coordinate the different parts during the project. One way of solving these issues could be to have one person that act as a link between the different project groups or functions (Maylor, 2010). It is important to note that Maylor (2010) do not provide a right or wrong structure, but that the organisations need to be aware of the disadvantages so that can address these in their implementation process.

2.4.3. Deliver the Project

This phase is about the delivery of the system within the organisation. Maylor (2010) describe the phase by everything that have been planned should now be executed. This chapter therefore have two major subchapters. The first one introduces the notions of how management should manage the organisational change and how they should cope with difficulties that could work as barriers. The second one, focus on how the training should be conducted in order to maximise the users' acceptance and understanding of the project.

2.4.3.1. Managing the Organisational Change

As introduced in the definition phase, a sense of urgency to reach acceptance of change is important. Further, the previous stages should work as a stepping stone to when the change process starts. A traditional model is introduced by Kotter (1996), who proposes eight steps that should be addressed during change. These are: 1) Establishing a sense of urgency, 2) Create a guiding coalition, 3) Developing a vision and strategy, 4) Communicating the change vision, 5) Empowering employees for broad-based action, 6) Generating short-term wins, 7)

Consolidating gains and producing more change, and 8) Anchoring new approaches in the culture. Some of these steps need to be addressed in the previous stages. However, we argue that, even if that's the case all of these steps should further addressed in the delivery phase, since this is the phase where they are leveraged to reach acceptance.

As the change is introduced, Kotter's (1996) steps is not enough to guarantee success, it is also important to understand how leadership and communication interrelate with each other. As described in the design phase, the breakdown structures induce different challenges for the organisation when conducting a project. Beer and Eisenstat (2000) introduce a framework that are visualized in Figure 7: How the Six Strategy Killers Interact. It describes the challenges that change projects generally meet when organisational change is to be implemented. Further, the factors that they introduce that affect the outcome are: Ineffective senior management team describe how the senior management team miss out in working effectively by not cooperating or focusing their strategic intent with each other. Unclear Strategies and Conflicting Priorities means that managers can't prioritize leading to unclear strategies. E.g. managers of different functions within the organisation have different agendas to their respective function leading to a poorly communicated overall strategy. Top-Down or Laissez-Faire Senior Management Style develops the notion that a manager need to have balance between involving the other managers and organisation. Poor vertical communication involves the problem that employees do not want to raise issues with the management in fear of being dismissed. Poor coordination across functions, businesses or borders mean that different parts of the organisation do not communicate with each other. Lastly, Inadequate down-the-line leadership skills and development describe how lower-level managers are not developing skills created by new opportunities within the organisation (Beer and Eisenstat, 2000). Some of these killers are highly interrelated with notions and theories that have been addressed in the define and design phases. E.g. Unclear Strategies and Conflicting Priorities interrelate with the schemes of work breakdown structures as a functional set up may induce that each function prioritise their own agenda.

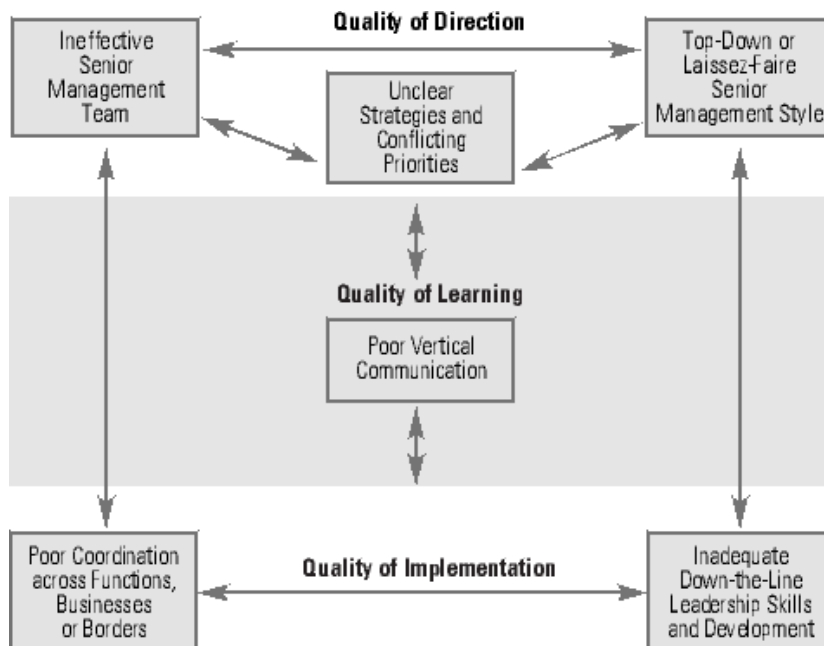


Figure 7: How the Six Strategy Killers Interact (Beer and Eisenstat, 2000)

2.4.3.2. End User Training for User Acceptance

Ravasio et al. (2004) highlights that a major concern when implementing new IT-systems are the large gaps in prior knowledge, skills and experience in technology among the users, which can cause problems in an uneven distribution of utilisation. Different amounts of prior experience have also been shown to affect the perception of new information systems, which in the end influences the user's voluntary utilisation of the system (Turban et al., 2011). In combination with the aspects mentioned about previous knowledge and experience could lead to a downward spiral. Where it takes longer time for problems to be revealed due to that the systems are not being sufficiently used. It is thereby important to identify the employees level of knowledge and experience in order to maximise the user's learning curve and in the extension the user acceptance and utilisation. The proposed measure for this is training (Ravasio et al., 2004). This is also supported by e.g. Aladwani (2001) who propose training as an important driver of IT implementation success and Bradley and Lee (2007) who conclude that it can affect the user satisfaction.

To conduct a successful training program of the employees, Esteves (2014) performed a survey where both users, practitioners, and management could highlight what they thought was most important in the training process. Esteves (2014) full list of training best practices can be found in Appendix 1. This chapter instead introduce the top best practices that end-users have highlighted, because of the focus on user acceptance. These are presented in Table 1: Best practices of ERP Training.

Table 1: Best practices of ERP Training (Esteves, 2014)

1.	Free users from their daily activities
2.	Training must respect the company's critical periods/dates
3.	A hybrid team of internal users and consultants as trainers
4.	Have a good support centre with someone dedicated to the users' doubts full-time
5.	Using the customised IT system and not a generic version
6.	Training content focused on the users' short-term needs

It is however not only the setup of the training that is important. Wheatly (2000) propose that it is not the technological training that challenges the users, but rather the underlying stream of information that flows through the business. The training strategy therefore needs to address this. Further, Esteves (2014) propose that the training should be synchronised with the implementation, if e.g. formal training is deployed to early, there is a risk that the users will forget how to use the system when launched. To address this synchronisation, Scott (2005) is proposing that the training strategy should be developed before the project starts, (i.e. in the design phase) and that it should be updated continuously during the project.

2.5. Implementation Model

To summarise the theoretical framework, the conceptual model has been developed to further covering the theoretical implications in the process that is proposed to affect the drivers of user acceptance and thereby the user acceptance. This is visualised in Figure 8: Implementation Model. The model covers the define, design and deliver phases and highlight the most important notions from each phase that can work as moderators for the drivers.

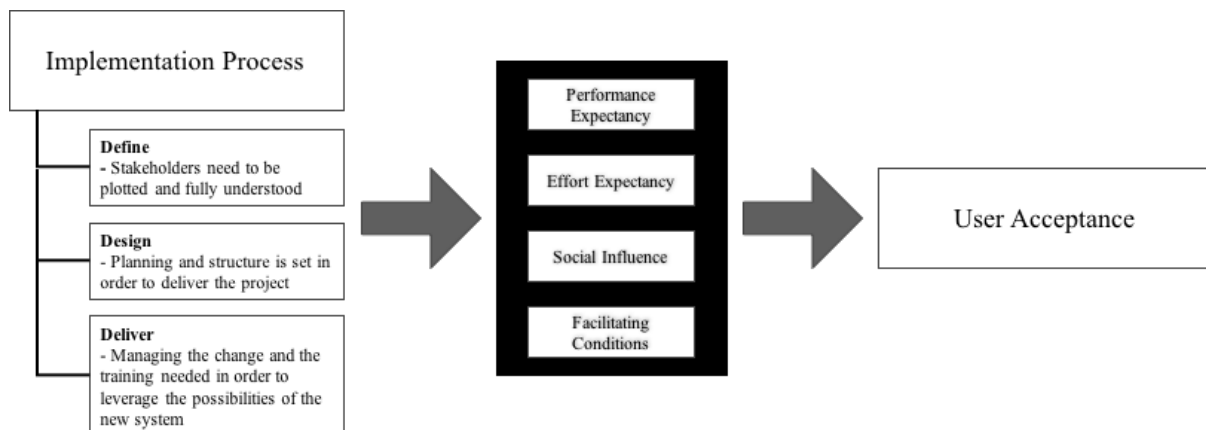


Figure 8: Implementation Model

3. Methodology

In this chapter, an outline of the research design and methodology is presented.

3.1. Research design and Methodology

To develop relevant research questions in the subject, meetings were held with both an academic supervisor from Chalmers University of Technology and a firm that specialises in the development of business intelligence and decision support systems. The process was iterative and in the initial meeting with the firm, the research team mainly focused on highlighting issues that the firm was experiencing when the customers are to implement their product. These gaps were narrowed down to what is presented in 1.1 Background and Research Problem. To academically meet this request, we developed a purpose and research questions that could benefit academic scholars, customers of IT-systems and suppliers of IT-systems.

In a response to the formulated research questions, a case study of three individual cases have been conducted. Case methods are described by Shaban (2009) to be used when researchers want insight and understanding of not previously examined areas. Yin (2009) further develop three themes when case methods are preferable. These are: when “how” and “why” questions are asked, when the researchers have little or no control over the events, and when the focus is on a contemporary real-life problem. This study both contains one “how” question and one “what” question. We argue that the first research question that identified drivers work as a foundation for the second question that is more discussed. The two latter statements by Yin (2009) are fulfilled and a case study is, by us, therefore seen as the best possible research design.

This report is based on a multi-case design, where in this case, multiple customers have been interviewed and analysed. Multi-case designs have both advantages and disadvantages. One advantage over single-case designs are that single-case designs is more vulnerable in terms of that everything will be dependent on the results from the observations and interviews from only one case. Furthermore, the academic benefit of having more than one case can be significant in terms of that the conclusions can be drawn independently from respective case and will therefore be more powerful. A disadvantage is instead that multiple-case design often requires more resources (Yin, 2009).

Because of limited resources the report has investigated and researched three cases. Therefore, the process of choosing cases to analyse have been conducted together with the provider. We evaluated the factors of accessibility and success rate in the view of the provider as we wanted to see both at least one successful and unsuccessful project. Further the three organisations that were chosen, have very different organisational structures, this, we believe to contribute to our thesis since different types of ownership models, the different structures, and the different cultures can find success factors that can be shared between the industries. Further, it gives a larger foundation to build arguments on and the results are therefore more generalizable to organisations.

In each case six semi-structured interviews have been performed. These interviews are further described in 3.3.1 Interview process.

3.2. Setting of Research

This report has been conducted together with the provider of a system that develop web based modules for decision support, business intelligence, and budgeting. The provider is mainly seeing themselves as a company that provides a specialized product to each customer and their main target when implementing and selling a system to a customer is to secure *system quality* and *information quality* that is introduced by DeLone and McLean (1992) (Interview 18, 2017). The provider wants to look at the possibilities of selling further support to enhance *user satisfaction* and *use* presented by DeLone and McLean (1992) (Interview 16;17).

The product is entirely web-based to ease adoption and spread of information. In each project, they provide a project manager and technical consultants that support the buying organisation during the implementation process. The project manager is mainly active in the buying organisation's project group where he/she is responsible from the provider's perspective to guarantee that the provided solution cover's what have been agreed upon. The steering committee mainly consist of the buying organisation's top management getting reports from the project group. The sub project groups are sometimes created when more than one module is implemented (Interview 18, 2017).

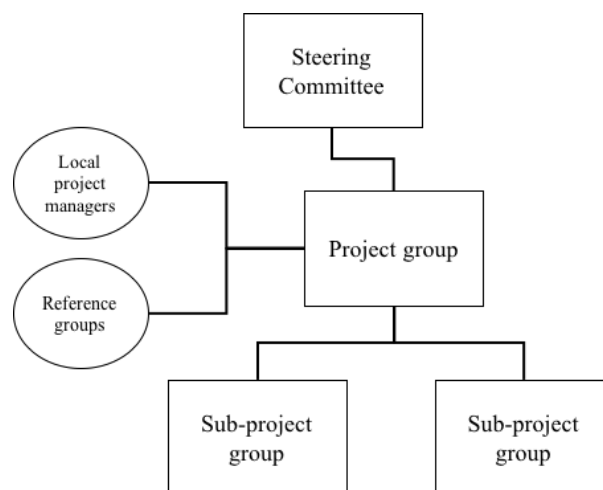


Figure 9: Structure of a project (Interview 18)

3.3. Data Collection

Data can derive from six different sources in case studies: documentation, archival records, interviews, direct observation, participant-observation, and physical artefacts (Yin, 2009). This study has mainly used interviews for data collection which have been held as semi-structured, further described in the subchapter 3.3.1. Interview Process and Collection. This chapter also include a methodology to review literature on the subject and discuss the differences in using primary and secondary data.

3.3.1. Interview Process and Collection

Interviews can be conducted in different ways, from open or, non-directive, to one that the interviewer has prepared a list of questions that should be answered, and nothing more should be discussed (Easterby-Smith et al., 2015). Furthermore, Easterby-Smith et al. (2015) emphasizes on the importance for researchers to collect information that describe the meaning and interpretation for the interviewee. A semi-structured or unstructured approach is recommended if 1) the aim is to understand the interviewee's situation, 2) a deeper understanding of the interviewee's opinions and beliefs on a matter or situation, and/or 3) if there is sensitive information where the interviewee may be reluctant to give truthful information (Easterby-Smith et al., 2015). All these factors corresponded best with our research, as we examined user acceptance we needed to understand the interviewee's situation and we also needed to understand their opinions and beliefs as described by Easterby-Smith et al. (2015).

The interview guide was developed by using a modified version of a framework presented by Kallio et al. (2016) that enhance the trustworthiness of a semi-structured interview as method. Kallio, et al.'s (2016) phases consist of: 1) Identification of prerequisites for using semi-structured interviews, 2) retrieving of previous knowledge, 3) formulation of a draft of the interview guide, 4) pilot testing the interview guide, and lastly 5) Presenting the guide. Our process distinguished after phase 3, where we instead of directly doing the pilot, we got feedback from our supervisor at Chalmers University of Technology. This gave insight on the how the interview guide draft was aligned with our research questions, and some minor adjustments were made. Because of lack of unlimited accessibility, the pilot interviews could not be held with a customer at one of the cases. Instead we held mock interviews with the provider who acted as a customer. This gave insight on how the questions were interpreted, and on what possible answers that could come out of the questions. Full list of interview questions can be read in Appendix 2.

The provider initially presented six different cases, of which four was chosen. Because of lack of availability one organisation decided to not participate in the study. Table 1: Interviews consists of all interviews that have been conducted in order to complete this study. The interview numbers are not provided in a chronological order, instead they are introduced sorted by cases. Case 1 regards interview 1-5 and 22, Case 2 regards 6-10 and 20, and Case 3 regards 11-15 and 21. Interviews 20-22 have been held with responsible technical consultants or a project leader to give a picture of the project from both sides (provider and buyer). Interviews 16-19 are with employees at the provider which have given information about the organisation.

Table 2: Interviews

Interview no.	Organisation	Role in the project
1	The municipality	Administrative coordinator
2	The municipality	Project leader
3	The municipality	Subproject leader
4	The municipality	Subproject leader
5	The municipality	End user
6	The real-estate company	Project leader
7	The real-estate company	Project leader
8	The real-estate company	Reference group
9	The real-estate company	End user
10	The real-estate company	End user
11	The public organisation	Project leader
12	The public organisation	Member of the project group
13	The public organisation	End user
14	The public organisation	End user
15	The public organisation	End user
16	The provider	Project leader
17	The provider	Project leader
18	The provider	Project leader
19	The provider	Project leader
20	The provider	Project leader
21	The provider	Technical consultant
22	The provider	Technical consultant

3.3.2. Literature Collection Process

To build a solid foundation, a thoroughly literature review on the subject have been made. Literature have been recommended by our academic supervisor at Chalmers University of Technology. However, most of the literature that have been used, have been collected through online databases such as Chalmers library database and Google Scholar. Both books and journal articles in business, management and information technology have been used.

3.4. Data Analysis

To analyse collected case data Yin (2009) propose a general analytic strategy that is setting the priorities for which areas to analyse and why these should be analysed. He proposes a strategy where the researchers follow the theoretical propositions that led to the research, the research

design, its purpose, etc. Furthermore, the chosen strategy can be accompanied by five different techniques including pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis (Yin, 2009).

Our analysis builds upon the notion of the theoretical propositions presented in the introduction and the theoretical framework. To build our arguments we have used cross-case synthesis. Yin (2009) describe cross-case synthesis as a method where each case is individually examined before analysed together in e.g. a word table. Our exact process of the data analysis is further described in the next section.

To use the cross-case synthesis, all interviews were transcribed. By coding the interviews, we got a complete picture of each case since both facts could be controlled in order to see that the interviewees are consistent in their descriptions. Further, the coding let us summarise the important phases and their subjective opinions during the implementations. Different colours were given to different aspects that the interviewees were discussing. These colours were used in all interviews on all cases. Table of the different opinions and the facts were placed in a matrix for each case. From this, each case description was developed, and the analysis could later be analysed using this same matrix. A summarising matrix is presented in the analysis.

3.5. Quality Rigor

To ensure the thesis quality, four conceptualisations on validity are introduced by Yin (2009). These are construct validity, internal validity, external validity, and reliability. Construct validity refers to that the study should identify correct operational measures for what have been studied. Further, case studies are often criticised that the researchers fail to develop these measures and instead have subjective judgements in order to collect the data. Yin (2009) propose three tactics to cope with these issues. Firstly, multiple sources of evidence should be used, secondly, an established chain of evidence should be developed, and lastly, use key informants to review a draft of the case study report. Mainly, we have focused on the first two tactics. As we have used both interviews from three different cases performing a similar task, as well as we have used an extensive amount of secondary data in the form of literature to support our conclusions. Further, to increase the construct validity, the report intends to let the reader follow the whole process from initial research questions to conclusions.

There are primarily two concerns when it comes to internal validity. The first one being in explanatory case studies where the researcher draws conclusions on what has caused a specific event. There is a risk that there might be another explanation to the outcome. The second concern, is about how the researcher have to draw their own conclusion about events that they do not experience directly (Yin, 2009). This study is open about the fact that this is a complicated area that cover multiple principles, with both organisational and psychological factors to take into account. When drawing conclusions, the research groups have been transparent about that there might be alternative explanations and that there is not one correct answer to reach user acceptance. To parry some of the problems, this study has examined

different frameworks to get a well-founded basis to what drivers might lead to user acceptance, as well as different models for how projects are generally performed.

The external validity refers to the problem of knowing if the study's results are generalizable or not. As Yin (2009) propose that case studies should not be mixed together with a survey design studies where external validity refer to statistical generalizability, but in case studies it refer to analytic generalizability. As we have used three cases and approached them at the same way in the analysis, we argue that the analytic framework used, and the output result from it can be used on other similar cases as well. But as with other case study research we believe that further research is needed on the area.

Yin (2009) describe the goal of reliability as minimizing the errors and biases in the study. I.e. if another researcher wants to conduct the same study, that researchers should come to the same conclusion as we have. To cope with this challenge, Yin (2009) propose a case study protocol that let future researchers replicate the study on the same cases. As this report is anonymized, we cannot be completely open with a case study protocol. To cope with this, we have instead focused on developing an extensive amplification of our methodology that let researchers test our methodology and theoretical frameworks on other cases which let them see if the results match the results of this study.

To summarise, we argue that we have been following the recommendations of experienced researchers conducting case studies. This should imply that the quality of the research is high and that it is trustworthy for external stakeholders.

4. Empirical Findings

This section will present three different cases where business intelligence systems have been implemented.

4.1. Case 1: The municipality

4.1.1. About the Organisation

The municipality is run by the municipality council which is voted every fourth year. Their main tasks are overlooking and managing the organisation, plan the city's economy and be responsible for the city's long-term development. The municipality's operational work is managed by the city board, who oversee a number of different sectors, see Figure 10: Organisational scheme of The Municipality.

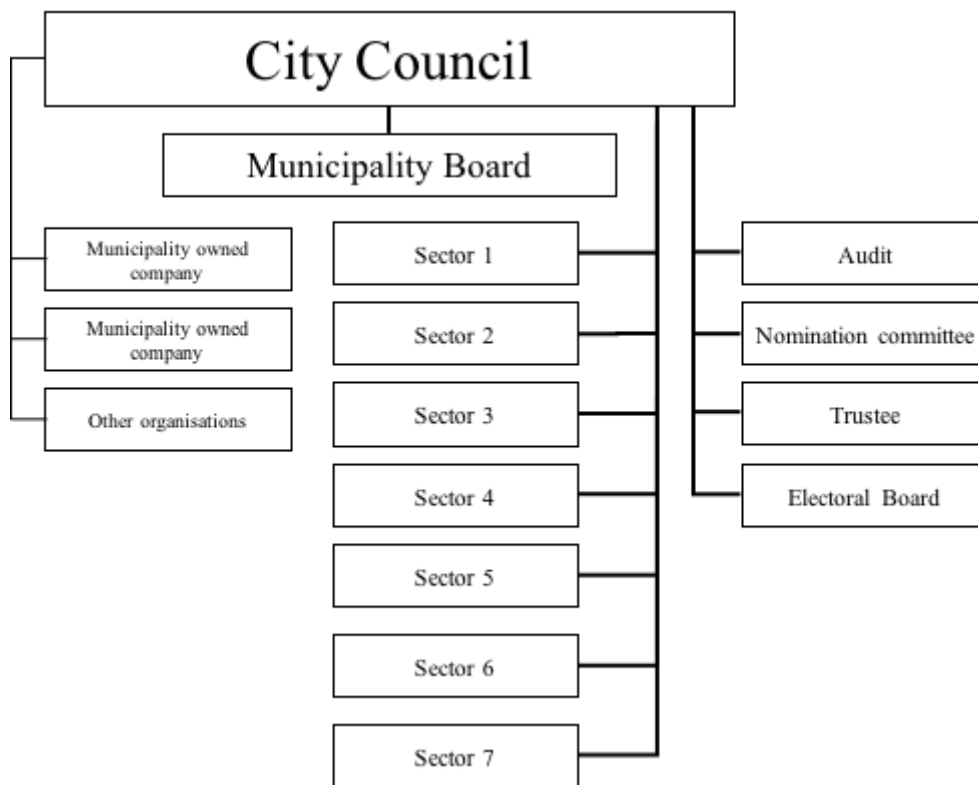


Figure 10: Organisational scheme of The Municipality

The provider has implemented the system in a number of different sectors and have won procurements for a couple more. The implementation has been divided in four different phases or subprojects where two are completed according to (Interview 1). These findings examine the two completed sub-projects.

Interviews has been held with the project manager for all four phases, two sub-project managers and two end-users that are using the system in their respective sector. The interviewees have chosen to be anonymous.

The purchase of a new business intelligence system for the municipality is a bit different from than from a private organisation due to the act of public procurement. This means that a public organisation need to send out the specifications publicly and is then obliged to take all bids into consideration (Upphandlingsmyndigheten, 2017). According to Interviewee 1, this led to extensive work in trying to make an as complete requirement list as possible, to minimize the number of modifications as the development started.

4.1.2. Background to the Project

The decision to buy a new business intelligence system was determined by the municipality management group as they felt demand for a system within the range of decision support. But underlying pressure came also from one of the sectors (Interview 1). This sector wanted a tool to display information that was hard to get and demanded a lot of manual labour to structure in a satisfying way (Interview 2). This sector had previously just been able to use national databases with low frequency on updates of statistics, and not detailed information about the manager's units to take decisions on. The low frequency further led to that the managers had no possibility to take action before it was too late (Interview 5). A new tool with statistics updated in real time would be an answer to this problem, the challenge however was to get the employees in the different sections to use it (Interview 1). Further, the sector had the goal of increasing the quality of decision making and reporting, which was seen as a consequence of a better system (Interview 3). None of the sectors or administrative functions had worked with a business intelligence system before, but there was need to work with statistical compilations in a structural way (Interview 5). When one of the sub-project leader was asked what the feeling was when they had worked with these kinds of analysis previously, she answered with one word: "panic" (Interview 1).

The complete project held four different modules. Two of these were sub-modules, developed for sector specific analytical work. Whilst the other two modules were general administration modules, aimed to be used by the whole organisation (Interview 2).

Before the procurement process begun, the economy department tried to identify what information the section heads and administrative staff needed. The project leader was visiting all the sections that was going to be affected. Both to inform them about the procurement of a new business intelligence system, but also to get their initial thoughts on what they wanted to get out of such a tool (Interview 1). They then held workshops with the section heads and other administrative personnel that were likely to work with the new system and collected their feedback and thoughts on what extra data that might be valuable to add. The purpose of these workshops was to develop a finished specification of requirements that was used to find the supplier (Interview 4). One of the sub-project leaders highlighted that she thinks a big part of the systems successful outcome, was because of the wide scope in reference groups. "We reached out to our employees from different functions and tried to get people with a lot of experience and authority, to create ambassadors for the project. Who when they were back at their sections, could create interest from their co-workers" (Interview 1). When identifying these individuals, Interviewee 4 explained that they found a pattern along personnel that had

previously worked within private organisations to be more engaged. Interviewee 4 explanation to this was that these persons was more used to more specific requirements on monitoring, than public employees were used to.

“The specification of requirements we listed were extremely meticulous a sub project leader explained. All possible end-users were targeted, so we knew exactly what the system needed to be able to accomplish” (Interview 3). The provider’s consultant, have a slightly different view on the specifications listed by the The Municipality. “I think it is both good and bad to have such a comprehensive list of requirements. We have a basic package that we like to work with, if the buyer has a lot of other requirements then it becomes a subject of interpretation in the end. Have we as a supplier covered what we think the buyer meant with the different specifications, there is a lot of ways to interpret such a word as visualisation” (Interview 22). The procurement with the specification list was then released and three responding suppliers were invited to the office to present a couple of different cases that the project group had built, based on the requirement list. They were evaluated by a balanced scoresheet, where factors like usability, task fulfilment and price were taken into consideration (Interview 3). The solutions were judged by both responsible participants of the procurement process as well as attendants from the focus group. In the end, it was a close call between the provider and one other supplier. The provider was chosen because of its experience of similar products to other municipalities and the decision makers therefore saw advantages of their experience (Interview 3).

The provider also presented a standardised delivery model and their recommendation on how to succeed with an implementation. It was very clear, and the project group took many of these ideas with them according to Interviewee 4.

The municipality ordered 4 different sub-systems. At this point in time, an economy system and one section-specific module is in place. A sub-module to the economic system and another section specific module is still under development (Interview 1).

4.1.3. Implementation and Roll-Out

The project group chose to adapt to the provider's proposed delivery model. They felt comfortable in doing this because of the provider’s previous experience of working with similar organisations (Interview 2). Because of that the procurement included four different modules, two different sub-project groups were formed for the two initial projects. These were controlled by one project group that in turn reported to the steering committee via the project leader (Interview 2). The project group and the sub-groups were managed by a representative from the project group who was involved in the day-to-day work to some extent (Interview 2).

A communication plan was designed to secure that the information was spread from the project groups to the end-users, management and other stakeholders. The communication plan was developed internally by the communication department (Interview 2). This is something that the supplier recommends the customer to do during the initiating phase of a project (Interview 18).

The contact with the provider was very close and the contact both included contact with a project manager and a consultant from the provider. It has mainly been through tuning meetings where time schedules, quality checks and to see if there have been modifications from supplier side (Interview 3). The communication with the steering group mainly consisted of status reports. The sub-project groups had weekly tuning meetings with the project group as well. There was also an on-going dialogue with the economy function to verify that all economic numbers were correct when parts of the system were being completed (Interview 4). The focus groups were still active and was used to discuss modifications and to give feedback on some parts (Interview 2).

Two of the four sub-project have been launched so far, one analytical module and one general administration tool. The other two projects are ordered and under development in some way. The roll-outs was conducted differently in the different sub-project to better fit how the educators thought that their respective groups would take in the software (Interview 3). The municipality had experience of a roll-out a couple of years earlier, where they had a big launch and all functionality was released over the whole organisation at once and it did not work out well. So, for this implementation they choose to roll-out in sequences where one section was targeted at once (Interview 2).

The project that scoped all sectors constructed specified presentations for each group. They were developed by the sub-project group and a sector economist from each sector. They did this adaptation since the different sectors would use the product in very different manners (Interview 1). The second sub-project instead had open work-shops where managers were openly invited to participate. Interviewee 1 stated that the percentage of targeted managers participating during the training occasions was 42%, 75% and 0% for the three different target groups. Interesting though is that Interviewee 5 describes that this have low correlation with the percentage of active users which is significant higher. She explains this by prioritization issues regarding time and that knowledge of the software was close to hand in the organisation when the work was to be conducted. No further work-shops are scheduled to be hold.

Initial training of the system was given by the provider's technical consultant in the form of a presentation for users with administrative duties which require more functionality than the traditional common user. All further training of the new system was managed internally and was based on the training plan, that was designed during the initiation phase. This plan also included some educational material that was designed and printed to the end users (Interview 1 and 3).

For both sub-projects, the old systems that were used are still active. For the project scoping over all sectors it is still used, but the new have increased the possibility for managers to access the data. The old system was designed for specialized employees and were never used by managers in a large extent, therefore this new system has rather changed work processes and communication between the manager and the specialized function than just giving the manager a new software to control (Interview 1, 3 and 5).

For the sector specific project, the old system is still being used, but not for analysis or day to day activities. The managers are obliged by law to use some of these systems to report statistics that can be used at a nation-wide basis. Follow up and analysis is mainly conducted in the new system (Interview 1).

One user who had an interest in operations and monitoring these, offered to analyse different sub-sections during the summer. Where a number of different parameters and statistics were evaluated, to give a good visualisation of the subsections operations over the last couple of years. After the analysis was done it was presented to the subsection head and they went through it together, in an attempt to understand how their planning and operations affected the results. The sub-section heads that accepted this possibility were coherently happy with the knowledge they gained and was eager to change their planning for next year in order to get better results (Interview 5). Interviewee 5 also explained that another positive outcome of this was that the sub-section heads became unofficial ambassadors for the tool. Where they told their colleagues how much they have learned and how good it was to explain their operations for them. This is an initiative, strongly supported by interviewee 22 who explained that the sub-section heads in these kinds of organisations are often hard to please since they “prioritizes simplicity and wants to be served the information.”.

When asked how the interviewees felt about the new system and the process as a whole post-implementation, (Interview 1) explained that she is satisfied with the outcome. If there is something she would like to have done in another way, it would be to not call the business intelligence system a system, but rather a tool, “people react negatively if they think they are getting a new IT-system, it is better to tell them that it is a tool, they can use”.

Interviewee 2 feels that her expectations have been fulfilled. She highlights that she would have liked to see some more commitment and dedication from top-management for the project as a whole. Another point she thinks is important is that the buying organisation need to understand that the implementation is not done when the product is delivered, “I think it's really important that you continue with the implementation, the implementation does not end when you take over the ownership. The implementation is much longer than that. It is important to not lose momentum after the initial phases. There is a risk that you buy something, but then you forget and do not use it. Interviewee 22, from the provider note that there was inadequate commitment from some different parts of the project. “It is not uncommon for project participants to fall off during the project. This cause problems in the end when the specifications should be approved, and no one know who or what the source for specific requirements are” (Interview 22).

Interviewee 3 thinks that the new system still misses some vital parts but believes that it has potential. “There are modules that are still under development and when they are in place I think that it will feel more complete. As described above, the municipality put in a lot of time and effort in creating the specification list for the new system. This is something that when Interviewee 3 reflects back on, would have liked to do in a different manner. “I would have liked to talk with suppliers more unconditionally beforehand. It's difficult, we've made demands

based on where we are, and where we want to go. We have spent a lot of time on something that already exists on the market to some extent”. This is something that Interviewee 22 highlights as well, who highlighted that the provider often knows more about the buyer's operations than the buyer.

Interviewee 4 believes that it is a good system they bought. She is aware that some parts are not in place yet, it is another system that is the root of this problem. She further points out that “It will be better when everything is in place, but it is not always obvious that the managers see the underlying cause of the problem, so it may bring a shadow over the implementation. The shadow falls on the provider, but in this case, they are not the problem”.

The provider’s consultant believe that they could assist in mediating the benefits to the managers in some way, by engaging the users and talk about the needs and possibilities. Often to many communication gaps occur, it is the consultant on one side, who talks to the buyer's project manager who then talk to the managers. “We might need to talk more with the managers directly to understand their needs. There is a communication gap there which I think may affect the rollout and usage negatively, we do not reach all the way.”. (Interview 22)

4.2. Case 2: The Real-Estate Company

4.2.1. About the Organisation

Case 2 is about a real-estate company specialised in commercial real-estate with properties in Scandinavia. The company was earlier very decentralised and divided into six different subsidiaries where each affiliated company was run separately. All the subsidiaries reported to the centralized administrative function based at the head office. At this time, all subsidiaries had their own standards and processes in how they reported their financials. This resulted in a lot of extra work for the parent company, since all reported economic figures and estate information was structured in different ways (Interview 6 and 7).

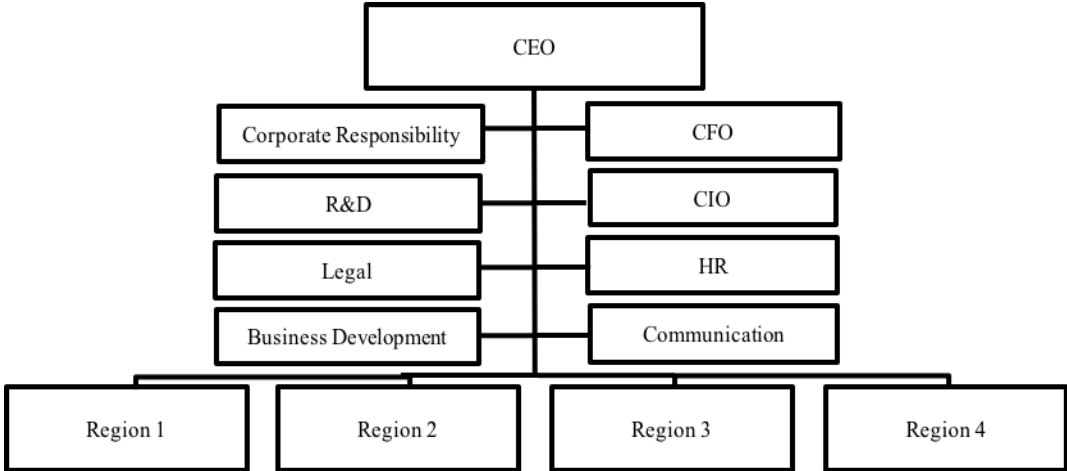


Figure 11: Organisational structure (The Real Estate Company)

In 2016, the company was restructured into one company with four different subsidiaries that is based on geographical regions. Instead of the previous six that were the result of previous acquisitions. The organisational structure is visualised in Figure 11: Organisational Structure (The Real Estate Company). The organisation is still described as very decentralised, operations wise, but the organisational shift the finance departments at each subsidiary was centralised to one department at the head office instead. This led to that previous systems used independently in the subsidiaries, could not be used anymore and a procurement process of new IT-systems including economy, operations, and business intelligence and decision support were initiated. The target was to get a better overview and give them the advantage to spot abnormalities and errors early in the chain and act on these flaws right away which would increase the financial values (Interview 6).

Interviews has been held with one representative from the steering committee with an overall responsibility. One project manager, one member of the reference group and two end-users that are using the system in their respective function. The interviewees have chosen to be anonymous.

4.2.2. Background to the Project

Since all six of the daughter companies worked independently, the way that they worked with systems and associated processes drifted away from each other, there was no standardized way to perform the administrative work. This lead to heavy amount of manual labour for the central finance department to fit the data together into a mutual system. The finance department wanted more time to analyse the business and to spend less time on administrative work. The economists decided a few years ago that a joint economic project had to be carried out to ease the workload and get more effective. They were aware that this was a big job, especially to sync six different wills and getting through these processes and become one company (Interview 6 and 7).

The company originally used two different software systems in its daily operations. One is a real-estate system that they still use today. This system manages information about contracts, pricing per square meter, unit costs etc. The company is generally happy with the provider of the real-estate system and think that the system is good and easy to work with. The other system they used was an economy system. They were quite pleased with the solution, but were however really dissatisfied with the attention and service provided from the supplier. So, they wanted to get rid of them. Instead they chose another economy system which was developed in parallel with the business intelligence system. The problem was that built into the economy system, there was a "bi-module" which sewed together and saved data. This solution had been built for 10 years, so when they dropped the economy system, they would lose this solution as well. Therefore, it was not possible to develop the underlying systems first and then expand the business intelligence system afterwards. The provider of the business intelligence system was therefore dependent on the other systems during the development. They were in need of the data from these systems to be able to develop their own, which put them in a situation where they were the ones who was delayed (Interview 19). Because that is the tool everyone needs,

and they cannot be without it. Therefore, they had to do all the structural change at once, there were no other option. The main functions in the business intelligence software was prognostics and budgeting as well as some specialised reports (Interview 6 and 7).

The decision to change the economy system and to implement a new system for business intelligence came from the company's CFO. When it was decided, the responsibility of the project was handed over to the finance department (Interview 6). A big part of the new systems was aimed for monitoring operations, but there were no representatives from the business side. Interviewee 6 describe it like "It was supposed to be a business tool and not so much focus on economists and economic controllers. The reason for this was probably that they were claimants and primary clients in the project. No one from operational management worked in the planning groups. We should have had that, but it is difficult to appoint people when they do not know what they want, and there was no demo that they could examine and take inspiration from".

Further, the provider was pressured internally by their lead project manager on the project quit the job in the middle of the project. A new project manager was appointed, firstly to see that they had promised a lot more functionality than what was initially agreed upon. The project had grown from one of the standardized modules to many specialized reports. This functionality had not been included in the project plan and as the time plan was already pressured the steering committee and the provider had to reach consensus about prioritizations and ability to create what had been agreed upon (Interview 19).

4.2.3. Implementation and Roll-Out

Since there was a big project with several different systems being developed at once, the company had put together a control group that was responsible for the common system as a whole. The provider's business intelligence system was part of this change and had its own subproject group (Interview 7). Consisting of representatives from the company, the provider and an external consulting firm (Interview 6). Representatives from the provider consisted of both system consultants and a project manager (Interview 19). A hindrance that the company experienced was the communication towards the supplier, where the developer's system consultants worked closest to the company were not having any decision power of the project. All modifications and discussions about product improvements had to go through the project manager first who often were not at (Interview 6). Interviewee 6 described it as "an extra step in what could have been a direct communication, it opens up for misunderstandings and is ineffective, it would have been smoother if we could have made agreements directly with the consultant".

An obstacle that all parties were aware of was that the provider's product was depending on the other subprojects data. This meant that the provider development process got uneven and they had to develop in intervals, even though there existed a direct communication channel between the different sub-developers (Interview 7). The project manager from the provider describe it as an almost agile work method, where they had to prioritize some of the functionalities as fast as data was available (Interview 19).

When the company designed the requirements list there was no differentiated reference group. The specifications were decided by mainly economists, areas that was about operations or the business side was made on their beliefs. Interviewee 7 describe it like “Who the users were are in the back of your mind, we wanted to make a solution that as many as possible could understand, but time spent on this must be reasonable too”. Reference groups were not formed until a bit into the implementation. (Interview 9) explains “I joined a development team or reference group after a while. But then you were too far into the project and the big decisions were already in place”

There was a consistent communication between the project group and the subproject groups (Interview 6 and 7). Hence, there was a lack of communication to the rest of the organisation’s employees. People knew that a change was underway, and that processes and systems were about to change, but not exactly in which way (Interview 7). Interviewee 6 continuous, “We did not communicate out in the organisation very much. It was because of the tempo, we did not know what was going to be completed in time and when that was. There was also no demo or prototype that we could show”.

The company's project manager explains the difficulty of communication in a large organisation, “It is difficult to convey both how the system functions work and what the purpose is, in a way that suits everyone. Some people need to read it on the intranet. Others need to get an email, and some need to notice that a colleague uses it. We tried to communicate in as many different ways as possible. This have been the biggest challenge for me, to get everyone to take on the information” (Interview 7).

Interviewee 8 who was part of the reference group have a slightly different view on the communication. “I have informed my colleagues on the office meetings we hold for everyone in my function, often at quarterly meetings. “Like, we have chosen this system, we will implement it then and it will be able to do this” (Interview 8). So, information like that everyone received. The management team has received more information continuously, but more about the project's status”.

Interviewee 10 who is stationed in another geographical region, have experienced the communication from the other end. She describes it like, “We, who are supposed to use the end product, knew that we were about to switch systems. But we did not receive ongoing information during the project. Some of us had seen a demo earlier, but that was some standard edition and showed another environment. I did not feel that we were able to influence the project. In our region, we had one representative in one of the projects who told us what was going on and what we thought. But it is difficult to give feedback or ask questions when you do not know what the product looks like or what's happening.”.

The new system was launched in all functions and to everyone at the same time (Interview 7). As, the system came out in the middle of budgeting process and closing of the books the employees worked under high pressure and at the same time in a new system. Some manuals

were designed internally and were sent to those who would need it (Interview 7 and 8). Because of the high work burden when the system was launched it took about a month before some kind of coordination on how to teach the different users could be attempted (Interview 6).

The firm had knowledge about that a well-prepared training plan would be good to have early on in the implementation. Interviewee 6 points out that “The provider flagged early how training was important, so we were aware. Nevertheless, we were unprepared and executed it in many different ways. A clear plan would have been needed earlier”. This view on the matter is shared among the interviewees, “Because of lack of time and delays they developed the training in an ad-hoc manner and it was not standardized for all divisions” (Interview 7). Some people met, and others arranged skype meetings. In one region, a big seminar was held where an administrator presented the software on big a screen. Interviewee 8 explains that this is a bad method from two perspectives. She believes that people have a hard time remember information that is communicated through a big presentation, especially when it is about how a system works. The other is about how people are afraid to be perceived as stupid, so they do not ask questions when they do not understand. “One can also think that if we have training for a larger group, there are many who do not dare to ask. It's so unnecessary, even if you put the bar low and tell them that no questions are stupid, people still do not want to ask” (Interview 8).

In another region, employees sat in a conference room and the attendants came from different local offices, these users later become kind of super user who took the information out and held training at their local offices (Interview 10). The regional office closest to headquarters described that they held workshops in small groups, 6-8 employees, and the attendants had their computers with them and could try out the software and come with questions when they occurred (Interview 8). The company also tried to arrange a few skype meetings with those who had questions (Interview 7). When asked how they would design the training if they had the opportunity to redo it, both Interviewee 6 and 7 answers that they would like to have small work-shops where users could test the system.

During the interview with the project manager from the provider he gives another view on the training. Quote: “They only asked for material to training really. They probably had a quite clear picture on how to communicate the new system. We pushed on the importance on the communication to the users, and they did a small road show if I remember it correctly” (Interview 19).

Since the old economic systems was going to be taken out of use, there was heavy constraints on time. The company had to close their books at a certain date and the prognostics and budgeting were to be made for the next period. For this, the economy system needed to be running, and also the provider’s system needed to be. So, there was no time for testing, the systems were launched with basic functionality and some of the parts expected was missing out, everyone hoped for the best (Interview 6). Interviewee 10 thought that the system was missing a lot of functionality when it was first launched. “At first I thought it was just a system created for the centralized finance function and not for us working with the business. There were a lot of features that we could do in the old system that were not included in the new

system initially, which affected my attitude completely. But it has been a process during the year to complement with more functionality. So yes, that gave some frustration among the management, there was many in the beginning who thought the old system was better". Interviewee 7 thought it was okay. "Above all, I can see the possibilities for the future. We have learned to really think about how we want the solution to look before we place the order. The project process overall for us went very fast, it was a lot at once" (Interview 7).

From the steering committee's point of view, they were not happy with the launch, Interviewee 6 explains "The rollout was a disaster. A lot of the functionality was not in place, the project had become more expensive than planned and had taken longer time than expected".

Some modules of the system are still under development and functions are still being added. The real-estate module is still being developed and is planned to be launched in 2018 (Interview 19). So, the provider has continued work to do and responsibility against the company (Interview 6). Further, the product that has been delivered has not met the expectations because of poorly developed data algorithms slowing the system down. This due to the time constraints. Also, the underlying system's data have been stored unstructured. This has led to that users blame the provider for faults that they have not been able to affect. But since the user see the problems in the provider's system they think it's their system that is not correctly installed and their attitude against the solution can be bad (Interview 19).

4.3. Case 3: Public Organisation

4.3.1. About the Organisation

Case 3 is an organisation formed as a collaboration between municipalities in Sweden. The organisation is run by a municipality council with representatives from the different political parties. The board is the decision-making organ and is built up by representatives from the different municipalities, where both the daily work as well as different procurements are overviewed by auditors. The organisation's daily work is managed by a director who leads the work, together with an office chief, and an assistant director. The organisational structure is visualised in Figure 12: Organisational Structure (The Public Organisation).

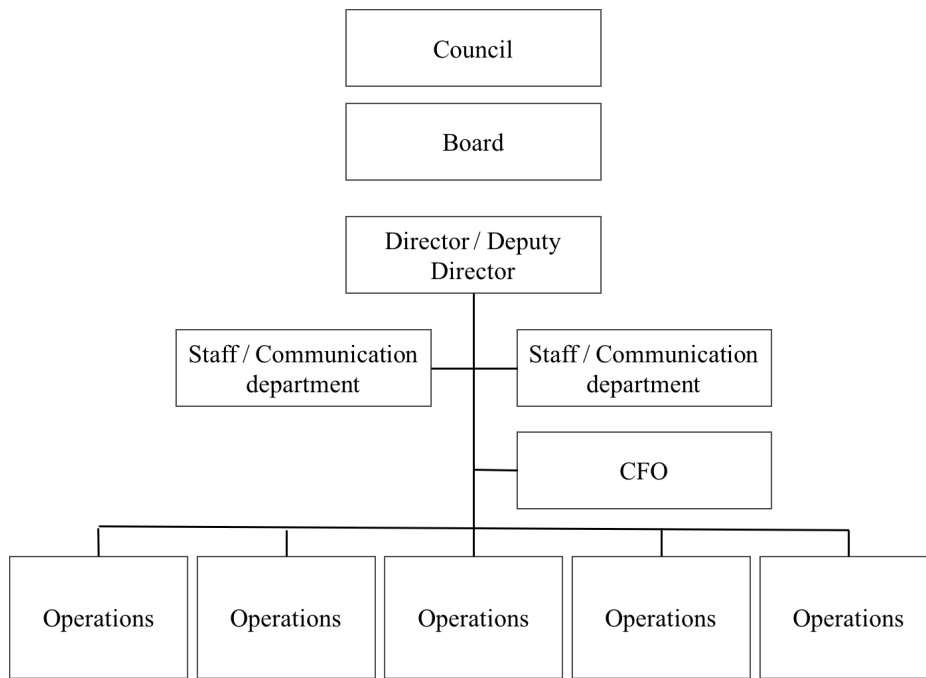


Figure 12: Organisational structure (The Public Organisation)

Interviews has been held with one out of two project managers and four end-users working as managers and that are using the system in their respective functions to a different degree. The interviewees have chosen to be anonymous.

4.3.2. Background to the Project

The project was launched in 2014 and was the result of the external auditor’s request that the organisation was in need of an improved economic monitoring. The previous top management examined the possibility of using a balanced scorecard to increase productivity and measurements, but it was complicated and did not get an impact in the organisation (Interview 12). At this time, the monitoring system that was used had also a limited future since the developer of the system had decided that it would be taken out of service (Interview 11). The procurement for the organisation contained three different modules; one for economy, one for operations and a new personnel system. These findings focus on the personnel system that was launched as a sub-project. The new system that was bought in was a standardised municipality package which included an integration adapter that generated a number of standardized reports (Interview 11). The requirements of specifications had not been developed to meet the different stakeholder groups because of this and no reference groups were used from the different departments that were going to use it (Interview 12 and 15). The provider’s system consultant believe that they bought their system because they used the same underlying systems as another customer. But when they implemented it they realised it did not cover their needs (Interview 21).

The purchaser of the new system was the finance department. Employees that worked with personnel understood that they would be affected by the system that would be bought. They tried to affect and get involved in the purchase decision, but eventually it was the finance department who made the choice (Interview 11).

The new system that was to be implemented would extract data from two underlying systems. One of these systems is the foundation of how much salaries that are paid to employees. The other system is a planning tool where managers schedule the employees. It also contains other data about evaluation procedures of employees (Interview 12). None of these systems create good standardized reports for managers to use as ground for decision though. They are described by interviewees to be complex and hard to use for this purpose, and therefore it is easy to miss information or to do a bad prognosis (Interview 12 and 13).

4.3.3. Implementation and Roll-Out

The project group consisted of one personnel administrator and one personnel specialist. They are the ones who have done the majority of the work with the personnel module, which was one out of three sub-projects. Overseeing all projects at this time was an economic administrator who had the overall responsibility (Interview 11).

When the personnel module was implemented Interviewee 11 describe it as the “decision was made by the finance department and I got the system at my lap. With that in my mind I could say: What did I say”. There were quality problems and numbers and reports did not add value to her work tasks when it was launched. At the first launch, 12 different reports were initiated and not a single one was fully correct. After this, the organisations personnel department opened a dialogue with the organisation to see what information they needed to get guidance for how the reports should be constructed. After this, the provider was brought back to assist the personnel department in the development of the new system (Interview 11). Interviewee 11 describe her role as validating the reports to see that the data is correct but she was also involved in training of managers and other employees. Interviewee 21 further describe how the communication between finance and personnel were almost none even though they worked in the same corridor. He tells us that he was much involved in the work trying to find which reports that were important, how they worked, but also of course in validating and developing the technical solution that was delivered to the personnel department.

Other managers from the business side have also criticised the implementation process since the finance department did not use them as references when developing the offer. E.g. Interviewee 13 says: “If they had started with operational matters it might had woken more enthusiasm from managers, now it was seen as another boring, time consuming economy system”.

Information about the project's status was communicated through e-mail during the whole process. However, there was no follow-up to see if the users consumed the information. Interviewee 11 talks about that how she wanted the managers in the organisation to be more involved in the project so that she could have said more about the content of the reports and how the managers could extract value from this (Interview 11). The information was mainly about that a new system was going to be implemented though and two of the users describe that they do not see the value in the new system (Interview 14 and 15). A quote from one of the

managers state: “You got the information, but then, you were more or less interested of the information you got” (Interview 15).

When launched, the product was launched throughout the whole organisation at once. They started by offering training for the managers who had to sign up for it by themselves. The training was carried out internally and a presentation that took about 30 minutes that introduced the system was made. This included information about the system and the interface itself. The project manager was there and showed some of the reports and how they could use them (Interview 11). All personnel who are supposed to work in the system also got a binder that works as a guide (Interview 14). Interviewee 14 further describe the training as fast paced and hard to follow, “the girls from the finance department or the personnel department were quick and used to work in the system”. The training project were developed together with the provider and the personnel department. The provider trained a couple of super users, that were to take the information further out in the organisation to the end users. When asked, he believes that they were ready to train their co-workers within the system (Interview 21).

There was however a difference in the delivery of the training for some parts of the management, who had computers ahead of them and could try themselves during the instruction, more of a workshop like method (Interview 12). Whilst the employees attending other sessions did not have this opportunity and was only offered the presentation. Interviewee 15 state that you got the basics, but since you do not work with it on a daily basis you don’t dig deep and learn much more. Interviewee 13 lift the problem that managers are running to the personnel or the finance department just because they are bad at training. He further connects this to organisational culture by describing that there is a strong culture in this organisation to go to the personnel department to ask for statistics or to the finance department for figures. This have led to that some managers have had an unwillingness to learn and adapt to the new system. It has been easier for them to email the department get the information (Interview 13). Further, the project manager emphasizes on the problem that the managers have no interest or time to invest in the learning of the system. Other interviewees though express a feeling that they couldn’t affect the project or the outcome of it. One interviewee told “that is just a program for statistics, how can it help me?” (Interview 14).

When asked how the new system have fulfilled their needs and expectations a fragmented view is seen. Interviewee 12 think that the software is easy to use and that the provider has been very accommodating when the organisation have had questions or reports they have wanted to develop. Interviewee 14 express that he uses it to confirm that his actions have been correct, he does not use the information collected in the systems to actually find answers. The project manager is happy with the results, she thinks that they are using too few reports, and that it took some extra time, but expresses that this has to do with the extra functionality that was not developed when launched (Interview 11). One of the managers instead say that he almost does not use it. He updates his personnel now and then (Interview 14).

5. Analysis

The content of the analysis will be structured by introducing a summarising table of the analysis, an analysis dedicated of the drivers of user acceptance, and lastly, an analysis of the implementation process using the chronological order introduced by Maylor's (2010) phases.

The cases' implementation processes revealed the following factors, seen in Table 3, as being the most important in driving user acceptance. The table is structured according to Maylor's (2010) phases and highlights each case action on the point of analysis.

Table 3: Summarising table of the analysis

Points of analysis	Case 1	Case 2	Case 3
Define the Project			
Specifications based on user needs	Thoroughly conducted analysis of needs	Some departments needs were considered, others not	A standardized solution was implemented not specified to the organisation
Sense of urgency	Strong support of new software	High understanding of why a new system was needed	Low sense of urgency
Initiation	Both top management and departments pushed for a new system	Finance department pushed the new system	External auditors pushed for a monitoring system.
Reference groups	Involved in all phases	Initiated early but just with economists, initiated late covering other functions	No clear structure
Design the project			
Project ownership	Clear ownership model where power was divided among the different managers	The project was owned by the Finance department	The project was owned by the personnel department

Stakeholder management	Clear understanding of stakeholders and a developed communication plan	Stakeholder management and communication was performed ad-hoc	Stakeholders were identified and communication occurred
Deliver the project			
Training	Well-developed strategy with different types of training	The training was performed in ad-hoc manner. No clear strategy	Presentations performed in groups as well as workshops.
Clear user benefits	New functions that was not available earlier.	Less functions in the initiating phase, further developed to reach benefits	Clear user benefits, but not communicated effectively to the organisation

5.1. Attitude towards new IT-Systems

The UTAUT model described in the theoretical framework shows that the acceptance of a new IT system mainly is affected by; performance expectancy, effort expectancy, social influence, and facilitating conditions.

5.1.1. Performance Expectancy

So, it is vital to manage the users' expectations in and around these areas (Venkatesh et al., 2003). In Case 1 they were very eager to communicate about the advantages for the operational managers instead of technical features. This resulted in operational managers who visualized a tool that could increase their performance, instead of just an additional system. This is backed by one of the interviewees who gained a lot of knowledge in her field and could take better decisions after the system was launched, which was the purpose.

In Case 2, the finance department was the department who initiated the project. Thereby they expected a new system with good performance in their activities. The operational managers on the other hand, was expecting the system to also have a focus on the operations, but found at that a lot of functionality was missing when the system was launched compared with their old system. This can cause problems according to Ceaparu and Shneiderman (2004), since the employees cannot perform their tasks in a sufficient way and exploit their knowledge and experience fully. Some of this can be explained by the lack of representatives from the operation side of the business in the reference groups. This led to low performance expectancy in the beginning from the operational managers, even if they understood that functionalities were under development. If the user cannot take full advantage of the system, it becomes hard to really evaluate the system, so in this case it reflects bad on the provider (Davenport, 1998).

Case 3 targeted their examined system towards two target groups; the personnel department and operational managers. The managers' view on the new system differed a lot between the different interviewees. Some of them looked forward to a new tool since they saw performance benefits in using it. Other managers did not know for which purpose it was being developed and did not see any performance benefits of it. One of them mentioned, "I have too few employees to track the statistics with an IT-system, I keep it in my head" (Interview 15). The personnel department also had rather low expectations at first. The project manager told that she did not believe that the functionality was in place, and that she did not have the possibility to be involved when the decisions on functionality were made. When the project started, she could add extra functionality and performance expectancy increased.

5.1.2. Effort Expectancy

During the interviews in all three cases, it has become clear that the provider's product is quite easy to understand. There were some differentiators in the cases, one was in Case 2, where one of the interviewees thought that employees could have a hard time understanding the system as they were not working in it regularly. In Case 3 one of the operational managers believe that the effort to put into it will not pay off. Therefore, he does not see the value by learning the provider's system at a good level. Another indicator that they believe that the effort is too high is that the operational managers still call the personnel department to get reports that they can extract by themselves through the provider's system.

5.1.3. Social Influence

Already during the creation of the reference groups, Case 1 had identified informal leaders. These were brought in during the work with the specification and requirement list. They did this, both because of experience and authority. Other members were picked because of interest and competence in the new system. This group were used as a sounding board, and also worked as a guiding coalition which is mentioned as a key success factor by Kotter (1996). When they started to use the new system, other employees follow. To even increase this, one of the members of the group that was an operational manager was offered as a consultant as analysis support for other managers. This led to high awareness, but they also got to see what the system was capable of and how they could use it in the future. The interviews also indicate that it gave an eagerness to use the system even more and see what their decisions now could lead to in the coming years. The managers that the consultant assisted promoted the new system to their colleagues and they became ambassadors.

In Case 3 and Case 2 there were no clear strategies of creating social influence within the organisation. In Case 2, the users had to use the system, since it was the only source of information. In Case 3, one of the managers talks very positively about the system but it has not yet given any larger results.

5.1.4. Facilitating Conditions

Facilitating conditions builds on the notion that each employee or user believe that the organisation is ready for an implementation (Venkatesh et al., 2003). In Case 3 all users agreed that the organisation was not ready for a new IT-System. One of the interviewees discuss the problems of just adding new systems instead of doing a complete need analysis and finding out what systems they really needed. Another one believed that everyone was not ready for the change, and he still believes that that's the case even after the implementation is done. The reason for them to buy an additional system was because of an external audit which led to that they had to buy the system, even if the organisation was not ready for it.

In Case 2 the interviews show that the company was not ready and that the facilitating conditions were not met from an employee side. The company went through a lot of change during the process, they centralized some of the functions, they changed the underlying systems that were going to provide data to the provider's system. This was seen by the users and the responsible of the implementation, but even if they wanted to create better conditions, they were under pressure of launching it before the next budget period.

When interviewing representatives from Case 1 it was clear that they thought that the organisation was ready for the change. They had a very well-grounded understanding in what the different sectors needed. This was accomplished by doing early interviews about the requirements, which also led to a prepared and informed staff. When they understood what the system was about and that it would increase their performance, they understood that the facilitating conditions were in place.

5.2. Implementation Process

This section will analyse the implementation processes in the different cases. It is structured in a chronological order, it connects to Table 3: Summarising table of Analysis, and it also further identify moderators in the implementation process that affect the drivers analysed in 5.1. Attitude Towards New IT-Systems

5.2.1. Define the Project

The different cases had different approaches for how to construct and how to define their respective projects. During the interviews with the different organisations, it became clear how their processes in designing the requirement lists, including what the product should contain could differ. Case 1 put in a lot more effort compared to the other two cases. They included section managers, sector specialists and economists in their reference group to understand the need of the whole organisation which is further discussed in the following sub-chapters.

5.2.1.1. The Importance of Understanding the User's Needs

Ravasio et al. (2004) brings up concerns when implementing new information systems that big gaps in prior experience in technology among the users are common, which can cause uneven distribution of utilisation. By identifying and listening to the end-users with different experience, the performance expectancy affected. In Case 2 and Case 3, both projects were

initiated by the finance department and there were no reference groups in the procurement of the products.

In the beginning of the project, Case 1 had identified their end users to a much larger extent and as interviewee 4 stated that “because I have been involved in the process, and have given my ideas to the project, my acceptance level is high”. This connects to Costello and Garrett (2008) that emphasize on the importance of creating a sense of ownership for the users since it creates personal interest of the outcome. This is also something that Turner and Zolin (2012) highlights. In big change projects, where there are the users who is going to operate and judge the new system in the following months or even years, it is important to let them get a sense ownership and let them feel involved in the change. In Case 1, they worked methodological with this through the whole process of change. In doing that, they also answered the two fundamental questions proposed by Maylor (2010) in the first phase: “What is to be done?” and “Why is it to be done?”.

In contrast, Case 2 tried to work with a reference group, but the group was homogenous and primarily from the finance department. The finance department did map the users and tried to create a solution that covered as many needs as possible. The unit manager interviewed did lift the problem that the finance function did not know how the operational departments operated. The operational departments later got the chance to contribute to the specifications, but it was late in the process and their feedback could not be included in the launch of the system. Case 3 did not have any pre-involvement of users and instead bought a standardised product where they did not address the complexity introduced by Maylor (2010), e.g. that different stakeholder groups have different demands. Concerns was raised about the standardized system, where interviewee 11 address the fact that it would not fit their needs, but it was still bought. Further, this is strengthening by Turner and Zolin (2012) who highlights the importance of understanding the different motivations and needs from stakeholders to complete a successful project.

Case 1 did not just look at section managers, but instead tried to mix prior experience and knowledge. According to Ravasio et al. (2004) it is a high risk in not doing this since the system developed can turn up to advance for the average users creating mediating variables in effort expectancy introduced by Venkatesh et al. (2003).

5.2.1.2. Understanding Needs and Sense of Urgency

The requirement and specification lists developed by the buying organisations mainly answered, “What is to be done” and “Why is it to be done” instead of addressing the anchoring in the organisation. There were clear differentiators between how the different project teams in the cases addressed anchoring of users. The municipality had a pull from one of its sectors who were in need of a new system for monitoring and decision support. Quotes from the interviews also display the urgency they experienced at the time. Their section head brought it up to the city council who had similar plans for the entire organisation. The initiation came officially from the city council with strong support and a push from one of its sectors. By comparing this

with the multi-echelon perspective, a success factor in anchoring is top down initiation with bottom up support. Further Kotter (1996) in his 8 steps of change emphasize on the importance of this sense of urgency that the municipality had at the time.

In both Case 2 and Case 3 the project was initiated by a decision taken by the CFO respectively top management and the responsibility was later transferred to the finance department. In contrast, the project in the municipality was initiated by both top management and unit managers that were involved in the process as it is described by the multi-echelon perspective. In Case 2 and Case 3, no bottom up support were present, and an urgency for change was just present in the top management and the finance departments as the rest of the organisations did not got the reasons communicated in a sufficient way. Aladwani (2001) propose that one way to create this urgency or eagerness is to communicate the benefits rather than the attributes. In Case 3, this was not done, instead users saw it as another system without clear purpose. Some of the users interviewed still express an unclear image of what the solution really is about. In Case 2, they tried to increase the urgency of the users. The project manager express that she informed the users “why” a new system was needed. From other interviews conducted, it is clear that the urgency did not reach all users, since one of the unit managers did not know that the old system was going out of use.

5.2.2. Design the Project

The design of the process includes analyses on work breakdown structures, reference groups, and communication between different stakeholders within the project.

5.2.2.1. Work Breakdown Structures

All cases had approximately the same project structure. They were built up by a steering group, a project group, a couple of sub-project groups and a reference group. What differed between the cases is to what extent the different groups have been involved and for how long they were active during the project. In Case 1 the project structure was in place very early in the project, already when the requirement of specifications was developed, sub-projects groups for the different modules were set together with the project group. Case 2 also had all project groups in place, but what differentiate from Case 1 is that the examined system from the provider is part of a sub-project and was therefore not the main project. Case 3 had the same project structure as Case 1, but the responsibilities were not as defined.

These structures and design of the projects closely relate to Maylor (2010) different breakdowns of work structures. Case 1 use an activity breakdown structure in a higher extent than Case 2 and Case 3 which instead have used a functional breakdown of the responsibilities. The differences in work breakdown structures could be one of the reasons that some functionality in Case 2 and Case 3 have been absent for the operations departments because ownership and most activities have been performed by the finance department. Maylor (2010) suggest that the functional breakdown often lead to miscommunication between the departments and in the end, there is no fit between the needs and the subprojects that have been developed, this is also the case in Case 2 and Case 3.

Further, this can relate Beer and Eisenstat (2000) article on Silent Killers on Change. The functional structure of Case 2 and Case 3 led to unclear strategies and conflicting priorities between the different stakeholders and in both cases, project managers did not find a way cope with these issues. In Case 3 the interview with the project manager shows a laissez-faire management style which can be detected in the quotes about the cultural environment where users do not get pressured on learning the new systems, instead they address the personnel department and get their numbers directly instead of using the new system. The project manager also quoted “We had a presentation about the system for half-an-hour, then we moved on”. Further, as understood from the provider’s project manager there was a communication barrier between the personnel department and the finance department. This created an ineffective management team which also can be seen as a silent killer in the framework by Beer and Eisenstat (2000).

In Case 2 the examined project was dependent on two other projects going forward simultaneously. Since each of these projects had different project managers the structure infused conflicting priorities inside the management team and in the communication to the rest of the organisation as described by Beer and Eisenstat (2000), who found that a managing team not sharing the same priorities can kill change programs since no unified picture of priorities is communicated.

5.2.2.2. Leverage of Reference Groups

Case 1 and Case 2 used reference groups to some extent during all phases of the project. The main differentiator is that Case 1 had a broad group from different functions of the organisation, whereby Case 2 initially only had employees from the finance department. During the development, Case 1 consistently worked with their reference group to optimise the design of the system. This include user-experience, further functionality and user interface. In Case 2, the finance department’s reference group worked with most of the design of the system throughout the project, managers from operations were not included initially, and when they were, it was late in the project to affect the outcome. Case 3 in the same extent as the other cases. Instead they went for a standardized solution. There was no attention from the operational managers throughout the process and interviews show that the managers were not invited to participate. According to Maylor (2010) this one-sided project engagement could lead to unclear priorities in the project. Further, Beer and Eisenstat (2000) points to this as a killer of change since there is no common goal. This problem is interrelated according to Beer and Eisenstat (2000) to poor vertical communication.

5.2.2.3. Communication Strategies

This section of the project design compares the different cases in term om communication strategies including: communication between the different stakeholders, implications of managing expectations, and how feedback can affect the outcome.

5.2.2.3.1. Communication between stakeholders

Communication need to be stretched from initiating of the project to when the project is seen as completed (Klein, 1996). During the design phase the communication plan should be decided upon and a strategy for delivering information to different stakeholders should be in place (Maylor, 2010). Case 2 and Case 3 did not have a clear strategy on how to deliver information to the different stakeholders instead it was performed in a ad-hoc manner. Heagney and Knovel (2016) propose a method where the project manager is proactive and pre-determine who communicate with whom and when. Case 1 had a more structured solution to this since they had created a communication plan that described how new information regarding the project should reach both the steering committee and future users. To note from Heagney and Knovel (2016) is that there should be guidelines also which stakeholders that get information. Case 1 solved this by communicating to the different sector economists, and these got the responsibility to transfer the information to the managers. It was then up to each sector economist to decide on if the information is worth to pass on or not. Maylor (2010) who introduce the stakeholder map could have given Case 1 even more structure instead of using the sector economists as gatekeepers.

Case 3 had a shortfall in information flow according to the interviews that was conducted with the users. Some of them did not understand the purpose of the system, and instead just saw it as another system initiated from the finance department. A stakeholder analysis is therefore a good tool to use when trying to understand why they did not succeed. The users, in this case operational managers are seen to have high power in the organisation since they are responsible for both personnel and different important departments. Further, some of them showed low interest in the project, but some of them understood they would need to learn the new system to some extent. Maylor (2010) suggest that this group should have moderate priority and that the group should be sufficiently involved in the project. The operational managers were instead left outside of the project and did not get much information, instead they just got some emails about what was about to happen, and the purpose of it.

This stakeholder analysis can also to some extent describe Case 2 issues with involvement of the operational managers. In this case, they were together with the different finance departments in the organisation the target group. However, since the operational managers were one of the main user group, they should have been given as much power in the operational functions as the finance department got for their functionality. In this case they had low interest since they did not fully understand the purpose of the new system, which was stated by Interviewee 9. According to Maylor (2010) they should in this case have been kept satisfied and should be sufficiently involved in the project. However, if they have succeeded with the communication, the interest would have been given a chance to be high, and in that situation, they should have gotten much more prioritised and should have been managed through active engagement. In this case, the information did not reach them, and they were misplaced as a stakeholder group and was instead only kept informed to some extent during the project, much of the information did not reach the end users since there were no clear strategy of what information to push out. Other examples of miscommunication in Case 2 is how one of the end users had misunderstood

the project structure and believed that there was no internal leader, instead believed a consultant drove the project.

5.2.2.3.2. Managing Expectations

Other communication mistakes that are lifted in Case 2 is that they oversold the solution as easy to use, and a system with high performance which is connected to managing expectations. When it was launched, the solution was not completely developed, and users seemed to have gotten to high expectations. This is supported by Helo et al. (2008), who through their research on IT-systems have reached the conclusion that in a worst-case scenario the whole implementation of the project could be stopped if this happens. More commonly they describe that if a smaller gap occurs the usual implication is that dissatisfaction from the users occur. Further, this dissatisfaction can be connected to user acceptance as it interrelates with performance and effort expectancy.

5.2.2.3.1. Feedback Loop

Beer and Eisenstat (2000) lift the problems of poor vertical communication by exemplifying that sometimes in change projects, lower managers even if they know about some problems, do not dare to communicate these issues to higher management in fear of being dismissed. In none of these cases this was a problem. In all cases, users and the target groups of the change included managers, therefore they in some sense had more authority than the project group trying to implement the solution. They should therefore not have been afraid to confront the project group or the manager.

5.2.3. Deliver the Project

All three cases launched their new products in a slightly different method and a large part of this part consists of the training that employees went through. All cases have been using different methods in their training of employees. Case 2 knew that training was an important part of a successful launch. This also connects to Aladwani (2001) who state that is a key success factor to the implementation. Because of time constraints and lack of resources they did not manage to create a structured training plan that is suggested by Scott (2005) and instead it lead to ad-hoc solutions and different training programs throughout the organisation.

5.2.3.1. How Training Was Conducted

Case 3 had seminars where the operational managers could sign up for in order to get their authorities within the software. During the seminar, the project manager had a presentation for half an hour, and no time for individual training was dedicated. This is to some extent similar to Case 2 who used the same presentations for some regional offices, other offices got their training from workshops instead. Case 1 used a different method with voluntarily workshops that could be attended. These workshops had both a general presentation specifically targeted to the trainees and specifically developed exercises for the attendants. Kerr et al. (2012) state that formal or standardized training methods are in effective and do not reach the goals for system training in organisations.

Best practices for training in IT systems has been researched by Esteves (2014) and shows the practices end-users tend to value. The first recommendation brings up that users should have time dedicated to training from the regular work activities. In Case 1, they created different time slots for the users to attend to the workshops, however all did not manage to go to the workshops because of lack of time and the need to prioritize their operational activities. Their daily work routines had to be addressed during these slots and many of them did therefore not attend. In Case 2, where the training differed between the different regional offices this is true to some extent. As understood from the interviews, the training that was held did not entirely freed the users from their daily activities but time slots where all the employees should be able to attend were created. Case 3 did not create slots where the managers were freed from the daily activities. Further they were pressured to attend since they would not get access to the data if they weren't there.

The training did respect the organisations' critical periods and dates in both Case 1 and Case 3. In Case 2, however, the Real estate company had issues with respecting dates and periods since they had to go live before an important process of setting budgets and prognosis for the next quarter which is directed by laws since it is a publicly traded company. Further, they had no back up, and it had to be used for this matter.

In Case 1, they had a strong ownership and structure around the project. The users could easily contact the project managers and ask questions about the new system if they felt in need for it. In Case 2 and 3, this was not quite the case. Even if the structure and ownership structure were understood in Case 3 the Laissez-faire management style did not give support to full extent (Beer and Eisenstat, 2000). In Case 2, the confusion of the ownership from one of the operational managers on whom the project owner was gives an indication that it was not as easy to reach out the project group to get information and support on the doubts that appears during the implementation and the training.

The fourth most important issue about having the customized version that is going to be used within the organisation instead of a generic version is true in all cases. In Case 2, the project group tried to show users in a generic version at first since they did not have the customised version when they actually needed it. But they noticed that it did not work because of the large differences on their system compared to the demo provided by the provider.

Lastly of Esteves (2014) research, the training should be focused on the user's short term wins. All cases tried to enhance the possibilities with the new system. How focused they were on short term wins is difficult to address. In Case 3, one of the interviewees tells about the short term wins he saw with the new product, but other interviewees in the organisation do not speak about the same advantages. In Case 1 the workshops were focused around each target group, this suggest that the workshops addressed the needs and the wins each of these groups had the ability to do with the new system. Finally, in Case 2, since the training were so fragmented, no real conclusions can be drawn on this matter.

5.2.3.2. Training Material

The material that was handed out to the different users during training looked quite similar in the different organisations. All organisations had developed some kind of material internally that was handed out to the trainees, often in a physical form. It was mainly the project managers that discussed the development of the material, however, the operational users tended to not be so enthusiastic about the material. This correlates with Esteves (2014) research where consultants and project managers sees it as more important with training material than the what the end-users do.

6. Discussion

To structure the discussion, a summarising discussion on the case's success factors in the implementation process are presented. Further, each driver of user acceptance is presented in a separate subchapter, where each subchapter will put further emphasis on what activities in the implementation processes that have been seen to affect the drivers of user acceptance.

According to the findings and analysis, Table 4: Reached User Acceptance summarise our conclusions on what cases that was successful in reaching user acceptance. Table 4: Reached User Acceptance is followed by a discussion about what factors that was most important.

Table 4: Reached User Acceptance

	Case 1	Case 2	Case 3
Reached User Acceptance	Yes	Partly	No

In Case 1, we argue that they have reached user acceptance, as both users and the project management team express that the system is being used and that users are satisfied with the system. One of the large drivers to this, we believe is that they had a well thought out specification list that was developed by a wide selection of stakeholders within the organisation. They were the only case, where the organisation managed to both leverage the engagement of users and top management in the change process. This set the scene for the whole project, and as elaborated on in the following subsections, this helped them to reach the drivers of user acceptance.

In Case 2, the organisation had a troublesome and complicated process when implementing the system. However, we argue that they have succeeded to reach user acceptance partly. The system is used within the organisation, since it is the only system providing the information that is needed by the different users. However, this only refer to use and does not witness that the users are fully satisfied with the system. Furthermore, we believe that the organisational structure and culture might put an emphasis on using the system, as each operational manager have a strong sense of ownership about their divisional results. Because of this they want to leverage the information in order to perform. We though think that the potential of this ownership was underutilised in the implementation process. If the project management team had targeted the operational managers earlier in the implementation process, they might have been able to communicate and use the needs that the operational managers wanted and therefore they could have created a higher sense of performance expectancy leading to even better results.

In Case 3 we argue that they have not reached user acceptance. This, because of that the interviews witness about that some of the users do not use it, and they do not see any needs of doing it. Mainly, this is due to that they do not see the benefits of the system. The implementation process did not focus on communicating benefits and the training was

substandard if compared to Case 1. Further discussions, on these matters are discussed in the following subsections.

6.1. Performance Expectancy

What we have seen in the cases, much have been about creating an understanding for the user why it is valuable for them to use the system. It builds upon rationality within each user, and as seen in e.g. Case 1, a communication plan that really pushed the benefits of the system rather than about the system itself got a higher level of performance expectancy than in Case 2 or Case 3. However, it is also important to understand that even though Case 1, had the most developed communication plan the project was helped in that sense that some of the targeted users already had pushed for solutions like this. They already had an urgency for change. This differentiate from both Case 2 and Case 3. In Case 2 they had urgency in that sense that the old system had to be replaced, but this urgency did not speak directly to the user's performance expectancy, and that they were going to get better functionalities. Thereby, it did not affect performance expectancy, the users sort of expected the system to provide the same performance and was therefore not as eager. Case 3, have other problems, firstly, the system's benefits have not been communicated to the end users in a large extent. Further, the provider needed to educate the responsible project management team about how it could benefit the organisation, there were no urgency, i.e. there were no urgency.

We want to argue that this interrelate with how the initiation of the project was set. As the finance department bought the system, the needs of the personnel department and the operational managers were not acknowledged. If these had been involved from the beginning, an urgency might have been built up, and it would be possible to spread this energy across the organisation through a well thought communication plan which would have increased the performance expectancy. With the used approach, the managers instead had low performance expectations as they saw it as a finance tool, or statistical tool that did not benefitted them.

Further, this theory builds on the notion that in Case 2, the initiation was also set by the finance department and the operational managers, which are a part of the end users felt that they were not addressed in the development. But in this case, this also led to that expectations were not met. We cannot argue that the operational had high expectations on the new system, but they expected that the old functionalities were to be covered. But, because of time constraints and bad communication, the system launched unfinished which led to that expectations were not met, and the performance that the users opted to have did not increase which we argue led to lower user acceptance. This though need to be further examined as it was not possible to address all operational managers. The interviews conducted though witness of this.

To conclude the performance expectancy, we argue that the implementation process can affect this driver and thereby organisations can increase their chances of succeeding with an implementation of a new system. Further, the provider could play a role in some of these parts, by firstly, just discussing the importance of creating this performance expectancy. In e.g. Case 3, the project manager was not experienced in leading change projects, and therefore might not

understand the importance of this. Further, if the organisation need support the provider could help develop the communication plan, since they should have experience from other projects and we argue that much of the communication protocols could be standardised.

6.2. Effort Expectancy

As Venkatesh et al. (2003) elaborate on, effort expectancy is most important in the initial phases of the project. We argue that it elaborates on the notions that the user should think that the system is intuitive to use or that this can be managed by good executed training of employees or by good communication.

E.g. in Case 3, the employees had a hard time understanding what the system does. At first, they ordered a standardized monitoring system that they instantly understood were not what they were after. They did this even though there were some concerned voices about the content. Some of the managers still do not understand what the system includes and believe that it is a financial system. Because of these reasons and the fragmented view, the users believe that it takes much effort to learn the system. Further in Case 3, it has been the only case where one user elaborated on that he did not think it was worth the effort of work, since he did not believe it will affect his performance as much. In Case 1 and Case 2, most of the users said that the systems were rather easy to use, but if this has to do with training or a good communication strategy that boosted performance expectancy is hard to draw conclusion upon.

Case 1 had both a well-developed communication plan and a tested method for training within their organisation, while Case 2, did have a more ad-hoc communication and training. However, we argue that training might affect effort expectancy because it might simplify how the user can understand the new system. And even if training were conducted in different manner, we argue that both organisations did succeed in creating an understanding of the system itself within the organisation even if it was more effective in Case 1 than 2.

But to conclude this discussion we argue that even though training might affect the effort expectancy, it seems secondary to performance expectancy, as from what we believe, the higher performance, the more effort the user is ready to put into the new system. Therefore, they are highly interrelated, and how much each factor affect user acceptance is hard to elaborate on and further research is needed. This might mean, that a system with a high-performance expectancy, can also have higher effort expectancy than a system with low performance expectancy. The optimal situation is though believed to be high performance expectancy and low effort expectancy. To reach this situation, the system of course need to address the work that the user is supposed to do. But further, as seen in the cases we argue that a good communication and a good training plan can enhance and affect both of these factors. A well-executed communication plan can higher expectations of performance, it can also lower effort expectancy if the users get a clear picture of functionalities that can be useful in an early phase. Lastly, a well-executed training can lead to low effort expectancy.

6.3. Social Influence

According to Venkatesh et al. (2003) social influence only seem to affect when the system is mandatory to use. However, what we have seen in the cases are that social influences might have an impact on voluntary systems as well, this also corresponds to practitioners as McKinsey & Co.'s building blocks for change, where one of the blocks in order to create change is role modelling. Role modelling is about that an employee see another employee act in a certain way which in turn will affect the first employee (Basford and Schaninger, 2016). In Case 1, e.g. one respected operational manager told in front of other managers, "that this is now our new work method" as one of the interviewees explained. This was described by the interviewees to give a lot of motivation. Further in Case 1, two other strategies were used to increase the social influence within the company.

As they used the multi-echelon perspective proposed by Heyden et al. (2017), they created a group of users that influenced others in the organisation, at the same time they pushed the system from above which increased acceptance. The second strategy is similar to the multi-echelon, but more of a concrete example of how they did. One of the employees, an operational manager, that had a large interest in decision support got to work as an internal consultant to help different sectors develop their use of the new system and showed them what information was possible to extract. Even though they had gone through technical training this created interest since they got to know how to monitor outcome of their strategic decisions. This, however, might not just have affected the social influence factor, but also performance expectancy since the operational managers really saw how they could use the system applied to their own operations. This type of work has not been seen in the other cases, and we argue that this was a great method to increase acceptance within the organisation. We also argue that the provider, with their expertise within the system should be able to learn more about the operations in the different organisations in order to extend their offering. By conducting this type of consultancy, they can increase adoption and acceptance of their systems in the organisations using them, further they can increase their revenues, and lastly, they can use this new input that they get from the customers to develop the product to fit the organisations even better.

Other drivers of social influence, we believe to be how the reference groups are decided upon. Case 2 had people from the finance department and that might have lowered their status as influencers within the organisations since people tend to listen to people with the higher level of authority (McLeod, 2007). We believe that the operational manager's acceptance might have decreased because of this, because they felt that their needs were not prioritized and they did not feel any ownership. If some operational managers had been involved, they might have been able to influence other managers in a larger extent. Case 3 struggled with the same issues, the operational managers were not involved even though they were seen as a group of the users. We could also see that their organisation is hierarchical and bureaucratic which might decrease acceptance even more since no operational managers could work as influencers.

In both Case 1 and Case 3 the system was voluntary to use, in Case 2, one part of the functionality was mandatory, and one not. Our impression is that the part that was mandatory was under less influence of this factor, all the operational managers knew that they needed to conduct the work in this system, even if they had the system or not, so they complied with the new standards, not because of role modelling and that they were affected by other individuals. Instead we propose that where the system was voluntary to use, the influence from other users had an impact on whether it was accepted throughout the organisation. This, argues against Venkatesh et al. (2003) research, but it might be differences because of cultural aspects, or that their research was conducted on ERP systems, and not Business Intelligence systems.

6.4. Facilitating Conditions

In both Case 2 and Case 3, the interviewees said that they did not believe that the organisation was ready for an implementation of a new system. In Case 2, these mainly had to do with the large change project that were conducted simultaneously and that because of that, the underlying systems supporting the investigated system were not in place. As Venkatesh et al. (2003) propose this should only impact the use and not the user intentions. Of this we have no clear answer to draw from the analysis so further investigation is needed. However, we argue that it would be logical that usage decrease if the system does not create accurate data that the users will use.

In Case 2, the managers mainly focused on that the organisation itself was not ready because of their structure and organisational culture. The implementation process did not address this issue. We argue that both training and communication could have a positive impact on the facilitating conditions as it might would have created an understanding. As this also might impact performance expectancy and effort expectancy, more emphasis on which the dominant factors of this would be. But, even though more than one factor is affected, a belief that the organisation can do this change need to be communicated, in Case 3 the project manager mainly focused on validating the output data instead of addressing the end users. When the system later was launched, usage was low.

As the discussion mainly put an emphasis on the organisational matters, it might be difficult for the provider to directly affect this factor. However, we believe that they need to educate the project management team to address these issues so that they can deal with the problems.

7. Conclusions

This chapter aims to answer the two research questions proposed in the introduction by which our research have been founded upon. During this thesis, we have developed a theoretical framework by collecting secondary data, as well as conducting interviews in three different cases, which have been compared and analysed with the lens of the theoretical framework. The structure is built upon the research questions.

1. How does the implementation process affect the success drivers of user acceptance?

The research has shown that there are affecting factors in the implementation process that affect the success drivers of user acceptance. Performance expectancy seem to be affected by communication, and that a sense of urgency can strengthen this driver. Further, an initiation that is started by another function than the users, might affect how they perceive the new system; e.g. when finance departments initiates a project that is aimed toward operations, operations might not think that it can benefit them.

Effort expectancy seem to be affected by the communication and training. Communication is highly interrelated with benefits obtained from learning the system, and if the user will believe that the effort needed is worth it. Training is a part in the implementation process that can decrease the barrier for users to learn the new system. A good training program can decrease the effort expectancy, but need to take account to the prior knowledge and experience of users.

Social influence can mainly be affected by a structure where both management and users drive the change as proposed by the multi-echelon perspective, but also the use of reference groups that enhance spread and use from influential employees within the organisation affect this factor.

Facilitating conditions can be controlled with the implementation process by conducting a well-executed feasibility study to get a fit between the organisation and the new system. If there is not a fit, and as often, work patterns change, training and communication is a key to get acceptance within the organisation.

As, hypothesized, the implementation is a moderator for user acceptance. Even if the cases, have had different organisational structures, different cultures, etc. the findings, analysis and discussion show that the found factors affect all cases, the findings, should therefore be generable for a number of different organisations performing IT implementations. However, it should be regarded that the systems that have been implemented are Business Intelligence systems and there might therefore be a difference. Even though many of the key concepts should be possible to use.

2. How can the supplier assist the organisation in their implementation process for maximisation of user acceptance?

During this report, much of the findings as well as the analyses have been centered around the implementing organisation. This, due to the fact that the provider has not been that involved in many of the processes that seem to affect user acceptance. It is therefore apparent that the provider could have supported the implementing organisation. In e.g. Case 3, where the project manager was lacking experience of implementing IT systems, the organisation could have provided a more comprehensive support in order to reach user acceptance. By helping them develop a training plan and further be involved in this training, supporting them in choosing reference groups that can provide insight of needs, and provide services that could help the operational managers to see the value of the new system and how it can help them in their daily work.

Initially, the provider need to secure that the four drivers affecting user acceptance are considered and thoroughly evaluated. Further, they need to address the issues together with the client so that they get an understanding of some of the pitfalls that can occur during the implementation. This is extra important, as seen in the cases where there are different departments initiating and using the new system since they might miss to address the most important issues of performance expectancy.

In some of the cases, as understood from interviews, the provider has communicated the importance of e.g. training, however, they have not supported them in developing the training plan. If it becomes clear that the implementing organisation is not able to execute important activities affecting user acceptance, there is a need for the provider to support in this work.

To conclude, the provider need to be adaptive depending on the implementing organisation's needs and experience. In e.g. Case 1, the support would need to be different, as the organisation had a clear image on what was needed, a plan for training, they could in this project take a more supporting role and give insights if they see that something goes wrong. In e.g. Case 3, as described in the introduction of this section, they could have played a larger role in leading and implementing the system. The most important factor for the provider is therefore to be adaptive, and that they need to be able to change their supporting strategy depending on the implementing organisation's needs. This to ensure that the drivers of user acceptance are addressed.

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Appendix 1 – Best Practices of ERP Training

Table 3. EPR training best practices identified.

Training best practice	End-users	Consultants	Project manager	Team members	Σ	Kappa ($n = 3$)
1 Using the customised ERP system and not a generic version	29	41	28	56	154	0.76
2 Have a good support centre with someone dedicated to the users' doubts full-time	30	41	28	51	150	1.00
3 Training must respect the company's critical periods/dates	31	37	28	52	148	0.87
4 Organisational alignment focus	27	41	28	50	146	0.74
5 End-user training – 1–2 months before ERP go-live	28	39	26	52	145	0.88
6 A hybrid team of internal users and consultants as trainers	30	36	25	53	144	1.00
7 Free users from their daily activities	31	32	28	51	142	0.87
8 Training planned in advance	24	38	28	51	141	0.87
9 Provide an ERP system for testing	29	32	27	48	136	0.79
10 Training content focused on the users short-term needs	29	32	26	48	135	0.73
11 Trainers with experience	28	29	26	52	135	1.00
12 Involve users in design of the training course	26	27	18	46	117	0.86
13 Give user exercises to do every week before go-live	24	32	15	40	111	0.74
14 Training language should be the language of the company	25	20	15	43	103	0.92
15 Monitor and control the training budget	7	33	28	33	101	0.93
16 Create a continuous training programme	10	26	20	39	95	0.85
17 Extend training beyond use-to-implementation issues	9	26	19	39	93	0.76
18 Informal training by employees	24	15	14	38	91	0.74
19 Encourage knowledge sharing among users	15	31	13	29	88	0.68
20 Create mechanisms of training evaluation	8	29	19	31	87	0.88
21 Contingency plan for refresher courses	6	24	17	21	68	0.71
22 Training manuals – both online and within the ERP system	9	18	14	25	66	0.84
23 Involvement of HR department in the training process	3	18	19	22	62	0.74
24 Use e-learning tools	10	15	11	24	60	0.73

(Esteves, 2014)

Appendix 2 – Interview Guide

1. Questions about their own background

- a. Could you introduce yourself briefly? (Just to get them going and get used to open-ended questions)
- b. Could you tell us about your role?

2. Background to the project

- a. What did the situation look like before you got the new IT-system? (How did they perform these tasks before)
- b. What was your experience from performing the tasks in the old way (Anchoring + what problems that might have occurred)
- c. Where did the initiative for change come from?
- d. How did you get the change mediated to you?
- e. How did you experience this whole situation? (Biased? Both on individual and group level)
- f. How and when where you involved in the process?
- g. Did you feel that you could affect the project? (In what way)
- h. What was your expectations when going into this project?

3. During the project

Questions for members of project team

- a. What did the project group look like?
- b. Could you describe your role in the project? (what tasks and what did the communication with the provider look like)
- c. What did the information flow between the project group and management look like?
- d. What did the information flow between the project group and end-users look like? (dig deep, what was mediated, how, involvement, tests, education material)
- e. How was the product implemented in the organisation? (All at once or pilots)
- f. Did you feel that you, as an organisation was ready? (both structurally and technically)
- g. Do you feel that using the new system was encouraged? (who was driven, used it etc)

Questions for users

- a. Did you get any information during the project? (What was mediated, advantages etc)
 - i. If it was – Who informed you and in what way
 - ii. Were you involved in any testing?
 - iii. Did you have any chance to affect the outcome of the project (test groups)
- b. Did you receive any education in the new product? (Define what product, depends on company)
- c. Could you describe in what way?

- d. What did the transition phase look like?
- e. How do you feel that the new system has affected your work? (both individual and group level)
- f. How much do you feel was expected from you to manage the new system? (threshold? Easy to learn)
- g. How did you feel that the new system would affect your work situation?
- h. Do you feel that the organisation/function were ready for the change?
- i. Did you feel that the new way of working was encouraged?

4. After the project

- a. What are your feelings about the system now? (Was the expectations met)
 - i. Why, why, why.
- b. What would you change to the next time? (What and why)