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EXAMINING THE ROLE OF INDIVIDUALS' EMOTIONS AND COGNITIONS IN ORGANIZATIONAL IT IMPLEMENTATION

ABSTRACT

The individual acceptance and use of information technology have been researched widely, and its role in succeeding in IT implementation project is recognized. Even though the social, cognitive and emotional aspects that influence the adoption and also use of IT are examined in some extent, there is still room for further research, especially how these factors can be influenced from outside, for example by the organization. This research examines the role of individuals' emotions and cognitions in organizational IT implementation by defining user behavior in these situations, which way the behavior can be influenced and how successful these ways are. At first, different ways to influence the user behavior are collected from the literature where there are selected eight different research that is either cognitive-based, emotion-based or combining both factors. These found ways are later on mirrored with the findings from the empirical part of the research. This qualitative research has focused on one large-scale IT implementation project in a large industry organization. The research is executed with two types of interviews. The preliminary interviews are kept individually to a group of people from different positions in the implementation project to collect background information about the project itself and also to collect used ways to influence the end-users. The primary interviews are kept to end-users to find out how different ways to influence have succeeded by their mind. In the results, the ways that are found from literature and the ways that were found in the interviews are compared and mirrored to each other, and by this, there found which ways have been the most important, which ways have not worked and what needs to be considered when using them. The research revealed that there was actually rather a large similarity with the literature and the project that was examined. As the end-users mostly felt that they had control over the change and that the new system was more of an opportunity than threat the overall emotional reaction towards the implementation was promotion-focused. It was found that the most important influence had the key users as communicators and trainers. Also, general communication, training and the system itself had a significant role in influencing the end users.

Keywords: information system implementation, organizational implementation, user behavior, emotion, cognition, and user acceptance

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Yksilön informaatioteknologian hyväksyntää ja käyttöä on tutkittu laajasti ja sen roolia onnistuneessa IT implementaatioprojektissa on tunnistettu. Vaikkakin sosiaaliset, kognitiiviset ja emotionaaliset seikat, jotka vaikuttavat tietoteknologian omaksumiseen ja käyttöön, on tutkittu jossain määrin, on edelleen tilaa jatkotutkimukselle. Erityisesti liittyen siihen kuinka näihin seikkoihin voidaan vaikuttaa ulkopuolelta, esimerkiksi organisaation puolesta. Tämä tutkimus tarkastelee yksilöiden emootioiden ja kognitioiden roolia organisatorisessa IT implementaatiossa määrittelemällä käyttäjän käyttäytymisen näissä tilanteissa, selvittämällä kuinka käyttäytymiseen voidaan vaikuttaa ja kuinka onnistuneita nämä eri tavat ovat. Ensinnäkin pohjakirjallisuudesta on kerätty erilaisia tapoja vaikuttaa käyttäjän käyttäytymiseen. Kirjallisuudesta on valittu yhteensä kahdeksan erilaista tutkimusta, jotka ovat joko kognitiopohjaisia, emootiopohjaisia tai yhdistelevät molempia puolia. Näitä kirjallisuusosuudessa löydettyjä keinoja on myöhemmin peilattu empiirisen tutkimuksen tuloksiin. Tutkimuksen empiirinen osuus on toteutettu tutkimalla laaja-alaista tietojärjestelmän käyttöönottoprojektia suuressa teollisuusorganisaatiossa kahdessa eri kvalitatiivisessa haastattelukokonaisuudessa. Esihaastatteluissa on kerätty pohjatietoa itse projektista sekä kerätty jo käytettyjä keinoja käyttäjien käyttäytymiseen vaikuttamiseksi. Näihin yksilöhaastatteluihin osallistuvat ovat kuuluneet eri tavoin käyttöönottoprojektiin. Loppukäyttäjähaastatteluissa on taasen selvitetty miten erilaiset tavat vaikuttaa heihin ovat toimineet heidän mielestään. Tuloksissa näitä kirjallisuudesta sekä haastatteluista löytyneitä keinoja on vertailtu ja peilattu toisiinsa ja näin pyritty löytämään tärkeimmät keinot, ne keinot, jotka eivät ole toimineet sekä keinot joiden käyttöä tulee harkita. Tutkimus paljasti suuren yhtäläisyyden kirjallisuuden löydösten ja tutkitun projektin välillä. Koska loppukäyttäjät pääsääntöisesti kokivat kontrollin tunnetta muutostilanteessa ja näkivät uuden järjestelmän enemmän mahdollisuutena kuin uhkana, pääsääntöisesti loppukäyttäjien emotionaalinen reaktio käyttöönottoa kohtaan oli muutosta edistävää. Tutkimuksessa selvisi, että tärkein keino vaikuttaa käyttäjiin tutkitussa projektissa olivat pääkäyttäjät, jotka toimivat niin viestijöinä kuin kouluttajina. Myös yleisellä viestinnällä, koulutuksella ja järjestelmällä itsessään oli merkittävä rooli loppukäyttäjiin vaikutettaessa.

Avainsanat: tietojärjestelmän käyttöönotto, organisatorinen implementointi, käyttäjän käyttäytyminen, emootio, kognitio ja käyttäjän hyväksyntä

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1 INTRODUCTION

This research examines the role of individuals' emotions and cognitions in organizational IT implementation by defining user behavior in these situations, which way the behavior can be influenced and how successful these ways are. The introduction chapter consists of the main concepts and motivation as well as of introduction of the research question and the overall structure of the research.

1.1 Main concepts and motivation

The main concepts for this research are information system implementation, organizational implementation, user behavior, and user acceptance. System implementation, according to Cooper and Zmud (1990) is "an organizational effort directed toward diffusing appropriate information technology within the user community." The organizational implementation takes slightly different perspective to the phenomenon and can be defined as a "implementation process that concerns both technical implementation of new technology and a slower process of organizational members adopting the technology in use and aligning it to their work tasks, probably transforming routine work practices to fit the new situation" (Vuokko, 2011). As Dolan (2012) suggests, there are two possible ways to think about the behavior and how it is possible to influence it – the cognitive model and the context model. Similar dividing is also done by other researchers such as Kim et al. (2006) in their balanced thinking and feeling model for information systems continuance as well as Beaudry (2012) in her emotion-related research of information technology use. This research follows the thinking-feeling model where cognition is assimilated with thinking and affect with feelings (Kim et al., 2006). Also, user acceptance is an important concept when trying to understand user behavior. Dillon and Morris have defined user acceptance as "the demonstrable willingness within a user group to employ information technology for the tasks it is designed to support" (Dillon & Morris, 1996).

Venkatesh has stated that "understanding individual acceptance and use of information technology is one of the most mature streams of information systems research" (Venkatesh et al., 2012). It is understandable that successful investment in technology most often leads to enhanced productivity, but on the contrary, failed systems can also lead for example to financial losses or even dissatisfaction among the employees (Venkatesh, 2000). Stein (2015) points out that the achievement of the IT system benefits sums up the system with the organizations work practices that it is intended to support. She claims that the research has already studied widely social, cognitive and emotional factors that have an effect on the adoption and use of IT but as much is not known about the actual role of emotional factors (Stein et al., 2015). Kim et al. (2006) state that most studies on technology adoption and usage explore mainly cognitive factors which means that affective factors are left unexamined. Luckily the importance of the user's affective side is noticed, and research field opened.

Dolan (2012) highlights that there is spreading an understanding of the same opinion across the behavioral sciences that human behavior is significantly influenced by factors associated with the context of the current situation. As Kim et al. (2006) continue, on the contrary to cognition-oriented theories, the affect has a more central position in the decision-making process. Also, Stam and Stanton have made similar observations, and they claim that "employee's responses to new technology are necessarily rooted in the emotional experiences in surrounding events that lead up to and follow the deployment of the new technology" (Stam & Stanton, 2009). Similar notions are made in the psychology field. For example, Thüring's and Mahlke's research concerning human-technology interaction reveals that user experience consists of emotions and perceptions of instrumental and non-instrumental qualities (Thüring & Mahlke, 2007). Even though research has already been done concerning user emotions, they are studied mostly tangentially. Beaudry (2010) calls for more thorough research for user emotions and especially how they can influence initial IT use.

As Dolan et al. (2012) have pointed out, there are two distinct systems, automatic mind, and reflective mind, operating in the brain which both effect on the behavior. Also, Kim et al. (2006) say, that behavioral actions usually contain both affective and cognitive components. These aspects need to be taken concern when studying user behavior. This research aims to find different ways from both perspectives to influence user behavior in organizational IT implementation by collecting different ways from the previous literature and also by finding the already used ways from the research target organization with interviews. In the result, there will be a comprehensive list of different influencing ways that will be evaluated and measured by the end-users in qualitative interviews. Also the behaviour development is lightly observed during the research and findings of the interviews are mirrored to the background literature.

1.2   Research question and structure of the research

Based on the concept definitions for IS implementation and user behavior, the research question is shaped as follows:

> *How individuals' emotions and cognitions in organizational IT implementation can be influenced?*

The thesis is structured into two main parts, literature review and empirical part of the research. As Schabram and Okoli have categorized, the literature reviews for graduate student thesis differ to some extent from the literature reviews that work as a theoretical foundation for primary research as the literature review is used as an anchor for the thesis (Okoli & Schabram, 2010). There are four purposes for the literature review in a thesis according to Hart (1999). First of all it needs to demonstrate a prior understanding of the topic, secondly it shows the persistence and diligence of the writer with the search of literature and its thoroughness, thirdly it needs to fulfill the major requirement to provide sufficient argument to justify the topic of the research and fourthly it follows the required proper ways to use the literature (Hart, 2018, 16-20).

In this thesis, the literature review follows the type of developmental review. Templier and Paré describe it as a "assemble of previous research to develop an innovative approach to the topic of interest" (Templier & Paré, 2015). It is partly similar with the narrative review as it allows to gather studies that focus on thematically differentiative concepts and findings but differs on the literature coverage where the developmental review covers only studies that are central to the topic area (Templier & Paré, 2015). This kind of integrative literature review "reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated" (Torraco, 2005). The review is conducted based on Okoli's and Shabraham's eight-step guide by first identifying the purpose and the goals of the literature review, then forming a protocol for the search procedures to ensuring a review consistency, fourthly by searching the literature and after that by screening for inclusion which means justifying why certain studies were eliminated from the review. The fifth step is the screening for exclusion that stands for justifying the insufficient quality of certain articles and justifying the quality of those that are included. After identification of all usable studies, the systematic data extraction is the next step which culminates to the seventh step of combining the facts in a synthesis of studies. The final step is the actual writing of the review (Okoli & Schabram, 2010).

The literature review begins in chapter 2 where the system implementation is defined and examined as a project and viewed through the implementation stages. Also, change management as part of the implementation project and as a behavior influencing channel is discussed in this chapter. In chapter 3, the dichot-

omy of user behavior in organizational IT implementation as individuals' emotions and cognitions is justified and based on the essential theories from both aspects of the user behavior. In chapter 4, the used model for the dichotomy is built, and the influencing ways to user behavior are collected from introduced theories and frameworks into a charter as a basis of the empirical research.

The fifth chapter begins the empirical part of the research by introducing methodology of the research. The selected method is theme interviews that are executed in a large industrial organization that is going through a large-scale system implementation. The interviews are divided into two groups. First there are kept preliminary interviews for project organization members which aim is to provide background information about the project and the organization as well as collect already used ways to influence end-users. The primary interviews are kept for the end-users themselves to find out how these ways have worked for them in reality. In the end, these results are compared to literature findings to see how well different ways to influence user behavior work, which are found most significant and what ways could be utilize more in the future.

2 SYSTEM IMPLEMENTATION

When discussing system implementation, it is essential to understand the concept of information systems and especially its multilevel nature (Lapointe, 2007). Rogers divides technology into two components that are "hardware which consists of the tool that embodies the technology as a physical object and software that consists of the information base for the tool" (Rogers, 2003). These two components, the tool and the way to use it, have a close relationship between each other (Rogers, 2003). Mason and Mitroff's classic definition for information system says that an IS "consists of, at least, a person of a certain psychological type who faces a problem within some organizational context for which he needs evidence to arrive at a solution, where evidence is made available through some mode of presentation" (Mason & Mitroff, 1973, 475). The main idea of this definition is that the information system does not consist only of technological material as an important part of it is also the human component. This research focuses on the interaction between these constructs.

In this chapter, the actual system implementation project is introduced as well as the stages of the implementation process. In the end, there will be a short insight into the system implementation from the change management perspective.

2.1 The system implementation project

As Pult claims, organizations have a high dependency on the use of technology which makes it a crucial and highly comprehensive resource. IT function's role is a change enabler so that the IT sourcing, which means organizations sourcing of their IT capabilities, effects on the ability to manage the overall business change. It also has a great influence on the organization's capabilities and because of this, on its success in business (Pult & Manwani, 2014). Similar thoughts have also Chen (2012), who states that "it-enabled resources are assumed to be a force for organizational change in its operational and management practices".

System implementation is usually seen as a project in the organization. IT projects can be defined as "IT projects consisting of sequential and linear events, with a clear starting and ending point, consisting of the management of isolated problems and stable artifacts as well as series of rational judgments about stable organizational structures" (Iveroth, 2016). Iveroth (2016) points out that this kind of process has a dynamic nature which demands continuous learning and also the impact of IT and organizational issues on each other when these changes are implemented. He emphasizes the main reason for IT-enabled change which is the extent of how successfully it enables the people in an organization (Iveroth, 2016).

In an organization, the outcomes of the implementation can be seen in three different layers according to Lapointe (2007). These layers are the individual layer where the result can be seen as IS usage, the group level where the outcome can be measured thru resistance to IS implementation and the organization level where the result is the organizational adoption of an IS (Lapointe, 2007). Ehie and Madsen (2004) describe well the complex structure of the implementation process as a combination of strategic architecture, change management, and business development. The strategic architecture's task is to analyze the driving motive for the implementation, especially when it concerns significant change as an ERP system. The change management's responsibility is to integrate the human resource dimension to this process, and business development's mission is to coordinate the daily operations with the new business process design (Ehie & Madsen, 2004).

2.2 Stages of implementation

There are multiple different models and frameworks concerning implementation as a process which are made for a slightly different purpose but which also have much in common. For example, Cooper and Zmud (1990) have described IT implementation as a model of six classical stages, that is founded on Lewin's change model from 1952 (see figure 1). the Lewin's unfreezing stage has similarities with the initiation stage of Cooper's and Zmud's model as well as Lewin's change model covers both adoption and adaptation stages of Cooper's and Zmud's model and also Lewin's refreezing stage can be associated with the next two stages of Cooper'sand Zmud's model which are acceptance, and routinization-These norms can influence behavior (Cooper & Zmud, 1990).

Initiation	Process: Active and/or passive scanning of organizational problems/opportunities and IT solutions. Pressure to change evolves from either organizational need (pull), technological innovation (push), or both
	Product: A match between an IT solution and its application to organization
Adoption	Process: Rational and political negotiations to get organizational backing for implementation
	Product: A decision is reached to invest resources necessary to accommodate the implementation effort
Adaption	Process: The IT application is developed, installed, and maintained. Organizational procedures are revised and developed. Members are trained into both.
	Product: The IT application is available for use in the organization
Acceptance	Process: Organizational members are inducted to coomit to IT application usage.
	Product: The IT application is available for use in the organization
Routinization	Process: Usage of the IT application is encouraged as a normal activity.
	Product: The organization's governance systems are adjusted to account for the IT application
Infusion	Process: Increased organizational effectiveness is obtained by using the IT application in a more comprehensice and integrated manner to support higher level aspects of organizational work
	Product: The IT application iis used within the organization to its fullest potential

Figure 1 Stages of implementation (adjusted from Cooper and Zmud, 1990)

Ehie and Madsen (2004) have formed a five-stage ERP implementation process which can be utilized with any significant system change in an organization. Here the most critical observation is the continual relationship between the process, change management, and business development. First of all, the whole process starts with strategic enterprise architecture which drives the implementation motive. The first stage is for project preparation which concludes organizing and defining the project and its scope as well as creating the project plan in more detail. The second stage is for business blueprint where it is essential first to analyze current business processes and to select the system and then to master the system chosen to understand the functionalities and configuration as well designing new needed processes. Stage three is the realization which consists of technical development and first pilot that is for prototyping and adjustment toward the final system. The fourth stage is for the final preparation by tuning and testing the system and educating and training the users, and the final stage five is for going live and supporting the system (Ehie & Madsen, 2004).

Some of the models have focused on the process of adoption of innovation in an organization which can concern actual system implementation as the innovation can be defined as the adoption of technology among other things (Damanpour & Schneider, 2006). On these models, the phases have been divided for example into "awareness, selection, adoption, implementation, and routinization" (Klein & Sorra, 1996) and "initiation, development, implementation, and termination" (Van de Ven et al., 2000). Damanpour & Schneider (2006) have grouped these for even more generalizable form by naming three general stages concerning pre-adoption a.k.a. initiation, adoption decision a.k.a. adoption decision and post-adoption a.k.a. implementation.

2.3   Change management as a part of system implementation

Murthy describes change as an alteration in change agents which is a bipolar phenomenon where the aim is to make or become different. These change agents are people, structure and technology and the changes take place in three levels where micro change consists of those changes that people face in their personal lives, macro change, on the other hand, consists of changes that affect people significantly universally and to organizational change which consists of those changes that occur in any organization that influence people's lives (Murthy, 2007, 7-8). Paton and McCalman point out that management and change can be seen synonymous as it is impossible to understand the process without first addressing the purpose of it, the planned way to do it and by whom it is done. Managing the change is about handling the complexities of the process by evaluating, planning and implementing operational, tactical and strategic processes (Paton & McCalman, 2008, 3).

Aladwani (2001) has suggested an integrated, process-oriented conceptual framework for managing change associated with ERP implementation. This framework is generalizable to all other large-scale system changes in organizations. Aladwani's framework consists of three phases that are knowledge formulation, strategy implementation, and status evaluation (see figure 2). The knowledge formulation phase is all about identifying and evaluating the attitudes of users as well as other stakeholders. Strategy implementation is the most critical phase, and it can be described as a three-level, think-feel-do, adoption process. On the thinking stage, there are awareness strategies needed which includes communication, informing and educating. On the feel phase, the aim is to influence the affective component of users' attitudes that will generate strong feelings toward both accepting and adopting the new system. The last step that is executed is the conative stage where it is crucial to get the approval and support of those involved individuals that are well-known as well as opinion leaders and the top management. The third phase of the whole framework is a status evaluation phase where the used change management strategies are monitored and evaluated (Aladwani, 2001).

Gil (2002) claims that change is too often seen as a 'quick fix' and dealt with only through the organization's functioning without understanding its other implications. It should be acknowledged that the most powerful forces of resistance to change are usually emotional. Still, change management initiatives do not pay enough attention to the human and political aspects of change. Gil introduces a model of transformational leadership that helps to understand the challenge of change more broadly. The model integrates multiple dimensions and requirements of leadership.

First of all, there is the cognitive dimension that is called 'thinking,' where the "effective leadership requires intellectual or cognitive abilities to perceive and understand information, reason with it, imagine possibilities, use intuition, make judgments, solve problems and make decisions" (Gill, 2002). The second dimension is the spiritual one that is called 'meaning' that "requires yarning for meaning and a sense of worth that spirits individuals in what they seek and do. It depends on the vision and shared values to which one is a party" (Gill, 2002). The third dimension is emotional and called 'feeling' where "effective leadership requires well-developed emotional intelligence. Emotional intelligence means the ability to understand oneself and other people, display self-control and self-confidence and also to respond to others in appropriate ways" (Gill, 2002). The key is to use personal power instead of managerial power. The last, fourth, dimension is behavioral that is called 'doing' where the requirements concerns using and responding to emotion and also comprising the communication in other ways, such as writing, discussing or physical behavior. As Gill well summarises, "the effective leadership of change reflects all of these dimensions of leadership and elements of vision, values, strategy, empowerment, motivation, and inspiration" (Gill, 2002).

3 THE INDIVIDUALS' AFFECTS AND COGNITIONS IN ORGANIZATIONAL IT IMPLEMENTATION

As Aldawani's feel phase and Gil's cognitive dimension of transformational leadership brings out, the affect side has an important role overall in change as well as more precisely in the implementation process. As mentioned already earlier, there is a clear dichotomy in the research of user behavior. In this chapter, there are introduced two different approaches to this dichotomy. The selected approaches are Dolan's MINDSPACE framework (2012) and the Thinking-Feeling model by Kim et al. (2006). The reason for selecting framework in information systems but also from psychology field gives a broader perspective to the emotional side of user behavior and might, later on, result in finding new possible ways on influencing the behavior especially in organizational of implementation. Dolan's MINDSPACE is published at the Journal of Economic Psychology, and it is specially made for policymakers use to help to recognize most robust effects that influence an individual's behavior (Dolan et al., 2012).

In the end, there are also shortly introduced those theories and frameworks that are used later on in this research. Compeau et al. (1999) highlight that "user behavior is viewed as the result of a set of beliefs about technology and a set of affective responses to the behavior." In the more cognitive-based models, these beliefs are represented by the perceived characteristics of innovating, usefulness, and ease of use. The attitude towards use usually stands for behavioral beliefs, outcome evaluations, and expectations as well as affective responses. Many well-known cognitive-based theories concern user acceptance and the use of technology. In this research selected theories are TAM by Davis (1985), UTAUT by Venkatesh (2012), Rogers's (2003) diffusion of innovation theory. These theories and frameworks are selected as they are cornerstones of the cognitive-oriented research and being named in many of the emotion-oriented studies as the most important researches in this field of research. Kim et al. (2006) see users more as service customers whose emotional benefits that stands for the more hedonic view are also important. This affect side of user behavior has also been studied for some time, and there are multiple theories available that focuses especially on the affected side of the behavior. In this research selected theories are model applying social cognitive theory by Compeau et al. (1999), Beaudry's

and Pinsonneault's (2005) coping model of user adaptation and an emotion-focused model of acceptance by Stam and Stanton (2009).

3.1   Approaches for the dichotomy in user behavior

For example, Beaudry and Pinsonneault (2010) divide the models that describe the antecedents of IT use to cognitive-based models and emotion-based models. The cognitive-based models predict IT use from the instrumental nature of technology point of view. This means perceptions and beliefs such as performance expectancy and relative advantage. Beaudry and Pinsonneault claim that based on psychology, these models cannot by themselves capture all antecedents of behavior as the usage of new IT can be seen as complicated and multilateral. Emotions influence individuals' beliefs and attitudes, and also, they have an important role in helping and guiding the individual's thinking, decision making, and actions. Because of this, there are also needed emotion-based models to complement those cognitive-based approaches (Beaudry & Pinsonneault, 2010). Similar divisions have also introduced Dolan (2012) and Kim et al. (2007).

Dolan has introduced two different ways to think about individual behavior as well as ways to influence it (see figure 2). The first way is called the 'cognitive' model that is based on the conscious thinking of the individual. Psychologists and neuroscientists call this human brain system the 'reflecting mind' that has only limited capacity but which offers analysis that is more systematic and deeper. It consists of processes which Dolan (2012) is represented to be "reflective, controlled, effortful rule-based, slow, conscious and rational". This cognitive model states that individual analyses the incentives and then acts in a way that reflects one's interests. It means that individual can be influenced by 'changing minds' which means influencing through conscious reflection on the environment. The second way is called the 'context' model that focuses on the more automatic processes of judgment and influence. In this model, the way the individual responds to the environmental concerns more about the context within one act. This human brain system is called 'automatic mind' in psychology, and it is claimed to process many things separately and simultaneously. One of its main characteristics is unconsciousness. It consists of processes that Dolan describes to be "automatic, uncontrolled, effortless, associative, fast, unconscious and affective". This model recognizes that people are sometimes irrational and inconsistent in their choices and that the surrounding factors are the most common reason for this kind of behavior (Dolan et al., 2012).
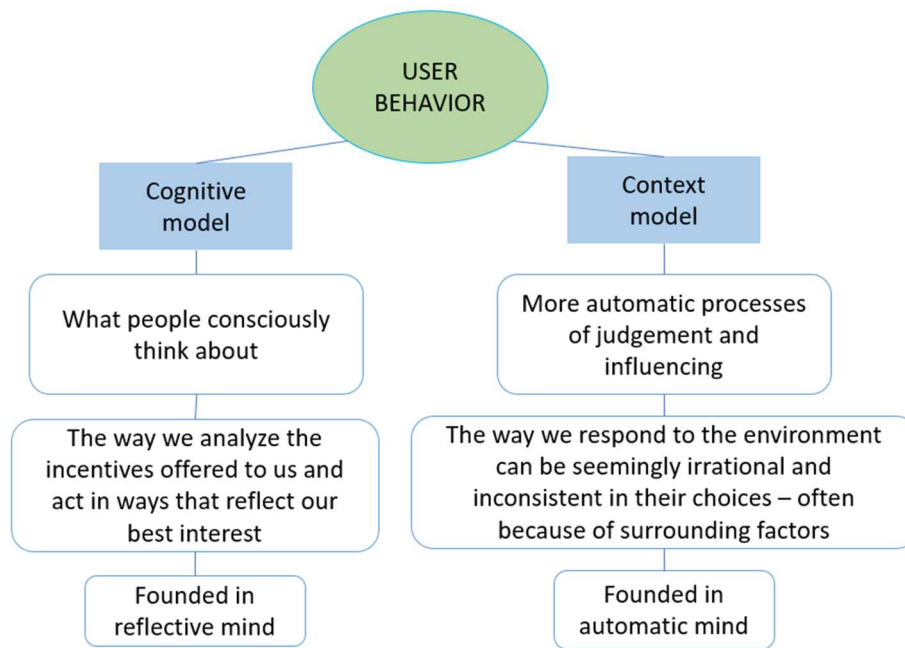
Figure 2 Dichotomy of behavior by Dolan et al. (2012)

Kim et al. (2007) take another approach to the behavior dichotomy. They divide previous research into cognition-oriented models and affect-oriented models (see figure 3). The cognition-oriented models are based on cognitive understandings that are the foundation of decision making and human behavior. These models assume consumers to be rational and to act according to some reasoning, implying purposive and planned choices. On the other hand, consumer research and social psychology highlight the importance of efficiency in the decision-making process. Because of this, behavioral actions do generally contain both affective and cognitive components (Kim et al., 2007). Kim et al. have built a thinking-feeling model where the cognition is represented by thinking, which is "the mental process of knowing including aspects such as reasoning and judgment" (Kim et al., 2007), and affect, which is represented by feelings, that is defined as "affective reactions to the emotion-eliciting objects/states that are processed by the individual" (Dolan, 2002). In the thinking-feeling model, these both are affected by the previous experience. Attitude is seen as the effect of thinking and feeling, and it comprises both cognitive and affective elements. These all three, thinking, feelings and attitude have a straight impact on an individual's intention to behave and this way to the actual behavior (Kim et al., 2007).
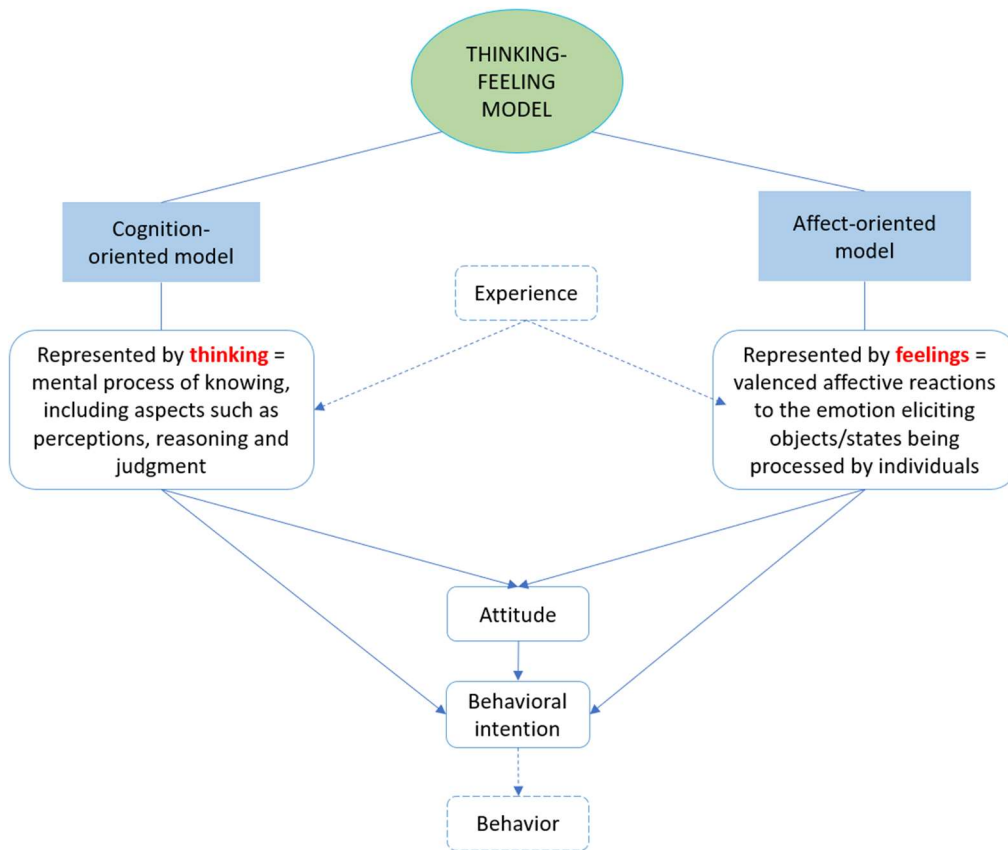
Figure 3 Thinking-feeling model by Kim et al. 2007

3.2   User behavior in system implementation

This chapter describes different user behavior models by introducing them shortly, collecting possible ways to influence user behavior and later on by form-ing a table of these found ways. These models are introduced in an order that begins with more cognitive-based models (TAM by Davis (1985), UTAUT by Venkatesh (2012) and Rogers's (2003) diffusion of innovation theory) and ends with models that combine both, cognitive- and emotional-side of the user behav-ior (model applying social cognitive theory by Compeau et al (1999), Beaudry's and Pinsonneault's (2005) coping model of user adaptation and an emotion-focused model of acceptance by Stam and Stanton (2009)).

Beaudry and Pinsonneault (2010), for example, have claimed that the tech-nology acceptance model (TAM), the unified theory of acceptance and use of technology (UTAUT), the innovation diffusion theory, as well as the social cog-nitive theory (SCT), are all significant steps toward understanding the anteced-ents of IT use. They have introduced two different research streams where the first one is the variance approach, which is focused on the antecedents of adop-tion and usage of new technologies, and the second is the process approach, that is more concerned about the user adaptation and its effects on outcomes. These

following theories belong to the first stream that better describes the factors that can influence user adaptation (Beaudry & Pinsonneault, 2005). On the other hand, Beaudry and Pinsonneault have also pointed out that it is not the actual IT event or the IT artifact, that is, in this case, the new system, that triggers emotions. It found out to be the assessment of the event or artifact by an individual that is always unique and consists of psychological as well as evaluative characters (Beaudry & Pinsonneault, 2010). Zhang (2013) states that affect related phenomena and concepts have been studied since the early days of the information system discipline, but the interest and need for more consistent research and even alignment with psychology and other disciplines have pushed researchers to challenge the cognitive-dominant thinking. He mentions few significant affective topics that have been under research such as emotional usability that refers to Kim et al. thinking-feeling theory and emotion on information technology use that refers to Beaudry's and Pinsonneault's work (Zhang, 2013).

3.2.1 Technology acceptance model

Technology acceptance model (TAM) by Davis is an adaptation of the theory of reasoned action (TRA) which is tailored for modeling user acceptance of information systems (Davis et al., 1989). It has been acknowledged as a powerful and simplified way to represent the system usage antecedents even though its empirical tests have relied more on the usage intention than actual measures of usage behavior (Taylor & Todd, 1995b). According to Davis (1985), the user's overall attitude toward using a system is seen as a crucial factor for the actual use. This use is called the behavioral response where "use refers to actual direct usage of the given order and attitude to the degree of evaluative affect that individual associates when using the target system" (Davis, 1985). This so-called affective response consists of two major beliefs: perceived usefulness and perceived ease of use. They form the cognitive response to the design features of the system. The perceived usefulness means "the degree to which an individual believes that using the system would enhance one's job performance and the degree to which an individual believes that using the system would be free of physical and mental effort" (Davis, 1985). These two particular beliefs have significant relevance especially for behaviors of computer acceptance (Davis et al., 1989). Davis (1985) highlights the significant direct effect that perceived ease of use has on perceived usefulness. This exists based on the fact that a system which is easier to use will most likely increase work performance and this way turns into better usefulness for the user (Davis et al., 1989). Van der Heijden has made similar observations and claims that ease of use is a critical system development variable and it can be seen assisting perceived usefulness in contributing utilitarian value but also contributing itself directly by enhancing or inhibiting the user's hedonic experience. He also points out the importance to understand that hedonic value can play an important role to increase also the acceptance of utilitarian systems (van der Heijden, 2004).

Later on, Venkatesh (2000) has examined the role of emotions in TAM and built a theoretical framework for the perceived ease of use. In this framework, the perceived ease of use is presented through an anchoring and adjustment perspective, and it covers both, the formation and also change of the perceived ease of use. Anchoring and adjustment are an essential general decision-making heuristic of individuals based on the behavioral decision theory. As an individual has no specific knowledge, they rely on general information that can be seen as an anchor. Anchors are central beliefs about computers and computer usage in general, and the adjustments refer to beliefs that are shaped based on direct experience with the target system. These anchors are impossible to be ignored during the decision-making processes, but when there is more contextual information available, it is more likely that the appraisal is made based on that instead of possible experiences before. This means that individuals are expected to adjust their system-specific perceived ease of use after gaining more experience to reflect their interaction with the system (Venkatesh, 2000).

Venkatesh (2000) says that the general anchors in the model are constructs related to control, which is divided into perceptions of inter and external control, intrinsic motivation, and emotion. Those are computer self-efficiency, perceptions of external control, computer anxiety and computer playfulness. Two main adjustments in the model are perceived enjoyment and objective usability. Objective usability becomes the adjustment when user experience increases but the knowledge and anxiety towards the system still continue to have an effect on perceived ease of use. The perceived enjoyment, on the other hand, relates to external control, and it occurs the situation when an individual will modify their original perceptions of external control to reflect the organizational environment. This is because the perceived enjoyment strongly relates to the specific system and its environment (Venkatesh, 2000).

3.2.2 Innovation diffusion

Dillon and Morris (1996) claim that one of the principal theoretical perspectives on technology acceptance is the innovation diffusion theory (DOI) that intends to "provide an account of the manner in which any technological innovation moves from the stage of the invention to widespread use and this way offers a conceptual framework for discussing acceptance at a global level" (Dillon & Morris, 1996). The innovation diffusion theory is also one of the few technology adoption theories that are at the firm level instead of the individual level (Oliveira & Martins, 2011). Rogers defined diffusion as "the process in which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003). The communication is special as the messages are concerned with new ideas. Rogers explains that diffusion can be seen as one type of social change where new ideas are first invented, then diffused and later on either adopted or rejected. This way they lead to certain consequences that are modifications in the social system, usually to its structure and/or functions. The

innovation is an idea, practice or object that is new to the individual or for example the organization. Rogers uses innovation as a synonym to technology (Rogers, 2003). As Oliveira and Martins (2011) states, the innovation process in organizations is complex and involves a number of individuals whom each has a role in the innovation-decision.

Rogers's innovation diffusion theory nominates five characteristics of innovations that affect their diffusion. First of these characteristics is a relative advantage that means the extent to which technology offers improvements compared to already available tools. The second characteristic is compatibility that stands for the consistency of technology and social practices as well as norms among the users. The third characteristic, complexity, means the easiness to use or learn the technology and the fourth, trialability, describes the opportunity to try an innovation before the actual use. The final fifth characteristic is observability that describes the possibility to see the technology's outputs and gains (Dillon & Morris, 1996; Rogers, 2003, 15-16). Rogers highlights that none of the characteristics can predict the extent or the rate of diffusion on it's own. Instead, if all these characteristics are afforded in the innovation, it will more certainly be diffused faster and better than innovation with opposite characters (Dillon & Morris, 1996; Rogers, 2003, 15-17). Taylor and Todd claim that these characteristics can be described with earlier research as a set of attitudinal belief dimensions (Taylor & Todd, 1995a).

Rogers claims that innovativeness in organizations is related first of all to individual characteristics of a leader, which stands for leader's attitude toward change, but also to internal structural characteristics of the organization as well as the external characteristics of the organization, which stands for the openness of the system. There are several organizational structure variables that effects on the innovativeness either positively or negatively. First of all, centralization, which means that power and control are concentrated to be managed by only a few individuals, is usually negatively associated with innovativeness. Another variable is complexity which stands for "the degree to which an organization's members possess a relatively high level of knowledge and expertise" (Rogers, 2003, 411-412). It encourages members of the organization to grasp the value of innovations, but it also might cause problems with achieving consensus about implementing them. Formalization, the degree of bureaucratic, on the other hand, acts to inhibit the consideration of innovation by organization members but does actually encourage the implementation of innovations (Rogers, 2003, 411-413).

Other positively related variables are interconnectedness, which means the degree of networking inside the organization by its members and organizational slack that describes the organization's possibility to use free resources for innovations and that these resources stay higher in cost. Also, the organizational size is seen highly related to innovativeness, and one reason for this could be that larger organizations usually have more slack resources. Other reasons are for example larger resources overall, organizational structures and this way also employees' technical expertise (Rogers, 2003, 409-413).

Dewett and Todd claim that one of the most significant contributions of the theory is the statement that diffusion networks are the heart of the internal innovation diffusion process. This means that the modeling and imitation by potential adopters of their near-peers experiences are the bases of the process (Dewett et al., 2007). Rogers (2003) categorizes adopters on the basis of innovativeness where the distribution follows an S-shaped curve. Innovation adopters can be divided into five different ideal types that are innovators, early adopters, early majority, later majority and laggards. The salient value of the innovator is venturesomeness. The venturesome thinking leads them out of a local circle of similar networks which means that they need to have control of substantial financial resources and of course capability to understand and apply more complicated technical knowledge. They should also have the possibility to cope with the high uncertainty concerning the innovation at the time of adopting and willingness to accept possible problems and failures when the new innovation does not succeed as planned. The innovator's role is essential in the diffusion process as innovator works as a gatekeeper when new ideas are flowing into a system. On the other hand, the early adopters are innovators that are a more integrated part of the social system. They can be seen as change agents who are speeding the diffusion process in the organization. Their opinions are usually valued by the potential adopters, and they can be seen as a role model for several other members of the social environment. This means that they have the possibility to trigger the critical mass when adopting an innovation (Rogers, 2003, 281-285). The third group, early majority, are adopters who adopt new ideas right before the average members, and this way works as a crucial linkage between early adopters and others. The early majority concerns one-third of all members of a system and is this way one of the largest categories. The difference between the early majority and early adopters lies in the deliberation that makes the early majority's innovation-decision period longer. The fourth category is the late majority that is more skeptical of adopting new ideas, and the adoption usually happens just after the average member of a system. This group also makes one-third of all members of a system. Because of the cautious approach, the pressure of equivalent members is needed to motivate their adoption of the system. The last type of adopters is called laggards which are the most localized of all adapter categories in their outlook. Their point of reference is the past, and they interact primarily with others who also have similar traditional values. This means that resistance to innovations is relatively high before the laggard is absolutely sure that a new idea is not going to fail (Rogers, 2003, 281-285).

Based on this categorization, Rogers has collected generalizations of different sides under three topics: socioeconomic characteristics, personality variables, and communication behavior (see Table 1). In an organizational context, observations about earlier adopters having a greater ability to deal with abstractions and to cope with uncertainty and risk than later adopters can help to understand the user behavior in the system implementation process. Also, acknowledgment of differences in communication behavior gives guidance about the differences as earlier adopters have more social participation in general

than later adopters which leads to the fact that they have more contact with change agents. Exposure to both, mass media and interpersonal communication channels are also greater than later adopters have (Rogers, 2003, 281-285).

Socioeconomic Characteristics	Personality Variables	Communication Behaviour
Higher education	Greater empathy	More social participation
Higher social status	Higher flexibility	Better interpersonal networks and highly interconnected through them
A higher degree of upwards social mobility	Greater ability to understand abstractions	More cosmopolite
Larger companies as employers	Greater rational thinking	Contacted with change agents
	More intelligent	More exposure to mass media communication channels
	Positive attitude toward change	More exposure to interpersonal communication channels
	Better coping skills with uncertainty and risk	More active seeker of information concerning innovations
	More interested in science	Greater knowledge of innovations
	Less believe in faith and fortune	Opinion leaders.
	Higher endeavors for education, career, etc.	

Table 1 Generalizations of earlier adopters (Rogers, 2003, 287-292).

3.2.3 UTAUT

UTAUT, the unified theory of acceptance and use of technology is formulated based upon similarities that were found from eight most fundamental models that concern user acceptance. The similarities cover both conceptual and empirical aspects. These models are a theory of reasoned action (TRA), technology acceptance model (TAM), motivational model (MM), the theory of planned behavior (TPB), combined TAM and TPB, a model of PC utilization (MPCU), innovation diffusion theory (IDT) and social cognitive theory (SCT). The main determinants of user acceptance and usage behavior that were found from these models are performance expectancy, effort expectancy, social influence and facilitating conditions. The performance expectancy is defined as "the degree to which an individual believes that using the system will help one to attain gains in job performance" (Venkatesh, Morris, Davis & Davis, 2003). This is similar for example with the constructs of perceived usefulness of TAM and outcome expectations of SCT and it is actually the best predictor of intention in each root construct. Effort expectancy is defined as "the degree of ease associated with the use of the system" (Venkatesh, Morris, Davis & Davis, 2003) and it has similarities for example with the perceived ease of use of TAM. Social influence is a determinant that is not part of any of the previous models in this research. It has been anyhow represented in several other models as the subjective norm. It stands for "the degree to which an individual perceives that important others believe one should use the new system" (Venkatesh, Morris, Davis & Davis, 2003). The

last construct is the facilitating conditions that are defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system." (Venkatesh et al., 2003). There are also constructs, that have appeared in previous research but which are not included in this model as they are found not to be direct determinants of intention. These constructs are computer self-efficacy and anxiety, which are modeled as indirect determinants of intention fully mediated by perceived ease of use and attitude, that were found significant only when specific conditions were not included in the model. These conditions mean constructs that are related to performance and effort expectancies (Venkatesh et al., 2003).

These determinants also have moderators, gender, age, experience and voluntariness of use, that have specific roles with each of them. Findings reveal that performance expectancy has a stronger effect on behavioral intention if the user is a man and especially a younger man. Findings concerning the effort expectancy shows that it has a stronger effect on behavioral intention when the user is a woman, an older worker and/or someone with limited experience. Similar findings also concern social influence. The effect on behavioral intention is stronger for women, older workers, those that are under conditions of mandatory use and those with limited experience. Facilitating conditions, on the other hand, had a nonsignificant effect on behavioral intention but had a significant effect on usage especially when the user was an older worker with increasing experience. The behavioral intention also proved to have a straight effect on actual use (Venkatesh et al., 2003).

3.2.4   The Thinking-Feeling Model

Kim et al. (2007) state that the change in attitude processes and determinants depends on an individual's motivation and one's capability to process relevant information. It is also acknowledged that attitude guides decisions as well as other behaviors, and the most important resource of this attitude's formation is persuasion. The direct linkage between thinking and behavioral intention has been viewed in previous cognition-based studies, for example, diffusion of innovation and TAM. Also, the direct effect of feelings on behavioral intention has been found to have a direct connection, and for example, Lazarus (1991) has pointed out that when action and goal attainment are inferred to feelings, the identified coping responses are important mechanisms. Behavioral intentions emerge to activate plans depending on the feelings generated. Plans are either for avoiding unwanted outcomes or increase or maintain positive outcomes (Kim et al., 2007).

In the balanced thinking-feeling model, which structure is already introduced in chapter 3.1, the attitude is regarded as a summary evaluation of the usage where the choice of behavioral intention is determined by an overall assessment of the target information system that is based on a comparison of perceived benefit and perceived sacrifice. User's feeling is constructed primarily on pleasure which is defined as "the degree to which a user feels good or happy with the target object" and on arousal which is defined as "the degree to which

the user feels excited, stimulated or active" (Kim et al., 2007). The research shows that pleasure is actually a direct antecedent of behavioral intention, but a similar linkage was not found between the arousal and behavioral intention. The dominant construct of thinking in this model is the perceived usefulness that exerts the influence and post-adoption stages of IS use. It is defined as "the degree to which a person believed that using a particular system would be advantageous to performing the necessary task" (Kim et al., 2007). There are of course other constructs too, for example, ease of usage, but they have not been found as critical in the decision-making process concerning the continued usage and in the post-adoption behavior as perceived usefulness. Also, usefulness was noticed to have significant meaning for attitude formation as well as straight for IS continuance intention. It was also found that the level of complexity from usefulness to continuance intention was not significantly different from the level of complexity from pleasure to continuance intention (Kim et al., 2007).

Based on the results of the research, Kim suggests some possible methods to enhance the thinking and feelings of information system users. The thinking-based methods are enhancing the functional usefulness of the information system, designing the information system by focusing on the user's needs and desires and also maximizing the utility of the system to the user. The feeling-based methods are offering interactive and multimedia interfaces which reinforce users' feelings like pleasure, promoting the emotional aspects such as peace of mind and providing new services that consider the emotional side of behavior (Kim et al., 2007).

3.2.5 Social cognitive theory

Compeau's model that is applying social cognitive theory (SCT) for individual reactions to computing technology is based on Bandura's social cognitive theory, and its difference to other perspectives like in TAM or DOI concerns their focus. TAM and DOI focus almost exclusively on persuasions about the technology and the outcomes of using it, but SCT also includes other persuasions that are independent of the actual perceived outcomes, and that can have an impact on user behavior. It also acknowledges the relationship between the environment, an individual's cognitive perceptions and behavior (Compeau et al., 1999). A similar approach is supported in the model of collective user reactions toward innovation implementation by Choi, who proposes that the implementation situation is always first assessed cognitively by the employees and after that, based on the assessment, the actual emotional reactions toward the innovation are developed (Choi et al., 2011).

There are six constructs on the Compeau's research model that are computer self-efficacy, performance-related outcome expectations, personal outcome expectations, affective responses that are affect and anxiety as well as the actual usage. The computer self-efficacy describes an individual's beliefs concerning one's own capabilities to use computers. The outcome expectations are divided into two different dimensions where the first one consists of performance-related

expectations like the improvement of efficiency and effectiveness caused by using computers. The second dimension is personal outcome expectations. It differs from performance-related expectations as it concerns more of expectations concerning the change in image or status or even rewards. Affect reflects the positive side and anxiety the negative side of individuals affective responses towards using computers. The last construct, usage, represents the degree of use of computers (Compeau et al., 1999).

The research confirmed that the higher the individual's computer self-efficacy is, the higher are performance related outcome expectations, personal outcome expectations, affect of computer use and actual use of computers, and on the contrary, the lower is the computer anxiety. It was also found that the higher the individual's performance related outcome expectations or personal outcome expectations are, the higher is also affect for the behavior. There was also found a significant relationship use and between personal outcome expectations which were surprisingly negative. Finally, it was also proved, that the higher the individual's computer anxiety was, the lower was the use of a computer (Compeau et al., 1999).

3.2.6   Coping model of user adaptation

The coping model of user adaptation by Beaudry and Pinsonneault integrates two different research streams that are variance approach, which is mainly focused on the antecedents of adoption and usage of new technologies, and process approach, which is focused on user adaptation and its effects and outcomes. This gives an opportunity of studying the antecedents, behaviors, and outcomes of user adaptations together. When user adaptation is defined as coping, it allows studying widely different kind of user responses, makes it possible to understand the antecedents and effects of those user behaviors, and gives an opportunity to study user behaviors that appears in different staged of the implementation, before, during, and after (Beaudry & Pinsonneault, 2005).

Lazarus and Folkman have defined the coping as "the cognitive and behavioral efforts exerted to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984). These cognitive efforts aim at altering the subjective meaning of the event, and behavioral efforts aim at altering the situation itself (Lazarus & Folkman, 1984, 141). According to Beaudry and Pinsonneault (2005), French et al. (1975) say that "internal demands are personal desires or requirements that the environment must meet." Beaudry and Pinsonneault (2005) describe the external demands as "emanates from the contextual or social environment that must be met by individuals and which are related to those roles that one has to play in a given environment." Lazarus and Folkman (1984) say that the actual ways in which people cope are always dependent upon the resources such as financial, material, psychological, physical, cognitive and social resources, that are available for them.

In CMUA the user adaptation is triggered by a considerably important IT event that disrupts the work environment of users. The actual adaptation process of users usually start at different points as the given information of the IT event in an organization is usually asymmetrical and because they synthesize the information differently. The trigger starts the assessment of the IT event with primary appraisal where the user specifies the expected results of the IT event either as threats, opportunities or both, and how those results most likely are going to affect the user personally and also professionally. After this starts the secondary appraisal where users estimate how much control they have over the IT event and what kind of options the available resources offer for the adaptation. There are three main components of the secondary appraisal in the context of IT. They are work, which means a user's control over their own work, self, which refers to control over the self as a possibility to adapt oneself to new environment and technology which means control over the technology as features and functionalities during the development or usage. The next stage will be the adaptation efforts which can be divided into two different ways. There is an emotion-focused adaptation that is directed towards the user and strains for changing one's perception of the results or at decreasing emotional distress and problem-focused adaptation that aims at handling the issues concerning the actual IT event directly either by adapting oneself, one's work or the technology. It is important to acknowledge that as IT events are usually complex, users will most likely use both types of adaptation efforts to some extent. The emphasis of these effort types depends on the user's conclusion based on the results of appraisal stages (Beaudry & Pinsonneault, 2005).

There are four main adaptation strategies that the user can choose from. They can be seen as the "pure" forms of adaptation as they combine the two extreme cases, high and low control, of both types of appraisals, which are an opportunity, and threat (see Figure 4). First of the strategies is benefits maximizing strategy where the user sees the IT event as an opportunity and where one feels to have control over all three components (work, self, and technology) of the appraisal. This strategy will increase the user's individual efficiency and effectiveness. The second strategy is the benefits of satisfying strategy which is engaged when the user appraises the perceived results of an IT event as an opportunity but feels that one has limited control over the situation. This strategy will have only limited effects on the user's individual efficiency and effectiveness. The next two strategies are based on the fact that the perceived results of an IT event are seen as a threat. With the first one, which is called disturbance handling strategy, the user feels that one has control over the situation. This strategy will give back the user's emotional stability and decrease the perceived negative results of the event. It is possible that it even increases the user's individual efficiency and effectiveness. With the second one, which is called a self-preservation strategy, the user feels that they have only limited control of the situation. This means that the strategy will also give back their emotional stability and decrease the perceived negative results of the event. Actually, in those cases where users see the circumstances too difficult in light of the available resources and where they

think that there are no worthy options available for them to continue, they might just withdraw from the situation. It means that the emotional adjustments and modifications of the situation are too inadequate to give users the possibility to adapt to the new IT (Beaudry & Pinsonneault, 2005).
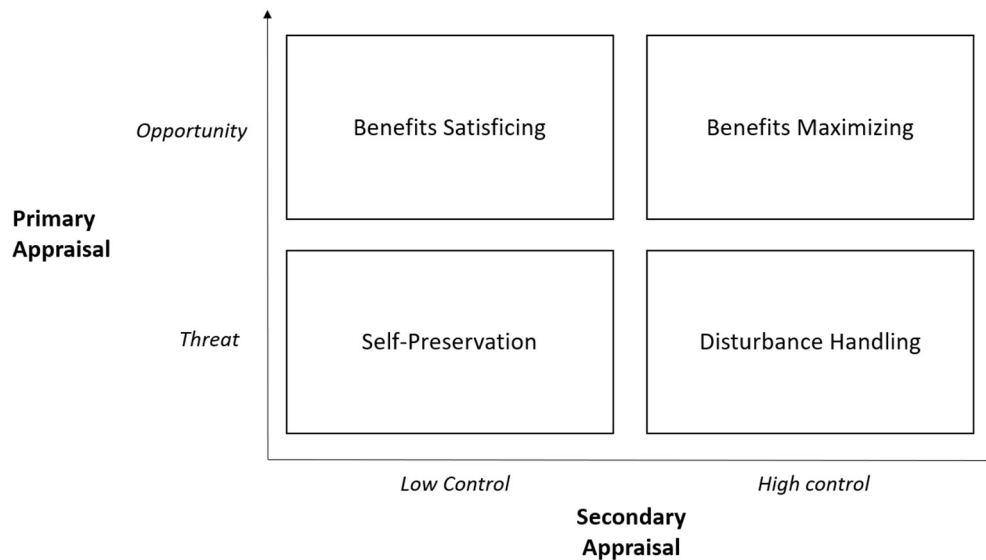
Figure 4 User adaptation strategies (Beaudry & Pinsonneault, 2005)

As can be noticed, the adaptation process is highly frequent, and it continually develops as a function of continuous changes. This means that appraisal and adaptation continually influence each other. It is crucial to recognize that the outcomes of the adaptation process are likely to change also the user's conception of the whole IT scene. This can even lead to a new appraisal of the circumstances, and it can trigger new adaptation efforts. This feedback loop is particularly crucial because it helps to define both negative and positive repetitive spirals of appraisal-adaptation-outcomes. As a summary, the selected strategy of a user depends on one's own evaluation of the new IT and further on of all significant organizational aspects. It needs to be understood that from the individual all the strategies can be useful to help to aim at those things that are personally relevant even though from an organizational point of view these strategies are not seen optimal as they do not try to maximize the organizational benefits of the IT event. However, inducing individuals to do so, might require organizational changes and investments which might result in some cases outweigh the final benefits that an organization can achieve acting in that particular way (Beaudry & Pinsonneault, 2005).

Stein has taken Beaudry's, and Pinsonneault's work a bit further and found five different types of affective characteristics (cues) that causes situations where individuals respond with a mixed affective response. This mixed response describes a response that includes emotions from different classes such as achievement and loss. These cues were IT instrumentality which means functional and design features of the system that allows or do not allow to

perform a wanted task, interactions with others that stands for the social environment, involvement with change, identity work which describes those characteristics of the IT that communicates something about the user (such as status or performance) and IT symbolism that means those characteristics of the IT that user can associate with broader ideas and this way take on various connotations. These cues can interact either in a reinforcing manner when the eliciting emotions are of the same class or in an oppositional manner when emotions are from different classes (Stein et al., 2015). Even though there were four distinct use patterns that could be identified emerging from the pure adaptation strategies mentioned earlier, these findings point out well that human reactions are a complex phenomenon that is not easy to predict or try to put into a model (Stein et al., 2015).

3.2.7 Emotion-focused model of acceptance

The emotion-focused model by Stam and Stanton tries to expand the understanding of possible motivating forces intrinsic in the concept of promotion focus. The model synthesizes two theories that are regulatory focus theory (RTF) and affective events theory (AET). The regulatory focus theory analyses motivation and emotion related to universal needs of growth/development and security. It separates two different conditions where the first one can generate positive emotions as outcomes of gains and where a second can create negative emotions as outcomes from losses. Depending on which of these the individual sees as an outcome, prevailing conditions shift one's regulatory focus. The regulatory focus can be described as a motivational orientation which can be either promotional focus which makes individual to pursue an ideal goal or prevention focus that makes individual to avoid an averting unpleasant outcome (Stam & Stanton, 2010).

The emotion-focused model (see Figure 5) is based on the claim that "an individual always has a predominant regulatory focus that is a function of both stable individual differences" (Stam & Stanton, 2010). It means one's own goals and aimed states, and the situation that the significant technology-related event in the workplace has caused. The emotional reaction is generated when the meaning of the event is interpreted by the individual through this predominant regulatory. The arisen characteristic reaction ultimately changes the individual's future beliefs and attitudes towards a similar event. If the regulatory focus has been promotion focus, the resulting behavior is generally an approach behavior, which means that an individual will respond to a positive event with positive reaction and an adverse event with a negative reaction. This means that the subsequent behavior focuses more on the adaptation of the event by mirroring it with the user's own growth and development needs. If the interpretation is made through a prevention focus, the resulting behavior will more likely engender avoidance behavior which means that the individual will respond to a positive event with neutral reaction and a negative event with aggravate response. These approach and avoidance behaviors might differ depending on the phase of the technology

event which is why they are divided to preparatory phase behaviors which occur before the technology introduction and adaptive behaviors which occurs during and after the technology introduction (Stam & Stanton, 2010).
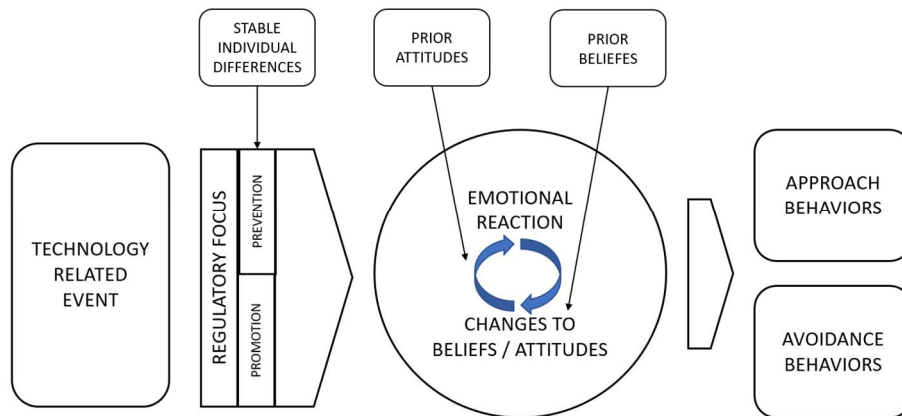
Figure 5 Emotional-focused model of adaptation to technology (Stam & Stanton, 2010)

Brockner and Higgins (2001) have studied the organizational change through regulatory focus theory and made conclusions that employees' resistance to change, depending on its focus, might have two different forms. If the focus is promotion-based, the resistance might exist when employees feel that the change is somehow on the way of the achievement of their individual work goals. On the other hand, if the focus is prevention-focused, the resistance to change might exist when employees feel that it can stop them from fulfilling their own responsibilities (Brockner & Higgings, 2001).

3.2.8   The MINDSPACE Framework

Dolan's MINDSPACE framework's aim is to help to recognize the effects on an individual's behavior that results from contextual influences. Choi (2011) claims, based on Scott's institutional theory, that contextual factors can indirectly predict the effectiveness of implementation as they shape the employee's cognitive evaluation of the innovation by four different ways: the organizational context shapes employees' beliefs and actions as it provides meaning and understanding of the situation. It also offers normative templates for specific behavior as well as regulates employees' actions with the structures of domination (Choi et al., 2011). Dolan's framework consists of nine most robust effects on behavior which are not in any particular order and which have some overlap between them. These effects are a messenger, incentives, norms, defaults, salience, priming, affect, commitments and ego (see figure 6). Messenger stands for the fact that individuals are usually strongly influenced by anybody who shares information to them. For example, if the individual sees the communicator as an authority, it

can generate compliant behavior regardless of whether the communication is stressful or harmful. The authority can also be a result of more formal sources if a member of management or expert from higher level deliver it. There might exist automatic defense to this kind of formal sources. Another trigger to act on information is to have similar characteristics with the messenger which makes it easier to take credit from them. This is especially noticed with those from lower socio-economic groups. People are also easily affected by the feelings that they have for the messenger, and those feelings are so powerful that they can even override traditional cues of authority. Sometimes there are more cognitive reasons to assess how convincing a messenger is. This might occur for example in a situation where there is no unanimity in the society concerning the matter. If the messenger is seen credible, it will increase the likelihood of the information to be true despite its quality. Information is also seen more easily true when the information is important and significant for the environment. Then the communication is more likely effectively covered with different elements of MINDSPACE (Dolan et al., 2012).

M essenger	*– who communicates information to us*
I ncentives	*– response is shaped by menntal shortcuts*
N orms	*– what others do*
D efautls	*– going with the flow or pre-set options*
S alience	*– individually novel and relevant matters*
P riming	*– sub-consious cues*
A ffect	*– emotional associations*
C Ommitments	*– consistency*
E go	*– way to act so that one can feel good about oneself*

Figure 6 The most robust effects on behavior (Dolan et al., 2012)

The second effect is incentives which impact depends typically on factors like the type, magnitude, and timing of the incentive but also on factors that can affect more on how individuals respond to incentives. First of all, it is important to notice that the value usually depends on the perspective of the viewing and on how big the change is experienced from that reference point. Another matter is to acknowledge that losses loom larger than gains, which is also related to previous insight. It means that people tend to dislike losses more than gains of a similar amount and this affects the actual decision-making process. Third insight concerns are overweighting small possibilities which refer to the fact that people are prone to overestimate the probability of unlikely but easily imaginary events. Last factors are more connected to financial aspects, but they can also be seen

from the goal perspective. Firstly, people tend to allocate money to specific mental accounts which is an opportunity to motivate people on their money usage by labeling accounts for them but at the same time retaining their own control on the amounts of the money. Secondly, people inconsistently "live for today at the expense of tomorrow", which leads to the behavior when people tend to prefer to get the payoff right away despite the fact that is waiting for longer would increase the amount of it (Dolan et al., 2012). From the goal point of view, for example, guiding to find new directions and on the other hand offering smaller and easily reachable goals could be used as a way to influence user behavior.

The third effect concerns norms which refer to the statement that people are strongly influenced by what others do. There are different kind of norms that act as rules within a certain group. These norms represent the ideal way of behavior in that certain group of individuals which makes them more of behavioral expectations for its members. This way the norms have a powerful and straight influence on individuals behavior as the collected cues that individuals find from other group members' behavior are turned into a perception of norms on which the individual assimilates one's own behavior. This is at least partly conscious. There are four fundamental ways to use norms as a way to influence people. Firstly the desirable norm needs to be introduced to people so that it can become common and widely accepted. Secondly, the norm needs to be related to the target audience as much as possible for example by utilizing the behavior of similar groups of people. Thirdly norms might need some reinforcing which can be executed by making it appealing or reminding the desirable outcomes. Fourthly it should be remembered that sometimes norms might backfire if people notice that others behave worse than them. Others bad example can attract even those who have played by the norm. This means that people are more influenced by what they see or think others are doing rather than norms that tell what they should be doing (Dolan et al., 2012).

The fourth effect is defaulted, which means selecting the default option that is used if there is not made an active choice by the individual even if it has significant consequences. This means that the default option needs to either be structured so that I maximize benefits for the chooser and this way influence one's behavior without restricting individual choice or to use an attractive compromise that is using a required choice especially in occasions where one option cannot be the best possible for the whole public. The fifth effect is salience which stands for the fact that behavior is heavily influenced by what one's attention is drawn to despite whether the attention has been voluntary controlled or captured by some external event. It has been recognized that people tend to register stimuli that are novel, accessible and simple. This is because attention is always more likely to be drawn to something that can be easily understood. Behavior change studies have demonstrated that actually the information is taken into account only when it is salient. This arises another essential matter that concerns decision-making. It is usual that people lack knowledge about a topic when making decisions. In these cases, the individual tries to find an initial anchor on which to found the final decision, and this anchor can be any kind of detail about the topic.

The power of this kind of anchors lies in the fact that they do work in all cases, even when they are totally arbitrary. The sixth effect, timing, is quite close to salience by its nature. The knowledge in memory is made more accessible with priming and this way the processing of new stimuli will be more influential. Priming can mean exposing to certain sights, words or sensations, even to smells. It is not understood yet which primers have the significant effects of all the primers that are daily encountered. This is why priming that is connected to a smaller amount of attention makes it more conceivable that huge part of individual's decisions is likely to be made without one consciously knowing about them (Dolan et al., 2012).

The seventh effect is affected which in this case refers to the act of experiencing emotion. These emotional responses can be quick and automatic which makes them a significant force in decision-making. In this kind of situations, people experience a behavioral reaction and also uses emotional evaluations in their decision-making process already before they actually realize why they are actings as they are. It means that the reaction is made before cognitive evaluation. Interesting is that actually, all perceptions contain some emotion which might or might not affect the final decision-making. The eighth effect is commitment. As people often have will-power weaknesses they use commitment devices to achieve long-term goals., The effectiveness of these commitments can be strengthened in different ways. For example, if the costs for failure increases, especially intangible such as breaking an agreement, the effectiveness will rise. The final ninth effect is ego which stands for people's desire to have a positive and consistent self-image by behaving in a way that supports it. It makes people compare themselves with others, and it leads to the situation where individuals tend to think the same way that groups that they identify with. Sometimes self-consistency of an individual may be disturbed, and instead of changing one's behavior one's beliefs get changed. These remarks are widely utilized in marketing for example with a tactic that starts with complying a smaller change and then moves on to the main change that is more remarkable. Similar outcomes give research where it was shown that the higher the expectation was placed on people, the better they performed (Dolan et al., 2012).

4   SUMMARY OF LITERATURE RESEARCH

In this chapter, the previous models and theories are viewed through the research question and findings are summed up. First, the division of research between affect and cognition is built based on Dolan's and Kim's models, next the actual process of behavior is examined, and later on, different constructs of user behavior are collected for composing a list of possible ways to influence user behavior. It is important to acknowledge that modeling is necessary for the research, but it cannot be perfectly done when the object concerns human behavior.

4.1   Summary model of user behavior and division of research

For this research, the models of Dolan (2012) and Kim et al. (2007) are modified to one summary model that best suits to be the theoretical base of this research (see figure 7). The combination of the models divides the user behavior to the cognition side and affect side. The cognition side is founded in a reflective mind as in the MINDSPACE framework and represented by 'thinking' as in the thinking-feeling model. It is described as the conscious process of knowing and it consists of the analyzation of offered incentives and further on acting in ways that reflect the user's best interest. The affected side is founded in an automatic mind based on the MINDSPACE framework, and it is represented by 'emotions.' This expression is inspired by the thinking-feeling model, but as the actual level is deeper than the concept of feelings, the concept of emotion is selected from Beaudry's and Pinsonneault's theory where the coalition is made between cognition-based research and emotion-based research. Here the emotion-based research is based on the fact that emotions' influence beliefs and attitudes and emotions are defined as "mental state or readiness for action that promote behavioral activation and help prioritize and organize behaviors in ways that optimize individual adjustment to the demands of the environment" (Beaudry and Pinsonneault, 2010). The affected side is described to give more automatic and affective reactions which also include irrational and inconsistent responses to the environment. It needs to be recognized that these concepts of cognition and affect are to some extent overlapping and have a strong impact on each other

which is the reason for the dashed line between cognition and affect on the summary model.
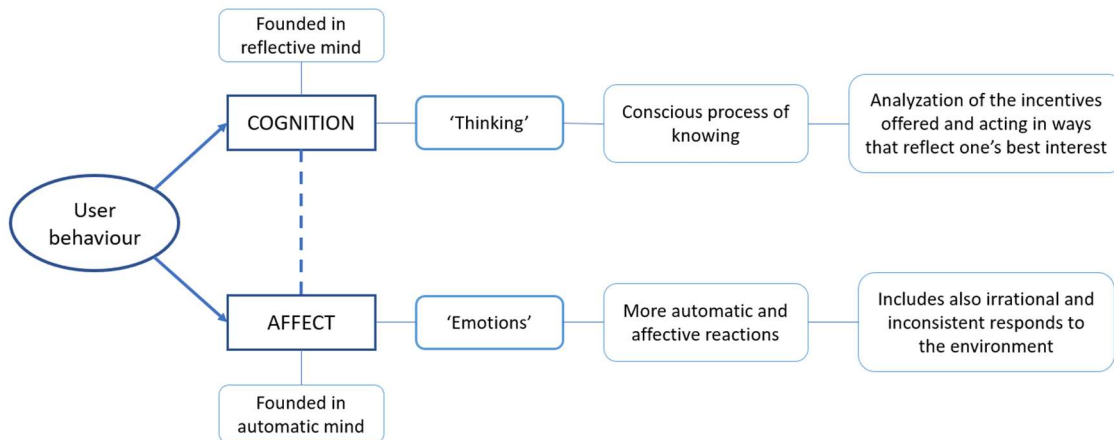
Figure 7 Summary model for user behavior

4.2   Summary of the user behavior models

As a summary, the different constructs of previously introduced models and frameworks are collected to table 2 and 3 based on their similarity so that similar constructs are on the same row. On the first column is the construct that is selected as the most descriptive for all of the constructs of the same row. Most of these describing constructs come from UTAUT which is explicable of its integrative nature, but there are also other constructs that have not been included in UTAUT but which can be found important in this research. These are computer self-efficacy and computer anxiety as well as intrinsic motivation. Few constructs, on the other hand, have been left out of this research based on their relevance in organizational implementation and these are priming that means the influence of sub-conscious cues to people's acts (Dolan et al.,2012) and observability which refers to "the degree to which the results of an innovation are visible to others" (Rogers, 2003, 15-16). Also, the voluntariness of use, one of the UTAUT moderators, is left out as it only has an effect only if the use is mandatory (Venkatesh, 2003). In this research context, the use is always mandatory and this way social influence is taken concern as one of the main constructs.

Based on this, the seven main constructs in the summary model are performance expectancy, effort expectancy, social influence, facilitating conditions, internal control, and intrinsic motivation. There are also three moderators that have an influence on these constructs which are gender, age, and experience to work. In this research these moderators are not examined more thoroughly; just their existence is noticed.

Constructs				
Performance expectancy (UTAUT)	**Perceived usefulness (TAM)**	**performance-related outcome expectation (SCT)**	**Usefulness (Thinking-Feeling model)**	**Relative advantage (Diffusion of Innovation)**
The degree to which an individual believes that using the system will help him or her to attain gains in the job (Venkatesh et al., 2003)	The degree to which an individual believes that using a particular system would enhance his or her job performance (Davis, Bagozzi & Warshaw, 1989).	The performance-related consequences of the behavior such as improvements in job performance (efficiency & effectiveness) that is associated with using computers. (Compeau et al., 1999)	The degree to which a person believes that using a particular system would be advantageous to perform his task (Kim et al., 1997; adapted from Davis et al. 1989)	The degree to which an innovation is individually perceived as better than the idea it supersedes (economic and social factors, convenience & satisfaction) (Rogers 2003, 15-16)
Effort expectancy (UTAUT)	**Perceived ease of use (TAM)**	**Complexity (Diffusion of Innovation)**	**Objective usability (emotion-based TAM, adjustments of perceived ease of use)**	**Trialability (Diffusion of Innovation)**
The degree of ease associated with the use of the system (Venkatesh et al., 2003)	The degree to which an individual believes that using a particular system would be free of physical and mental effort (Davis, Bagozzi & Warshaw, 1989).	The degree to which an innovation is perceived as difficult to understand and use (Rogers 2003, 15-16)	Comparison of systems based on the actual level (direct behavioral experience and results of such experiences) of effort required to complete specific tasks (Venkatesh, 2000)	The degree to which an innovation may be experimented with on a limited basis. (Rogers 2003, 15-16)
Social influence (UTAUT)	**Compatibility (Diffusion of Innovation)**	**Messenger (MINDSPACE)**	**Norms (MINDSPACE)**	**Ego (MINDSPACE)**
The degree to which an individual perceives that important others believe he or she should use the new system. (Venkatesh et al., 2003)	The degree to which an innovation is perceived as being consistent with the existing values, norms, past experiences, and needs of potential adoption (Rogers 2003, 15-16)	We are heavily influenced by who communicates information to us (Dolan et al., 2012)	We are strongly influenced by what others do (Dolan et al., 2012)	We act in ways that make us feel better about ourselves (Dolan et al., 2012)
Facilitating conditions (UTAUT)	**Perception of external control / facilitating conditions (emotion-based TAM, anchors of perceived ease of use)**	**Defaults (MINDSPACE)**	**Commitments (MINDSPACE)**	**Norms (MINDSPACE)**
The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system (Venkatesh et al., 2003)	The drive to performing a behavior to achieve specific goals/rewards (Venkatesh 2000; adapted from Deci and Ryan 1987)	We 'go with the flow' of pre-set options (Dolan et al., 2012)	We seek to be consistent with our public promises and reciprocate acts (Dolan et al., 2012)	We are strongly influenced by what others do (Dolan et al., 2012)

Table 2 Summary of user behavior constructs part 1

Personal outcome expectation (SCT)	Incentives (MINDSPACE)	Salience (MINDSPACE)		
The personal consequences of the behavior that relate to expectations of change in image or status or to expectations of rewards, such as promotions, raises, or praise (Compeau et al., 1999)	Our responses to incentives are shaped by predictable mental shortcuts (Dolan et al., 2012.)	Our attention is drawn to what is novel and seems relevant to us (Dolan et al., 2012)		
Computer self-efficacy / internal control (emotion-based TAM, anchors of perceived ease of use)	**Computer self-efficacy (SCT)**	**Affect -emotional associations (MINDSPACE)**	**Ego (MINDSPACE)**	
Same as in SCT	Individual's beliefs about his or her capabilities to use computers (Compeau et al., 1999)	Our emotional associations can powerfully shape our actions (Dolan et al., 2012)	We act in ways that make us feel better about ourselves (Dolan et al., 2012)	
Computer playfulness / intrinsic motivation (emotion-based TAM, anchors of perceived ease of use)	**Computer anxiety (emotion-based TAM, anchors of perceived ease of use)**	**Computer anxiety (SCT)**		
The degree of cognitive spontaneity in micro-computer interactions (Venkatesh, 2000; Webster and Martocchio 1992, p.204) Intrinsic motivation relates to perceptions of pleasure and satisfaction from performing the behavior (Venkatesh, 2000; Vallerand, 1997)	Individual's apprehension, or even fear, when she/he is faced with the possibility of using computers (Venkatesh, 2000; Simonson et al. 1987)	The negative affective response of individual towards using computers - the feelings of apprehension or anxiety that one experiences when using computers (Compeau et al., 1999)		
	Perceived enjoyment (emotion-based TAM, adjustments of perceived ease of use)	**Affect for computer use - positive affective response (SCT)**	**Pleasure (thinking-feeling model)**	**Arousal (thinking-feeling model)**
	The extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use (Venkatesh, 2000; adapted from Davis et al. 1992).	The positive affective response of individual towards using computers - the enjoyment a person derives from using computers (Compeau et al., 1999)	The degree to which a user feels good or happy with the target object (Kim et al. 2007; adapted from Holbrook et al., 1984)	The degree to which a user feels excited stimulated or active (Kim et al. 2007; adapted from Holbrook et al., 1984)
Moderator: Gender (UTAUT moderator) Moderator: Age (UTAUT moderator) Moderator: Experience (UTAUT moderator)				

Table 3 Summary of user behavior constructs part 2

4.2.1 From triggers to behavior

To clarify, how these constructs influence on user behavior, they are divided into three categories based on the user adaptation strategies by CMUA (Beaudry & Pinsonneault, 2005) - see figure 8. The constructs that have the most impact on the user's experience of the adaptation to be an opportunity or threat are performance expectancy, effort expectancy, and personal outcome expectancy. The constructs that have the most impact on the user's feeling of having either a high or low control on the situation are facilitating conditions and self-efficacy. There are three constructs that do not have an impact on both, and they are positioned in the middle. These constructs are social influence, intrinsic motivation, and computer anxiety. Also, three modifiers that need to be taken into concern and those are gender, age and earlier experience of the work of the user. In this research, the modifiers are only recognized, but their influence is not independently measured.
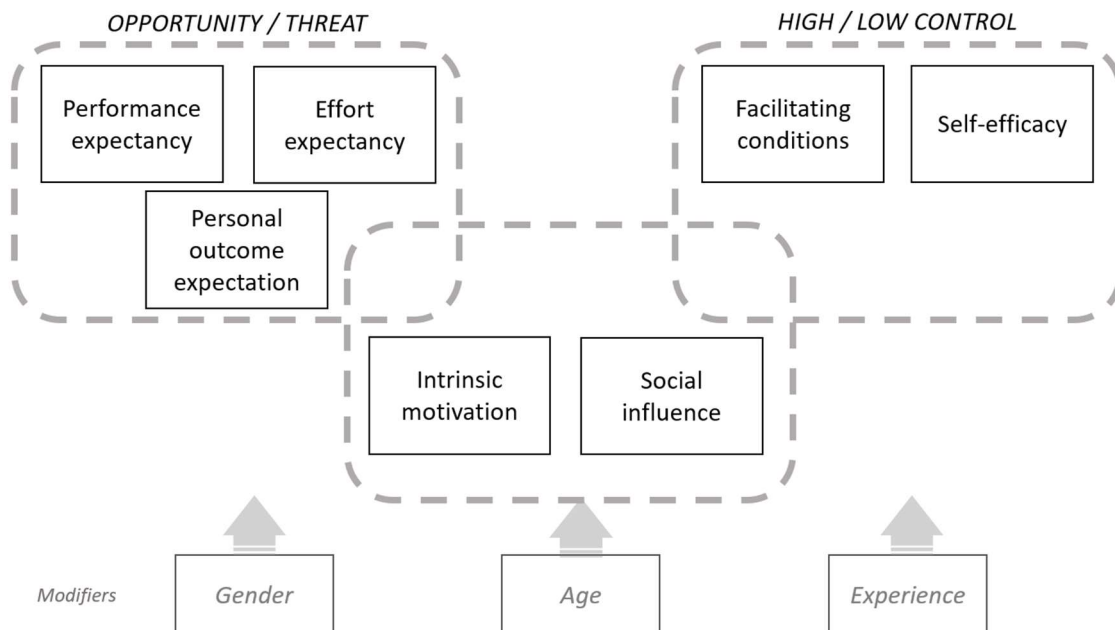
Figure 8 The behavior constructs and adoption strategies

Next step is to combine the adoption strategies with an emotion-focused model of acceptance (Stam & Stanton, 2010) and this way build a model to describe the forming of user behavior in organizational IT implementation (see figure 9). Depending on the effects of the constructs the user will decide whether the adoption of a new system is an opportunity or a threat and whether one has a high or a low control to the situation. This leads to the phase where the user selects the adoption strategy that is either based on approach or avoidance behavior. If a user sees the situation as an opportunity, it is more likely to one to select an approach behavior and depending on the feel of control; the decision is made between benefit maximizing or benefits satisfying strategy. If the situation is seen as a threat, the choice is made between disturbance handling or self-preservation

depending on the level of control. These behaviors will either provoke promotion-focused or prevention-focused effects to an emotional reaction.
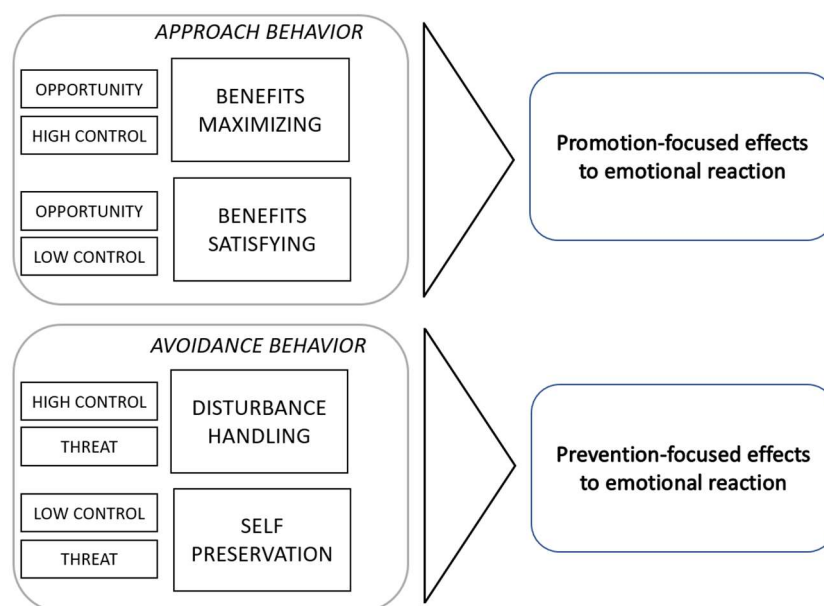
Figure 9 Behaviour development

4.2.2 Constructs of behavior and ways to influence them

Based on the constructs on table 2 and 3, it was possible to name the main constructs, sub-constructs and collect factors that have an effect on them. These factors gave the possibility to find also more concrete ways to influence constructs and further on to the whole behavior as shown in figure 10. These constructs, sub-constructs, factors, and ways to influence them are introduced in table 4. The first main construct is performance expectancy. The degree of the perceived usefulness has been seen affected by how well it helps to attain gains in the job (Venkatesh et al., 2003), how well it enhances job-performance (Davis, Bagozzi & Warshaw, 1989), how useful it is seen (Davis et al., 1989) and by the amount of relative advantage (Rogers 2003, 15-16). As the first two are similar, they have been combined as one. Compeau et al. (1999) say that improvements in job performance that is one performance-related consequence are efficiency and effectiveness. This is why they are added as ways to influence factors where the new system helps to attain gains in the job and enhances job performance. The second factor, usefulness is from the thinking-feeling model, and this research gives few methods to enhance the thinking part of the implementation process. These were enhancing functional usefulness, maximizing the utility of the system to the user and designing a system by focusing on the user's needs and desires (Kim et al., 2007). The final factor, relative advantage, is defined as "the degree to which an innovation is individually perceived as better than the idea it supersedes which refers to social factors, convenience, and satisfaction" (Rogers 2003, 15-16). Rogers says that the greater this advantage is, the more rapid is the rate of adoption.

The economic factors in this context are not that related, so they have been left out of the table (Rogers 2003, 15-16).

The second construct is the effort expectancy, and its factors are the degree of ease (Venkatesh et al., 2003) and easiness to understand and use (Rogers 2003, 15-16). One way to influence on the easiness to understand and use the system is the experience (Venkatesh, 2000). Experience refers to objective usability that means the comparison of systems based on the actual level of effort. As the expected degree of ease is often based on beliefs from before the actual use, trialability (an innovation of diffusion) can also give a better view of the easiness of the system. This can be executed for example with a trial of the system in training.

A third construct, personal outcome expectation means the personal consequences of the behavior (Compeau et al., 1999). The factors of this construct are divided into incentives, that stands for the rewards and saliency, which refers to more personal needs and wants (Dolan et al., 2012). For both, Dolan has named certain ways to influence them. First of all, incentives are usually rated by their type and magnitude, but also their timing in the process is relevant. In an organization the reference point, which means the amount of change for the individual, is crucial. When setting an incentive, it is also important to acknowledge that losses loom larger than gains. It means that incentives cannot correct all as the losses usually have a larger meaning to people. On the other hand, there should be noticed the fact that people tend to overweight small probabilities so that even a quite large effort towards small probability to win or gain something else does not have an effect on individual's decisions. Also, when designing how to sell the new change to users, the salience has an important part as people's attention is drawn into things that are novel and relevant for them individually. The messages and stimuli are important – they need to be novel, easily accessible and simple for to be noticed (Dolan et al., 2012).

The fourth construct is facilitating conditions, and it is divided into two sub-constructs. First is the organizational and technical infrastructure and the second is the external control. Rogers has named different organizational characteristics that have an impact on the innovation process, and these characteristics are set as the factors of infrastructure. The characteristics are divided into three groups, individual, internal and external characteristics — for example, a leader's attitude effects on the employees' reactions toward the change. Also, the organization's internal characteristics create a certain atmosphere and also operating models can either make the change easier or slow the process down — these characteristics concerns decision-making, resources, and internal social networking (Rogers, 2003, 411-413). External control consists of three factors that are norms, defaults, and commitments. Dolan (2012) says that there are both social and cultural norms that influence people in the organization. Even though part of these norms is generated through time by themselves, they can be utilized and even pushed in the right direction if needed. Especially the wanted norms should be reinforced somehow, and new desirable norms brought to common knowledge within the organization. These both should be executed so that it is as appealing to the target

population as possible. The similar idea also works with the overall working in the organization. People tend to "go with the flow" and select the default option even though it would not be the best option for them. This needs to be recognized and also utilized by setting the default in a way that brings the best solution for the organization and the user. To get the users more involved, one of the ways that external control could work as a tool could be committing the users. Even just a simple pre-commitment can help to achieve long-term goals, in this case succeeding with the implementation as people naturally seek to be consistent with their public promises (Dolan et al., 2012).

The fifth construct is internal control (Venkatesh, 2000), that can also be called computer self-efficacy. It refers to beliefs about own capabilities to use computers (Compeau et al., 1999) which has three factors; affect, anxiety and ego. Affect here means the act of experiencing emotion and it can be influenced by provoking the emotion for example when marketing the new system to new users (Dolan et al., 2012). Anxiety can be seen as the opposite of positive emotional reaction as it describes the possible apprehension or even fear concerning the use of computers overall (Compeau et al., 1999). By influencing on affect towards the system, the anxiety may decrease, and more positive reactions increase instead. The ego in this context means "the desire to act in a way that makes people feel better about themselves" (Dolan et al., 2012). The phenomenon of people viewing the world through attributions that tend to make one feel better about oneself can be used as a tool when trying to sell the change to the employees. Another thing that ego provides is the recognition of self-conciseness which means that it is easier to first change the attitude instead of the actual behavior (Dolan et al., 2012).

The sixth construct, intrinsic motivation plays somewhat with these same factors. Venkatesh describes it as the degree of cognitive spontaneity, its factors, perceived enjoyment, and pleasure are rather similar, and they can be influenced by the same ways. For example, enjoyment can be offered with modern system interfaces which can be interactive or include multimedia possibilities. The aim is to have a positive impact on user feelings which means that the emotional aspects need to be considered in more particularly when designing services for the system and later on also advertised in a way that appeals to that emotional side of the users during adoption (Venkatesh, 2000). Affect for computer use (Compeau et al., 1999) is connected to this construct as it can be seen part of the intrinsic motivation and also arousal is part of this construct as it describes the degree to which a user feels excited, stimulated or active (Kim et al., 2007). Because these two were seen more as a part of the construct than actual sub-constructs, they were left out of the table.

The last construct is the social influence, and it has three factors which are compatibility, the role of the messenger, how other expects one to use the new system, ego and norms. Compatibility means "the consistency of the new system with the existing values, norms, past experiences, and needs of potential adoption" (Rogers 2003, 15-16). Rogers says that innovation that is compatible is adopted faster and more easily than incompatible idea as the incompatible innovation often requires the first adoption of a new value system which is a rather

slow process. This has similarities with the self-conciseness that was mentioned earlier with the internal control construct. Compatibility can be seen as a base of overall acceptance of the system in the social commune of the workplace as well as an individual's feelings towards the system. As social influence has already been mentioned as one of the most important influencers, the signification of the messenger, who informs about the change, motivates or work as a leader is great. First of all, Dolan points out that if the messenger has something similar in characteristics with the recipient, it is easier to accept the given information or instructions. If the recipient has negative feelings towards the messenger for some reason or a feeling of distrust, the message and the respond to it might be affected by them. Some might even have overall automatic defense towards formal sources, and the higher the message comes from the hierarchy, the more difficult it is to be accepted. Sometimes the evaluation of the messenger might be more conscious, and recipient judge messenger's convincingness by mirroring the consensus across society or consistency across occasions (Dolan et al., 2012).

Social influence means of course also the fact of how others expect one to use the system. Ego explains why people tend to think the same way for groups that they are identified in. This highlights the importance of social networking, social influence and the overall atmosphere of the change. This is closely related to norms that might have a great impact on an organization. Dolan describes that these norms can sometimes have an undesired impact as for example descriptive norms can backfire in a situation where people finds out others behaving worse than they do which gives an opportunity to lose one's own standards or to ignore rules that are not followed by others too. Another example is the lifting force of declarative norms which means that people are influenced more by other's behavior that they can actually see or what they believe is happening than norms that refer to what they should be doing (Dolan et al., 2012). These are things that can be utilized in the implementation process by influencing the existing norms.

Construct	Sub-construct	Factor	Way to influence	Examples
Performance expectancy		The degree of helping to attain gains in job		*By providing a system with tailored functionalities that fulfill the specific performance needs that users have.* ***** *Usability of the system should be able to satisfy all users and offer improvements compared to the previous system.*
		Enhancing job performance	The efficiency of the system	
			The effectiveness of the system	
		The usefulness of the system	Enhancing functional usefulness	
			Maximizing utility of the system to the user	
			Designing the system by focusing on the user's needs and desires	
		Gained relative advantage	*Social advantage*	
			The convenience of the system	
			Satisfaction for the system	
Effort expectancy		Degree of ease	Trialability of the system before use	*Providing quality training before the implementation*
		Easiness to understand and use	Earlier experience of different systems	

Construct	Sub-construct	Factor	Way to influence	Examples
Personal outcome expectations			The magnitude of the incentives	*Providing possible incentives and plan the process so that they have the maximum effect on employees.* *** *Design the informing as appealing as possible by using basic principles of advertising.*
			The timing of the incentives	
			Amount of change for the individual	
			The understanding of the tendency to overweight of small probabilities	
		Expectations of rewards / incentives	The understanding of the tendency for losses to loom larger than gains	
		Salience for the individual in communication	Making stimuli novel, accessible and simple	
Facilitating conditions (external control)	The organizational and technical infrastructure supports the use of a system	Individual characteristics	Leader's attitude toward change	*Making sure that managers and people that are involved with the informing or training are motivated, enthusiastic and that have the skills to move these on to the user.* *** *The project is easier if the organization have enough resources, the processes are flexible, and employees have good networks inside the organization.* *** *Employees should not be let to take the "default" way (with training, system preferences, etc.) if it is not designed to be the best option to all.* *** *By committing users to the project, it is possible to gain better results.*
		Internal characteristics of a organizational structure	Organizations de-centralization in decision making	
			High level of employees' professional knowledge and expertise	
			De-formalization of the organization	
			Interconnectedness of the employees	
			Organizational slack of resources	
			Size of the company (the bigger, the better)	
		External characteristics of the organization	System openness	
	The drive to performing a behavior to achieve specific goals / rewards	Norms of the organization	Letting people know about desirable norms	
			Relating norm to target people	
			Reinforcing of the norms	
		Defaults	Offering structured default options or requirement of choice	
		Commitment	Getting people to make a pre-commitment	
			Offering symbolic goals	
			Increasing costs of failure	
			Utilizing the reciprocity (desire for fairness)	
Self-efficacy (internal control)	Beliefs of own capabilities	Emotional associations	Emotion provoking	*Planning marketing in a way that motivates future users will enhance emotional associations.* *** *Selling the personal change as a part of the whole process will promote attitudinal change.*
		Computer anxiety		
		Ego	Understanding that people view the environment through attributions that makes them feel better about oneself	
			Understanding self-conciseness - attitude is easier to change that behavior	

Construct	Sub-construct	Factor	Way to influence	Examples
Intrinsic motivation		Perceived enjoyment Pleasure		*Provides pleasure for example by investing in the appealing interface or by offering functionality that is not necessary for the use but gives an extra enjoyment for the user.*
			Offering interactive and multimedia interfaces which enhance user feelings like pleasure	
			Advertising the emotional aspects (for example peace of mind)	
			Providing new services considering the emotional aspects	
Social influence		Compatibility with the social environment	Improving consistency with the existing values, norms, past experiences, and needs of potential adoption	*The system needs to fit also to the values and norms that the work environment already has.* *** *It is best that the informing comes as close from the end user as possible.* *** *If the majority of the work team has negative feelings towards the new system, it is more likely that the rest of the team will change their opinion too.*
		The role of the messenger	Finding similarity of characteristics between the receiver and the messenger	
			Noticing possible automatic defense towards formal sources	
			Observing overall feelings towards the messenger	
			Cognitive inconsistency	
		How others expect one to use the system	Making observations of the social influence in general	
		Ego	Understanding that the individual thinks the same way for groups that one is identified in	
		Norms of the organization	Understanding that descriptive norms can backfire	
			Taking into account the lifting force of declarative norms	

Table 4 Constructs and ways to influence them

5 METHODOLOGY

The thesis consists of two parts that are a literature review and empirical research. The literature review aggregates the main theories together and sums up the different ways to impact on user behavior. These ways are compared to the target organization's used ways that are collected with preliminary interviews for management and different roles of the project. Later on, these collected ways are gathered and used as a base of theme interviews for final users of the new system. This chapter gives a more detailed view of the methodology of the empirical research by introducing the selected data collection method, execution of theme interview as well as analysis and reliability evaluation of the results.

5.1 Data collection method

The empirical research is executed in a large industrial organization that is in the middle of a large-scale enterprise resource platform (ERP) enabled business transformation that consists of new ERP system implementation and also processes changes. The reason for selecting a large implementation project gives better opportunity to get versatile results and obtains more likely highly developed change management, project planning and this way different ways to influence the end users.

Qualitative research was selected research method for this research as the aim is to examine users' feelings toward the implementation. Stake (2010) emphasizes the fact that qualitative research is mostly based on human perception and understanding which means that personal experience, intuition, and skepticism are important parts of it. It is important to realize that there are always two separate but simultaneous realities, personal experience and the reality of group relationship, that exist in every human activity. Even though these two connect to each other, overlap and even merge but are always recognizably different. As he says, "what happens individually is much more than the separation of collective relationships"(Stake, 2010, 11-18). Stake (2010) has also named few of the special characteristics of a qualitative study which consolidates the choice as it is seen interpretive, experimental, situational and personalistic and it can

aim at knowledge production, emphasize the most logical view and work toward generalization (Stake, 2010, 15-16), which are goals of this research.

One of the most common methods of qualitative research is interviewing (Stake, 2010, 18) which is also selected to this research. Actually, according to Myers and Newman, it is the most common and also most important data gathering tool of qualitative research in IS research. Hirsjärvi & Hurme emphasizes interviews as a method that helps with clarifying the answers and getting deeper with the collected information for example by requesting more argumentation for the answers or with asking additional questions. They highlight the interviewee's role as a subject in the interview situation where one needs to have an opportunity to bring up matters concerning oneself as freely as possible as the interviewee is an active party of the research that creates meanings (Hirsjärvi & Hurme, 2008, 35). The most used type of qualitative interviews is the unstructured or semi-structured interview where there is only an incomplete script. This gives room for improvisation, but there might be some of the questions prepared beforehand (Myers & Newman, 2007).

5.2 Execution of interviews

There are two types of interviews in this research. The preliminary interviews are directed to managers and other levels of the project organization. In these interviews, the interviewees are selected discretionarily. As Hirsjärvi and Hurme explains, it is more useful to select only few interviewees by their knowledge and suitability to the research when the purpose is to understand certain event more deeply, to get information about some local phenomenon or to find new theoretical views to events or phenomenon (Hirsjärvi & Hurme, 2008, 58-59). In this case, the primary interview's aim is to collect more information about the project, project organization, the implementation process and ways that are used to impact on end users' behavior. The selected interviewees are the Head of change management in the change program, communications specialist of the roll-out, business transformation owner and global implementation owner. The preliminary interviews are more semi-structured than the primary end-user interviews as there is certain basic information needed. Even though some of the questions are prepared beforehand, this type of interview requires flexibility, improvisation, and openness from the interviewer (Myers & Newman, 2007). The questions are from three different topics; background, the user as part of the implementation project and additional questions based on interviewees role in the project. Background questions were divided into three categories which were interviewees own background (job title and role in the project), organization (decision-making, support in change, etc.) and the project itself (why is needed, who are involved, project organization, other stakeholders, current status, etc.). The user's role was first examined by interviewees thoughts about the amount of change for an individual and the importance of users' role in general in this kind of a project. Then the most important question collected the different ways that the

organization had or was going to use to influence the users in different phases (before, during and after) of the implementation. Also, additional questions were possible; for example, an interview of a communications specialist consists of more detailed questions about communicational ways. These questions were for example: Do you think that communication can have an impact on the end user's behavior? What ways of communication has been used in this project? What has been challenging with communication in this project? The interviews took from 45 minutes to 90 minutes depending on the discussed topics. The average duration was 55 minutes. Two of the interviews were kept in the offices of the interviewees in Jyväskylä and two via Skype as the interviewees worked in another location. The interviews were executed during office hours in February 2019.

The primary interviews concern the end users and are the main results of the empirical research. Kvale has claimed that the number of interviewees is usually problematic as there often is too many or too few interviewees in qualitative research. He also points out that the most ordinary number of interviewees is 15 (Kvale, 1996 ,102). This is why there were planned 15 primary interviews in this research. The end users are from three different business units which are under the same business line, and the interviewees were suggested by the global implementation owners from each unit. This gives a wider perspective to the results, but the same business line assures that the usage of the new system is rather similar. Some of the interviewees had a special role in the project as key users which gave a new perspective to the topics as these interviewees had a deeper outlook on the project and its goals. As the aim is to consider different ways of influencing end users, it is crucial to minimize social dissonance. In these interviews, the selected interview type is theme interview with only a few key questions and use of mirroring technique. According to Myers and Newman, mirroring means taking some of the interviewee's used words and phrases and constructing a subsequent question based on them. This allows better focus on interviewee's world as the interviewee is able to explain it in one's own words. It is important to use rather open questions, focus on common events and stories and move from general to more specific topics. This technique demands skills of listening, prompting, encouraging and directing the conversation from the interviewer (Myers & Newman, 2007). In the first interview, the constructs that were previously found from the literature were used as themes, but it was noticed that they were too specific for truly open discussion. This is why the constructs were later on divided under four main themes that are the system, the organization, the user and the social environment related ways to influence the user (see Figure 10). This theme division was used in all of the next 14 interviews as a support material. The used frame for the primary interviews can be found in Appendix 1. These interviews took from 38 minutes to 72 minutes, and the average duration was 56 minutes. The interviews were executed in the target organization's own conference rooms during office hours in March 2019 so that the interviewee's participation was as easy as possible.

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┌─────────────────────────────┐   ┌─────────────────────────────────┐
│           SYSTEM            │   │         ORGANIZATION            │
│                             │   │                                 │
│  ┌──────────┐ ┌──────────┐  │   │ ┌────────────┐ ┌──────────────┐ │
│  │PERFORMANCE│ │  EFFORT  │  │   │ │ORGANIZATIONAL│ │EFFORTS TO DRIVE│ │
│  │EXPECTANCY │ │EXPECTANCY│  │   │ │AND TECHNICAL │ │   USER TO     │ │
│  │          │ │          │  │   │ │INFRASTRUCTURE│ │  ACCHIEVE     │ │
│  └──────────┘ └──────────┘  │   │ │            │ │CERTAIN GOALS  │ │
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┌─────────────────────────────┐   ┌─────────────────────────────────┐
│            USER             │   │       SOCIAL ENVIRONMENT        │
│                             │   │                                 │
│ ┌──────────┐ ┌──────────┐   │   │ ┌────────────┐ ┌──────────────┐ │
│ │ PERSONAL │ │SELF-EFFICACY│ │   │ │COMPATIBILITY│ │  MESSENGER   │ │
│ │EXPECTATIONS│ │          │ │   │ │            │ │              │ │
│ └──────────┘ └──────────┘   │   │ └────────────┘ └──────────────┘ │
│      ┌──────────┐           │   │        ┌──────────────┐         │
│      │ INTRINSIC │           │   │        │SOCIAL IMPACT │         │
│      │MOTIVATION │           │   │        │              │         │
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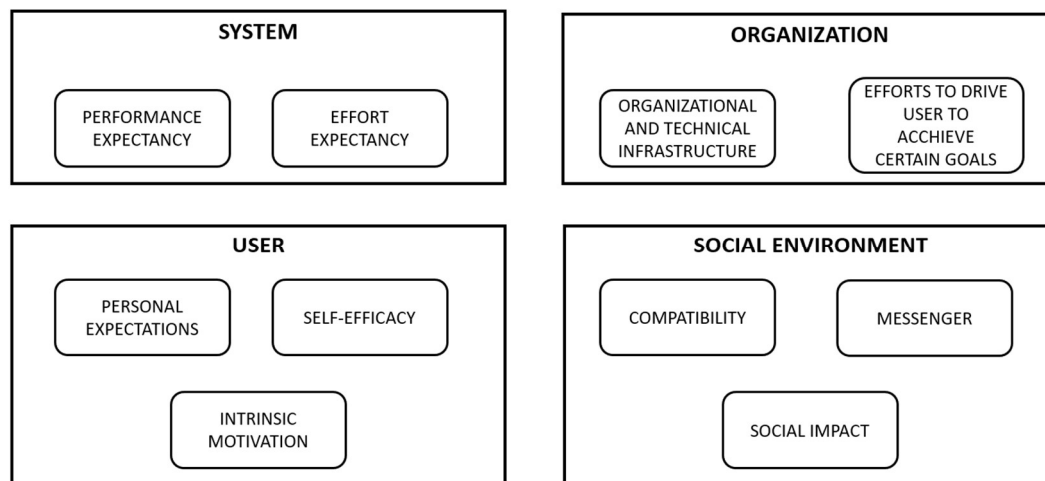
Figure 10 Interview themes

Myers and Newman have brought up some problems and pitfalls that might occur with qualitative interviews (Myers & Newman, 2007). These have been taken into concern as follows. The artificiality of the interview and lack of trust are potential problems according to Myers and Newman (2007). In this research, the fact, that researcher has an earlier work history in the company, and this way is known with most of the interviewees, makes the interview situation easier and interviewer more trustworthy. There has been taken an hour for each interview which helps to mitigate the problem of lack of time (Myers & Newman, 2007). The research has been started with the business transformation owner and the global implementation owner who are from the managerial level of the project but also grounded strongly to the end users. This means that the pitfall of the level of entry (Myers & Newman, 2007) can be bypassed as it has been easy to reach for a higher level of the change program as well as for end users.

As the interviews are done in different levels of the change organization, the elite bias (Myers & Newman, 2007) can be avoided too. The last potential problems, hawthorne effects, constructing knowledge, the ambiguity of language and interviews fraught with fears, problems and pitfalls, concern more about the interviewer. It is important that the interviewer understands that the interview is always an interaction with the interviewee (Myers & Newman, 2007) which makes the interview quite fragile. The interviewer needs to maintain as neutral as possible, use clear language and make the interviewee feel as comfortable as possible. Luckily the topic of the research is not highly sensitive even though it does relate to interviewee's emotions and feelings. As Myers and Newman say, the construction of the knowledge is a difficult task as the interviewee construct their stories by reflecting on issues that might be considered explicitly for the first time. This story must be knowledgeable, rational, logical and consistent (Myers & Newman, 2007).

5.3   Analysis of the material

As Hirsjärvi and Hurme say, material that is collected by theme interview is usually abundant, and this is why it is important to plan the analysis during the interviewing process (Hirsjärvi & Hurme, 2008, 135). The selected analysis method is based on one of the different ways of analysis by Eskola and Suoranta which starts with breaking the material into smaller parts, then continues by coding it and after that ends with the actual analysis. In the first part, the material is transcribed and then gone thoroughly through. After that, based on the interview's question frame, the theme register is built by marking appropriate theme numbers in the material and later on by selecting each team's text part into their own theme cards. This coding will change and grow during the analysis (Eskola & Suoranta, 1998, 109-115). After the coding, starts the meaning analysis, which can be done in different ways. In this research, the used ways are meaning compaction, which means that the meanings that interviewee has brought up are verbalized in a shorter form (Hirsjärvi & Hurme, 2008, 137).

In this research, the previous is taken into concern, and the process of analyzing the material is started first by transcribing the recorded interviews into written documents in suitable accuracy. By this accuracy, the unnecessary discussions or stories during the interview are left transcribed. As the researcher has done the transcribing herself, it has been clear to recognize those parts of the discussion that are general and not related to the research particularly. After the transcriptions have been made and saved properly, the material is gone through. The preliminary interviews are coded straight to printed transcriptions as there are only four interviews to go through and in all of them, the main focus is a bit different caused by different focus points based on the interviewee's role in the project. The different used ways to influence the end users are collected based on the interview and observations are documented in the research. This part of the research acts as a base for the second, primary part, of the interviews.

The theme register in the primary interviews follows up the classification that is based on the interview themes and divided under main categories that have risen from the interviews. Excel chart has been a good tool to collect thoughts and to sort them. This way it has been easy to find the general opinion of the employees and also possible alternative views for the topics. Each interview has been gone through systematically so that first the background information is collected to the background table and then the feelings and comments concerning the different phases of implementation are collected on their own table. In the last phase, the main themes of different ways to influence end users that are the system, the user, the organization and the social environment are collect each on their own tables. Codes for different ways are collected through the whole work phase so that there are build clear entities under each of the themes. For example, under the theme of an organization, such codes are training, the role of the key user and communication. After all, interviews have been gone through the tables can be sorted out by the codes and this way it is easy to build

up a general view of each one of them. Later on, these are going to be handled in the research firstly by themes and then by codes and the users' feelings, and thoughts concerning them are introduced as widely as appropriate. The interviewees are presented by their gender and age. In situations where the answer is given purely based on the key user role, the status is informed instead of interviewees gender. After this, there is drawn conclusions about how the different ways to influence end users' behavior can work and what thing s needs to be considered when using them.

5.4   Reliability evaluation

The evaluation of the research is tight up to analysis of the material in qualitative research (Eskola & Suoranta, 1998, 151). Obviously, as Hirsjärvi, Remes, and Sajavaara say, mistakes are always tried to be avoided in research, but the reliability and validity may vary. The reliability of the research means the repeatability of the research, which is, does it give non-random information (Hirsjärvi et al., 2007, 230-231). The results of this research are bounded into a specific time and this way they are no reliable in a longer time span. Despite that, it is likely that if the research were done again, the results would be rather similar. This results from the fact that the results represent the common opinion that is risen from the interviews.

The validity of the research, on the other hand, means the ability to exactly measure what was intended to measure (Hirsjärvi et al., 2007, 232). Validity issues can, for example, occur in qualitative research in the differencing understanding of the interviewer and interviewees. This problem is yielded by forming the questions as simply as possible and using, especially in secondary interviews, the familiar concepts concerning the implementation project and everyday language that is easy to understand. Also, all interviews are kept in Finnish to make sure that both parties of the interview can use and understand the language in the best possible way. If needed, the additional questions were asked and used contexts or words clarified. For the research paper, the answers were translated into English as exact as possible, and special attention was given to keeping the message similar to its tone and nuances.

6 FINDINGS

As the empirical part of the thesis consists of two different interview types, the findings are also divided into two main parts. In the first part, the implementation project is introduced more detailed, and the structure of the project organization is described. The second part concerns the secondary interviews for end users where the actual results are represented and justified.

6.1 The implementation as a project and preliminary interviews

The research was started with preliminary interviews for representatives from different levels of the implementation organization. The head of change management works in the change program and is in charge of the program's organizational change management, and communications specialist of the roll-out takes care of the roll-out specific communication and is responsible for the communication plan. Other interviewees are the business transformation owner represents the business line in the program and coordinates operations in the business line, the global implementation owner, who manages the overall implementation and takes care of schedules. The meaning of the interviews was to first give an understanding of the whole project, the project organization and other details concerning the implementation. This was also supported with other materials such as internal communication material and previous survey for the end users that was executed by the change program. The second aim of the interviews was to map different ways to influence end users' behavior that was used in this particular project and interviewees' own thoughts concerning those.

6.1.1 The implementation project

In 2015 the organization was the IT department started an investigation concerning the problematics of having globally over 20 different ERP-systems simultaneously in use as a result of mergers and acquisitions that had received thousands of customizations. This has increased costs and complicated maintenance and system development. Because of this, in 2016, the

organization's management came to the conclusion that the new central and modern ERP system was needed to simplify the IT landscape and increase the efficiency of operations and system maintenance. Another strategical problem was also varying ways of working across different product lines that argued with the strategic aim to have excellence in processes.

> "The ultimate reason for the change is that the older system cannot shortly be used anymore as it is at the end of its road. Then another reason is that it has been seen important that these systems and working ways are unified globally." *Global implementation owner*

These both together make the foundation of the ERP enabled business transformation program which purpose is to ensure operational excellence by designing & implementing a standard project and service delivery processes by using the central ERP application through the whole organization. The original estimation of users was at the beginning of 6000, but as the project has continued, the amount of users has rapidly risen. The actual implementation is executed in several roll-outs. In every roll-out, there is a set go-live date when the implementation as a big bang-start. This means that all users in the same roll-out will change to the new system once at the same time. Estimated time of completion is in 2021.

The ERP enabled business transformation program's core team consists of 40 organization's employees that form small teams that are responsible for processes. The structure of the project organization is presented in figure 11. They are supported by consultants from the partner that is responsible for the software and from a consulting company that has expertise in project management. Additionally, there are also over 300 organization's members that act ass representatives by providing their own business line expertise to the program. These are business transformation owners that are responsible for scope management decision making and business sponsors who support the changes by standing behind them and being part of the decision-making. At the beginning of the project, there were nominated 260 subject matter experts who represent the special experts on their field. Experts formed the blueprint that covers all the business processes which means that they had a key role in building the new system. Nowadays 200 of them works as a key-users who train and support the end users.
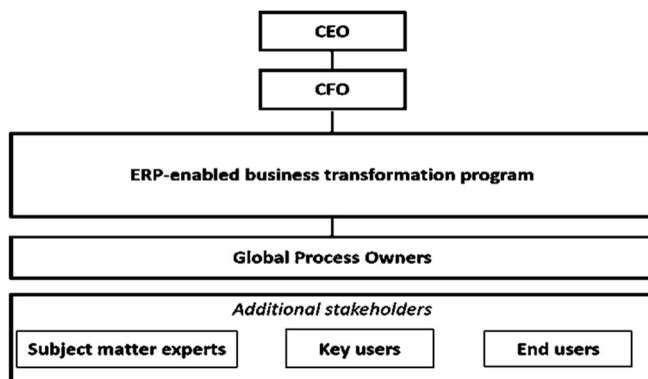

Figure 11 Structure of the project organization

6.1.2 Used ways to influence users

The preliminary interviews summarized well the overall understanding of different tools that are used in the implementation project. It also made clear that all the interviewees had a similar vision of the project, the purpose of it and their own role in the project. It was commonly acknowledged that the end user's role in succeeding implementation is prominent. There were noticed two main ways to influence user behavior which were communication and training, and they both have multiple purposes. The used ways to influence user behavior are collected in table 5 and introduced further on below.

WAY TO INFLU-ENCE	CHARACTERISTICS	WHY
Communication	From up to down	Messenger is the user's own manager who knows what information is needed and how it should be brought to the knowledge
	Different sources	Possibility to get the same information from different sources multiple times
	All material is free for use	There is enough information, maybe even too much
Training / support	Train the trainer	The trainer knows what kind of information the user needs and comes from close
	Key users	Selected by the business units - the best people for the task!
		From the same level as the end users - easy to ask and accept support from
	Managers	Important role as a communicator
		Important role as a support and motivator
Social environment	Organization's culture	Accuracy and preciseness, on which people are used to, cannot actualize in IT projects
	Social contractiveness	The word goes around in both good and bad
User	Possibility to get heard	Possibility to propose changes or fixes
		Different types of surveys
	Support	Support from key users and managers + team spirit
The system	Good industry fit and system capabilities	Better performance
	Visual interface	More comfortable to use, easier to use
	Role based authorization	Safer, more convenient content
	Not ready yet	Unstable at the moment

Table 5 Used ways to influence user behavior

6.1.3 The beginning of the project

The system itself has been selected instead of others as it had better industry fit based on supplier's industry knowledge and system's capabilities, strong focus on collaboration as an organization has good ability to influence on supplier's development portfolio, and it was recommended by IT department based on findings of benchmark testing. The system has a better interface than the old one, and it is more logical in use.

"The user interface is distinctly better than in the old system, and another thing that we want to invest into is this role-based interface thinking that impacts there in the background." *Head of change management*

One of the main issues with the new system's acceptance concerns the high level of modification in the old system. As the old system has been in use for over 20 years, it has been modified very specifically for different usages. Now, especially when the processes have been unified, some of the tasks need more time and effort to be done. This may deform the perceptions of systems usability and convenience.

The implementation project in a business line starts with the selection of the management group whose task is to nominate the needed key users, key managers and name other important roles for the project. This core team starts planning and prepares the project plan. This means that they are the main communication contacts for the change program team and the actual end users might still not be even recognized. The program's organizational change management is responsible for all the communication in the program and in the roll-outs, and it engages the different stakeholders such as line managers. The program does not do the communication, but they support the roll-outs, supports the forming of the messages and makes sure that everybody in the communication network works by the same rules. The program, based on this, supports the business line and its head of communication with the communication plan. The communication plan has an important role as it shows when the management group of the roll-out has meetings, when the decisions are informed for the business line management group and when the information is moved to the line management calls, when different workshops are organized and when the newsletter are sent. In short, the communication plan sets the target groups and specifies what kind of messages each group needs.

6.1.4   Communication as a part of the project

The communication process is first of all done in stages, and the message is always moved from the program step by step to the end user. The reason for this is the better targeting of the messages to the receivers when the messenger is their own manager.

"The concentrated communication is not necessarily the best way to influence users feelings. Actually, we have tried hard to communicate to managers that they would transfer the message to the end users as it is important that the message comes from somebody the end user knows and more efficient when it is received in a face-to-face situation." *Communication specialist of a roll-out*

Of course, there is also concentrated communication, mostly via e-mail, but its main aim is to inform the receivers. The communicational part of the program has got relatively good rates in surveys, but there have been some challenges. As the whole project is so large, the planning of the overall communication is not an

easy task. It has been noticed that end user's long for more targeted messages that would give more details about how the changes affect them individually and in the working group they belong to. It is not possible to give this level of concreteness from the top of the program, and much of the responsibility lies on the managers of the end users.

> "The development team of the program has done systematic work with the communication so that the change has been recognized early enough and I believe that the information has reached reasonably well the receivers." *Business Transformation Owner*

> "The attitude of the managers, that they are involved with the project and they believe in it is important. They need to be given the information so that they are able to follow it and that they know what is coming up and so on. It is crucial that they take it to heart so that they are able to tell about it in a positive way …If there is uncertainty and they don't know themselves where things are going, the feeling is noticed in the lower level, and it will affect the end users too." *Communication specialist of a roll-out*

Problematics in communications are related first of all to the line managers role. The change program takes care of the different interest groups such as manager groups and managerial level overall and tries to make sure that they understand what kind of activities the implementation includes and what issues they need to communicate forward actively. Even though the line managers are provided with communication package of their own implementation project with needed advice and guidance, the hurry and other duties concerning their roles can be found obstacles in the way of sufficient communication.

> "To end users, the arrival of the messages varies considerably depending on how fast their manager catches them up." *Head of change management*

There have been organized info calls for the managers where the status of the project and other relevant subjects are handled. In these occasions, managers have an opportunity to ask and give feedback. These opportunities have not been used as much as they could have been. When the group of people is large, there is a higher threshold to participate in the conversation. Another issue is also the program's language. When people are not familiar with the subject, the possibility to discuss it in their own language has an important role.

> "It is not enough that you receive some kind of newsletter or that you attend some sort of workshop. You need to hear the same thing from your own business group management and from your own manager so that you really understand the message and why it is important." *Head of change management*

Additionally, information can be found from the program's site and from different info boards and screens. One communication channel is also Yammer, an organization's internal social media, which has not been actively used.3 The site includes different contents from the program's team introduction to IT support information, training materials for different groups and for example contact in-

formation of key users. The informing starts in quite an early stage with announcements of becoming changes. It is recognized that these announcements are important as they calm down the anticipations of becoming users. When the information is given about the upcoming changes and schedules concerning the people can be assured that they don't have to worry about it before the time comes.

> "The development team of the program has done systematic work with the communication so that the change has been recognized early enough and I believe that the information has reached reasonably well the receivers." *Business Transformation Owner*

Sometimes it can also be hard to find the relevant information from a large amount of material. Program's material is free of use, but it has not been utilized as much as it could have been. There were found two possible reasons for this. Firstly, the communication of material's free use might not have reached all that it concerns, and secondly, the shortage of abundance might decrease the usage. Especially for the end user, the offered materials in the program's site might be difficult to understand and assimilate when there aren't yet any concrete contact with the system.

6.1.5   Training and key users

The training process is very similar to communication. There is used "train the trainer" -model which means that the process owners and concept owners, who are employees of the organization, will train the key users and the key users will train the end users in the roll-outs. Training and supporting the key user network are also responsibilities of the program's organizational change management. Taking care of the training means more than just scheduling them as there is needed a working version of the system in the training environment, the system needs to contain some basic data for the training and attending users needs to have appropriate access rights to it. The user training is intentionally kept just before the start of the implementation to ensure that all the new information is still fresh in mind when it is needed. Key users do also support users with usage after the implementation. In the beginning, the users are offered with intensified support for the first six weeks. This time period can be rather short depending on the need of use.

> " Of course, the organization will learn, but it will surely take time before there are high-level end users. Especially in operations where the system is not in use all day long, the challenge of learning is real." *Business transformation owner*

The key user selection has been in an important role in the project. They need to have good trainer skills but also exceptional people skills. Some of the selected employees have long experience and vision about the system needs, and others complement the group with young enthusiasm and desire to learn new systems.

To success in the implementation, the user needs to be involved with the change. User's acceptance, willingness to learn and ability to find personal benefits in the change are crucial factors.

> "The end user is the main thing in the project; how we are able to transfer the know-how of the system usage to them." *Business transformation owner*

6.1.6 User as an individual and social environment

For every user as an individual; the change is different. First of all, the actual changes depend on the process that the user is part of and how much this particular process is going to be changed. It needs to be recognized that the circumstances differ considerably between different business areas. There are things that will be changed significantly and understanding of it all as well as figuring out how it should be handled will take quite a long time. In the program level, the sensed attitudes of the users have remained positive. Secondly, the user's own capabilities, motivation and support form the key user has an important role.

> "It (the system) has an impact on the work of quite many people, and at least it adds the stress especially when things don't work, working is slow and all other reasons. In my opinion, this group (change organization) should be able to give at least some hope that things will get better." *Global implementation owner*

The actual motivation toward the change was seen positive in the interviews as the essential reason for the change is easy to understand. The old system cannot be maintained anymore so the change is inevitable and it is easier for the user to be part of it rather than fight back. The users have the possibility to impact on the system after implementation by answering different kinds of surveys and also suggesting possible fixes. This is, however, a double-edged sword as the actual process is quite slow in the beginning when there are several changes waiting to be managed and in some cases, the change is not possible or beneficial for the company to put an effort on it. This can cause a negative attitude and frustration especially when the reasons have not been understood properly.

> "What is really a pity in this from the communicational point of view, is that part of these benefits that are gained from this project are in company level so that all of them are not targeted at to us little ants in here. We might not be benefiting from all of these things. And that is unfortunately just so." *Head of change management*

> "People should not have to feel that they throw their change requests straight to the waist. They will not make a new one when they feel that it is not useful. They will just accept that this system is what it is and work with that for years on." *Global implementation owner*

> "A person can stand in the head of a pole if one knows that it will last only a while. This means that the dialogue in these situations should be enhanced and the waiting time shortened." *Business implementation owner*

One way to ease the possible anxiety towards the change is trialability of the system. The system can be used and learned in training, but the main processes are also gone through the system before the start and this way the usability on different occasions can be ensured beforehand. It is already noticed, that users have open questions about the change that worries them and fears concerning their work becoming more difficult which increases the overall uncertainty towards the change. One finding was that when people work at their own business units and they are not aware of others working ways; it is easy to imagine that own working is some way special and unique compared to others.

The social aspect also rises from the interviews. It had been noticed that employees are curious towards the new system, but the organizational culture which is strongly connected to detailed knowledge, accuracy and finished end results fights back to some extent. This means that typical characteristics of IT project, that are incompleteness, unrecognized future solutions, and ongoing changeability causes annoyance and also worry as the punctuality with customer service might be affected because of the possible problems with the system. One problematic phenomenon is the spreading of negative and sometime even false information rapidly through the organization. As the employees are strongly interconnected and the social network is highly developed, it is difficult to cut wings from rumors and on the other hand strength the impact of good news.

> "I am not sure if it comes from the organizational culture or from the national culture, but especially negative things are communicated very efficiently. In this case, the social network can easily work as an opinion setter for its members." *Business transformation owner*

Especially in the early stages of the usage, as the system is still incomplete and needs a lot of modification and fixing, the negative aspects empathize more in the overall discussion among the users.

6.2   End-user interviews

The second part of the interviews were the primary interviews that concerned the end users of the new system. 15 interviews were done for the end users, and part of them also had specific roles as a key user whose task is to support the team, train the end users and work with testing of the system. The main goal of the primary interviews was to find out which of the used ways to influence end users behavior had an impact actually and what kind of thoughts and feelings the end users had in different phases of the project. The interviews were structured so that it was divided into three part. The first part included background information, the second went through the different phases of the project and interviewees thoughts and feelings during them, and the last part collected different ways that were used to influence end users and their impact on the end user.

6.2.1 Sample of interviewees

Seven of the interviewees were females and seven males. The age range was from 25 to 61, and the average age of an interviewee was 44 years. Most of the interviewees had either business or technical educational background and the working experience in the organization varied from 1,5 years to 33 years, and the average experience was 21 years. The interviewees were from three different business units, five of them from each unit and their job description varied individually from logistics to purchasing and from the foreman duties to project management and to sales. When asking about overall opinion about information technology and computers, most of the interviewees stated to be positive and also interested in new innovations concerning them. The information technology was seen as "necessary evil" that cannot be avoided in the present world and it is meant to ease human tasks. All of the interviewees used information technology, such as smartphones and home computers, also in their free time which can be seen as average use and few of them used it also as a hobby, for example for computer games which can be described more than average use. Most of the interviewees felt that it was quite easy for them to learn to use new systems. Reasons varied from interest to the fact that computers and different kind of system had been part of interviewee's life already from childhood.

"I have used different systems a lot, and I am interested in new systems." *Male, 49*

"Because I have used different systems all of my life." *Female, 25*

"I am interested in finding out the reason why things are done how they are." *Male, 55*

Most of the interviewees used the new system as the main tool in their daily work, and it was used in multiple tasks by all of the users. The overall change that the project had caused on end user's work was evaluated in average as 3,9 in scale from 1 that stands for "not at all" to 5 that stands for "significantly." This covers both, the actual implementation of the system and also possible changes in processes and tasks. The biggest change for most of the users was the actual system because of its role as the main tool.

"System is used as the main tool and processes as well as job descriptions have changed and will be changed a lot in the future." *Male, 26*

"The system is the main tool, and also the processes have changed quite much - they have become more complicated and engages more people than before." *Male, 55*

"Because of the role as a key user, the usage of the new system and also organizational changes." *Female, 44*

Implementation of the new system was done for most of the users in November 2017 and for a few of them in November 2018. Those who have been in a key user role from the beginning of the project have used the system longer than ordinary

end user because of the key user training and possible duties before the implementation. In all cases, the project is still on-going as the system is not completed yet. Also, the process part of the change is not over in some parts of those units that are involved with this research.

6.2.2 User behavior in different phases of the implementation

The users were asked about their feelings and thoughts at the moment when they first heard about the upcoming change. The information about the new system came from different places. Most of the users heard it from the official channels, but the talk about the new ERP system has been going on for years in the organization. That is why it was not that big news for all as it was already expected to come. Few of the interviewees heard about the change when they were employed to the organization. Reactions of the first phase are collected in Table 6. Eight of the interviewees had a positive reaction at this point of the implementation. The main reason was that the old system was known to be out-dated and that its support was going to end in the near future. This means that the change was inevitable. The users had hoped for better functionality and interface, and it was seen as a positive development. The new system was waited to bring relief for the old problems.

> "It is known for a long time that the old system is really old and cannot be used much longer anymore. Even though it has been customized to our own needs so well, it is ancient, and we are supposedly going to get something new and better functioning to replace it. It is always interesting to be part of this kind of change process." *Female, 54*

> "Only change is permanent, and this organization is quite dated in both, processes and systems." *Female, 52*

> " It was an ambitious goal that will take time. I knew straight away that this would be kind of an endless project." *Male, 26*

There were also five interviewees who had a more neutral reaction to the change. Most of them thought that the change would, however, come, so it was no use to fight for it, but it didn't either provoke any enthusiasm. One of the neutral reactions was contradictory as the interviewee saw two sides in the change where one was a possibility to make things easier and other threat of things getting even harder. Two of the answers were negative by their tone. Reactions were quite similar, and the interviewees felt that the times would get difficult.

> "There are always two sides when something new comes - firstly it should make things easier but also the fact that how hard it is to get it." *Male, 56*

> "I was quite neutral. I could not be as afraid as I should have been as I thought just that we would get trained to use it anyway." *Male, 59*

"Not that enthusiastic as it was obvious that there will be problems and lots of work."
Male, 49

MAIN FEELING WHEN FIRST HEARD OF THE CHANGE	QTY
Enthusiastic	3
Hopeful	1
Interested	3
Interested but realistic	1
POSITIVE REACTIONS IN TOTAL	*8*
Receptive	1
Neutral but interested	1
Neutral	2
Contractionary	1
NEUTRAL REACTIONS IN TOTAL	*5*
Times will be difficult	2
NEGATIVE REACTIONS IN TOTAL	*2*

Table 6 Main feeling when first heard of the change

14 of the interviewees saw the change as an opportunity rather than a threat. Even the interviewee who had one of the two negative reactions did still believe that in the end, the new system would bring more good than bad. The reaction was more for the actual implementation process. One interviewee did see the change as a threat.

"I was interested, and because of that, I knew that I wanted to be part of the project." *Female, 44*

"I knew that we need to move forward as the old system was so old, but I also had the thought that there will be hard times ahead of us." *Male, 49*

"It should always be seen as an opportunity when something new is learned, and things are developing." *Male, 56*

The second phase, the moment just before the new system was taken to use, raised new feelings among the end users. Users had gone through some training and been informed about the upcoming change. The situation changed so that five of the interviewees reacted negatively, six more neutrally and four had a positive reaction towards the change. These reactions are collected in table 7. Negative reactions were caused because it was informed that the system did not work as planned and the wishes of the users' were not heard. Also, the organizational change was still unclear, not done at all or it was found that it was done insufficiently in most of the cases. 13 of the interviewees felt that they had control over the project. Two said that they had lost control and felt unsecured.

"We thought that we could plan the processes so that they would work as well as possible but later on we heard about the standard, and we had to change the approach so that what is the level we can manage with." *Female, 52*

"There was certain confusion of the situation. The general message from almost everywhere, the atmosphere and the discussion were that this is not good and it will not get good. I think that I fell for the same than everybody else. The atmosphere was not that enthusiastic." *Female, 54*

"When the implementation was done, we noticed straight away big problems in the system. We all got permission to work overtime, and the mission was to survive." *Female, 41*

The more neutral reactions were a bit milder and caused mainly by the uncertainty towards own capabilities, organization's capabilities, and the system.

"I found out that we also needed organizational change and it caused confusion and also the uncertainty that is this really good or not… The first enthusiastic feelings started to faint." *Male, 58*

"Quite uncertain feelings -I don't know what is expected of me and what tasks I need to handle." *Male, 59*

Because we were implementing the new system with one big bang, it was a bit horrifying to think that we don't have the old system as a backup anymore." *Female, 55*

There were also positive reactions on those who were still waiting for the actual results of the implementation. These interviewees were interested to see what was going to happen and also somewhat trusty for the overall success of the project.

"I was curious to see what kind of system it would be and how the start would go." *Male, 31*

"I had a positive attitude before the implementation." *Male, 55*

"I didn't know what it was going to be so there was no anxiety yet." *Male, 49*

MAIN FEELING JUST BEFORE THE STARTUP	QTY
Positive	1
Interested	2
Trusting	1
POSITIVE REACTIONS IN TOTAL	*4*
Uncertainty	4
Nervous	2
NEUTRAL REACTIONS IN TOTAL	*6*
Negative feelings	1
Chaotic	1
Desperate	1
Disappointed	1
Irritated	1
NEGATIVE REACTIONS IN TOTAL	*5*

Table 7 Main feeling just before the startup

The third phase concerned the time after the system was taken to use in the end user's business function. Feelings were not changed as radically as before, but two of the neutral reactions turned to positive ones. Five of the interviewees had still a negative reaction, three more neutral reactions and seven felt quite positively to the situation. The positive feelings were caused mostly because of the fact that users had learned to use the system better over time and after the actual moment of implementation things started to get fixed one by one. Also, the belief of surviving started to show again.

> "I noticed that the change was not that bad for me as I expected. Tasks take more time than before but I can handle them, and I keep learning." *Male, 59*

> "Routine and learning have made the use faster even though it is still slow. I have been able to find new things and small improvements on my own. I believe that this will become good when the implementation is finally over." *Female, 54*

> "I first thought how unlogical and bad system the system was to our function but now after some development has happened and my own understanding has grown I have found logicality from the system and realized that it is not all woo woo." *Male, 26*

Neutral reactions kept quite similar to before.

> "It is just one system among others, and it works as it works." *Female, 52*

> "I have used to it and can manage with my job." *Female, 25*

Those interviewees that had negative reactions after the implementation were disappointed to the fact that the system was still incomplete. Especially those who were in key user roles had to fight back the disappointment even though the situation was really stressful and hard for them.

> "Still the huge rush is going on, and there are all the time desperate moments with the system. These things come to my dreams, but I think I will manage. I can't say that this is an ideal situation at the moment." *Female, 41*

> "I felt that the implementation schedule was too tight and that the system itself was not ready for us and we were not ready for the system. The testing was dropped out, and the situation caused some feelings of horror and scary." *Female, 44*

> "The system has serious problems and causes stress. I cannot trust the system, and it causes insecureness. I wait to get retired soon." *Female, 61*

MAIN FEELING JUST AFTER THE IMPLEMENTATION	QTY
More positive view	1
Relief	2
Fine with it	4
POSITIVE REACTIONS IN TOTAL	*7*
Neutral	2
Mixed emotions	1
NEUTRAL REACTIONS IN TOTAL	*3*
Disappointed	1
Desperate	2
Fear	1
Insecure	1
NEGATIVE REACTIONS IN TOTAL	*5*

Table 8 Main feeling just after the implementation

6.2.3   Ways to influence related to the new system

The new system has turned out to be more visual and modern than the old system, and almost all of the users have been pleased with the new interface. The transparency of the system was also noticed, and the use was seen as more pleasant when it functions properly. These are things that are related to the effort expectancy and please of use. There were noticed many small details that had an effect on the usability in a positive way such as search features. Of course, there was also a critique concerning usability. For example, there came up wishes to get different sessions opened at the same time with two different screens or at least the possibility to slightly modify the screens based on user's needs so that they could be utilized as well as possible without changing actual functions. Even though there are problems, the new system is seen as possible to serve new opportunities.

> " In some things, we went forward, and in some, we came backward, but I feel that now in this new system, that is more modern and up-to-date, we are at least going to get more opportunities when we first keep improving an developing it. I believe that we are going to gain more with it and that's what we have tried to achieve with this process." *Male, 26*

Many of the users found the new system to be more logical which makes it easier to use. Logicality was also connected to the basic idea of the system to proceed clearly step by step so that when the previous step is missing or done wrong, the process cannot move forward. This basic idea relates to the goal to make this organization-wide system where the processes are done similarly in every unit. This was seen both positively and negatively.

> "At the beginning this caused complaining, but when the understanding has grown, people can see what affects on what and this way can get the big picture." *Male, 55*

"It is good that everybody has the same system." *Male, 56*

"It is good that it will guide how things are done and follows instructions. After some work with developing and learning, it will be quite good." *Male, 49*

"Some processes are more complicated and slower than before." *Female, 55*

"You are able to make an error that invalids the whole project but it cannot be fixed even though you know what is wrong." *Male, 49*

"The system works fine if there is "happy flow" and everybody knows what they are doing and they are doing it at the right time. But there are so many people involved in one process." *Female, 61*

"As the processes have now more steps, it takes a longer time to do them and even more people!" *Male, 55*

Still, there have also been noticed some problems. First of all, performance related issue is the slowness of the system which was mentioned several times in the interviews. For some reason, after every press of a button, the system takes time to load, and this has caused frustration towards the system. This problem was mentioned by most of the interviewees.

"The system is really slow. After you press something, it just rolls and rolls. It frustrates when you lose work time waiting." *Male, 49*

Also, the draftiness of the system does have a remarkable meaning to daily use. Especially the validity issues with the data harms the trustability of the system. This is seen mostly with different reports that can contain faulty data. One interviewee mentioned that there must be kept manual tracking as the data that comes from the system cannot be trusted at all.

"The system is really unstable at this point." *Female, 52*

"The biggest motivation decreased, and stress source is the incompleteness of the system as nothing seems to work in the first place." *Male, 50*

"It is still missing many good functions that were promised and which would have a great impact on user - such as business intelligence dashboards and Mingle." *Female, 44*

6.2.4   Communication as a way to influence

One of the main ways of how the organization has tried to influence end users is communication. The main channel for communication has been e-mail which divides the opinions. Part of the interviewees has thought that the e-mail informing has been successful by its content and amount.

"It has been massive informing operation. Especially when we started, there came new roll-out information every day where they told where we were at and what had happened. It was food as there were the positive matters - what good had happened and also the challenges and how they were planned to be solved." *Male, 58*

"Mainly the informing has been good." *Male, 59*

"The basic informing was fine and business-like. I got enough information about the project and schedules." *Female, 54*

"In the beginning the amount of information was overwhelming but later on e-mails have developed with clearer headings, agendas and so on." *Female, 52*

Still, most of the interviewees have seen problems in it. Especially the number of e-mails and targeting received criticism from the users. Sometimes the information does not reach the receiver at all. Also, trustworthiness and language problems did raise up from the interviews.

"There is too much e-mail informing. I have no time to read those." *Male, 55*

"I am not up to read the project e-mails as they are in English and general stuff." *Female, 41*

"I feel that it is almost spam as I can't get the main point from the e-mails." *Male, 26*

"The information is shared in such a big distribution, and it comes with huge clusters that you cannot pick up those things that concern you and your job from there." *Male, 26*

"There is a lot of work on transforming the release information suitable for end users. There is often too much jargon, and even key user can't always understand what is said." *Key user, 44*

"Sometimes we hear from other locations that instructions / working way has changed and realize that we have done things wrong for the quite a long time. The information has not received our key user or us." *Female, 25*

"I've got the conception that we have just been kept aware of what is going on, but it has not been informed more precise. It comes to use when it comes to using." *Male, 31*

"E-mails cannot be trusted as things weren't usually as well as they let us believe." *Female, 25*

"But it has not that much effect on me. I just hope that it is true and that the change will come, but sometimes I feel quite desperate." *Female, 61*

"I am not up to read the LN e-mails as they are in English and general stuff." *Male, 50*

"When there are 78 people in Skype meeting and used language is English because there is one "Börje" from Sverige who cannot speak Finnish, I sometimes feel annoyed

because that is the reason why people don't ask questions. It is a big threshold to speak a language that you are not used to speaking in front of nearly 100 people about a subject that you don't really know about." *Female, 52*

The intranet was seen falsity channel of informing, and the messages were taken as marketing tricks. The reaction for these messages is easily contrary to what was intended in the first place, and they cause feelings of frustration and even anger.

"In that part of the communication has done a bad disservice as they gave an impression that this will get through with positive talking and everybody's a good spirit. It might work once, but after a while, people will notice that these guys are talking rubbish and they don't even know how bad things are." *Male, 59*

"Other communication channels such as intranet and Info-TV:s are so vague that they are just there to keep the subject in our minds." *Male, 26*

"If the communication is too panegyrically and focusing on the vision that cannot be reached yet, it causes the opposite reaction from the users that was sought for." *Female, 44*

"The inform is distorted, and the fact that the system is not working is underrated." *Female, 25*

"It causes frustration and huge astonishment how things can be neglected in an organization this big." *Male, 50*

Communication channels that interviewees named as the best ones were key users and different types of team meetings. The key users have seen reliable informers who are on the end user's side. Also, team meetings were good places to go through what was going on and also to check how everyone was dealing with it. In these cases, informing came from key users and/or manager.

"Those who were in key user training did the actual informing as they told what they had done and what was happening." *Male, 49*

"The informing of the key users was good as they told how things truly were." *Female, 25*

"The best communication channel is the key users as it is not that theoretic. It is mirrored to them to work and not just to the system so that it more practical. Then we are able to figure out together how it will change, for example, our work tasks and how it can be seen in those." *Male, 26*

6.2.5 The roles of key user and manager as ways to influence

The key user role is found by the interviewees to be the most important influencer on the end user's behavior. Most of the interviewees had a really good experience

of key user's help and training and the way how they have been present during the different phases of the project.

> "Key user role is important as there are still new problems every day." *Male, 55*

> "I have to give great thanks to our key users. I admire the patience of how they deal with our complaining and irritation. The training, their constant presence and help, and "yes, there is a clear mistake, I will make a ticket of this" has helped a lot. I cannot imagine the situation where the key user would be unacquainted with the system, equipped with the wrong motivation there to help you." *Female, 54*

> "Key user's role as local support is really important. When you sit there and work, you can just get up and go to ask the key user to come and show how something should be done in the system." *Female, 52*

> "Key users are crucially important. I feel sorry for them as they have all their old tasks to do among this. As the help and guidance are needed daily." *Male, 50*

In some functions, the key user nominations were not successful either because the key users were not actually interested in the project or they did not have the needed qualities such as want to help others.

> "The selection of the key users is not always done right. Those who are good are really great. It should come from the key user oneself that "Hey, I am interested in this. I want to learn this and share the information with others." " *Female, 55*

> "If that kind of new system is taken to use and there are named key users who have been trained for the job, there should be some kind of engagement to that so that they will stay in that position for few years on." *Male, 55*

> "The first key user was useless. The whole year was wasted because of this. The key user should be interested in the matter, enthusiastic and positively train people and notice their differences, etc. The key user should have long experience on the job as it gives a better perspective to the system and needs towards it." *Female, 41*

> "Key user cannot be part of the negative discussion - key user needs to stay focused, supportive and try to find solutions to those shared problems.." *Female, 52*

The manager has also had an important role as a supporter but also as a spokesperson for one's employees. There have been differences between the amount of manager's participation in the project, but the overall feeling of being supported was strong among the interviewees.

> "The manager tried hard to motivate us. It had an effect on me." *Female, 61*

> "The manager knows what is going on and informs in a way that is positive but still realistic." *Male, 31*

> "My manager has been quite positive, supportive and enabled everything we need." *Male, 58*

"Managers have an important role. First of all managers needs to know where things are going and secondly, they need to take matters further when needed." *Female, 54*

"Manager is needed as he has the noteworthiness and has an opportunity to take these matters to other parts of the organization like "we do it like this" and "we have noticed that this policy works well." If we had not had him, there would not be an opportunity to do this, and then we would be just puppets again." *Male, 49*

In some cases, the manager's role was seen too little, and the employees felt that they had been left alone in a difficult situation. Sometimes the manager did not have a significant role at all, and sometimes the manager did not know the status of the project. It was recognized that the manager's involvement had much to do with one's own managing style beyond this exact project. In the worst case, the interviewee felt that the system was thrown to the users and the message was to try to manage with it. Also, upper levels of management's actions have had relevance in end users' behavior.

" I would have needed a sort of robustness from the management when it was revealed that the system was a complete draft when it was implemented in our function as the manager has certain contacts to the project organization and opportunity to fasten up these changes. The manager could have insisted on fixing these things as now these problems take a major part of our working time. I believe that we could have got more strength to get these problems solved faster." *Male, 50*

"I think that there would have needed better communication between the team and the manager and we could have made some of the decisions together, such as what tasks we are going to take care of in the future. More conversation type of communication." *Male, 26*

"Manager needs to represent the employees to the project organization. This has been difficult as managers don't often really understand the problems and the usage of the system. This is why the discussion between the manager and the key user are highly important!" *Female, 44*

"It was clear that their goal was just to get this done. There were few filtering layers in between, and when the message left from here that this is not working or this needs to be fixed, nothing happened - they just told that don't whine there. If this size of a group works hard with this size of a change and they say that stop whining, it really eats the motivation." *Male, 59*

One highly emotive issue was the manager's response to employee's change repellent behavior that has appeared to some extent. There did come up multiple cases in the interviews where the interviewees felt resentment and even bitterness after the change repellent persons were let to refuse using the new system, the tasks were transferred to someone else, or there was turned a blind eye on the change repellent person leaving tasks undone. These actions were seen as a trigger to discord among employees.

"It feels bad and causes inequality." *Female, 61*

"There is also inequality in the organization as some people are allowed to do that others don't. The manager should be robust in this kind of situations." *Female, 44*

"I think that the last word is manager's and manager should talk with the person and even with the whole team to go common rules through" *Female, 25*

" Manager loses a bit of one's own authority and also favours certain employees by accepting this kind of behavior." *Female, 55*

6.2.6   Training as a way to influence

The training was another main way for the organization to influence user behavior. In this case, the interviewees had gone through different kinds of training. Most of them had gone through process training and user training before the implementation. One interviewee did not recall participating in any training. Also, key users had their own training before they trained the end users in their own units. There was given one opinion concerning the key user training which concerned the difference between reality and the picture that was given in the training. This made the end user training more difficult as there was problematic to separate the reality and functions that would come in the future.

> "The future picture was painted for us first, and later on we found out what was the reality. There was a huge contradiction between them. And later on, when we started to train the end users, it was difficult to separate these future expectations and the real circumstances at the moment we were going live. There was a huge gap." *Key user, 44*

The process training was kept first before the actual hands-on end-user training. The participation happened via Skype, and they were kept for a large group of participators at once. This was criticized as their focus was on the general level and interviewees felt that it was hard to connect on the topic without having any touchpoint to the system yet.

> "Process training was kept too early. When people don't have any touchpoint to the system yet, this kind of theoretical things is difficult to internalize." *Female, 54*

> "Process training didn't meet the reality. We had them before and after the implementation, and they did never come to our level." *Male, 49*

> "Skype-trainings are too complicated and includes quite a lot of things that don't concern own work." *Male, 55*

> "It should be done face-to-face so that people are concentrated to it rather than Skype with headphones on and so that they are doing everything else at the same time. There is the interactivity going on when you can notice that somebody does not understand this thing and you decide to go deeper in that matter. In the face-to-face training, you notice these things, but in Skype-trainings you cannot notice the response reaction. But the Skype-trainings are good as they can be recorded and people can concentrate and watch it again when they are doing the same thing by themselves." *Key user, 41*

The end-user training did get positive feedback as most of them were kept in small groups and by unit's own key users. Many of the interviewees were interested to see the actual system and get finally to use it by themselves in the training event. It was said that the basic things were quite easy to understand and learn during these sessions. Some of the training was kept for larger groups of users, and those were experienced challenges. Also, the system's incompleteness caused trouble as it was not possible to use it in a proper way at the beginning with.

> "The best thing was to first time actually see the system and learn how it was supposed to work in practice." *Male, 31*

> "We have been privileged as we have got our close workmates in key user roles. Those pieces of training have been compact sets for small groups where there have been dialogue, conversation and we even have challenged the key user a bit such as "could this work differently" etc. It has been active thinking that you cannot say that it has been pure training." *Male, 26*

> "The training was good as things were considered from different points of view and that way it was possible to notice what will work and what will not work. I was able to influence those decisions when I noticed how something could be fixed." *Male, 56*

> "There could always be more training, but our key user trained us and did it really well." *Male, 58*

> "The point is that key user should first assimilate the matter by first going it through so many times that one understands it well. Otherwise, you cannot teach anyone else." *Female, 55*

> "Bigger training was useless as the matters were gone through too universally so that it didn't have any use to the end user. It was also impossible to get your opinions heard as the target group was so big." *Male, 26*

> "The training was okay, but the system did not yet work properly and there case some changes in the middle of the training that made it confusing." *Female, 25*

> "There was too little training before the implementation, and the system was too incomplete when we started to use it - it could not be trained!" *Male, 50*

Problems were caused by difficulties with employees' roles and which tasks were involved in them. In some unit, the roles were already changed before the actual implementation but also in these cases there were found problems later on, and the roles needed new reorganization. These situations caused uncertainty among the interviewees, and it was difficult to know what kind of tasks were relevant for a user to learn in a certain role. Also, sometimes the actual workflow was not taken into consideration and this way the bigger entity was not understood.

"When there comes this kind of changes in ERP's, the mirroring between organizational collaboration and things that are built in the ERP and the combining of the whole process should be done quite nifty and fast." *Female, 44*

"The big picture was tried to be given but the management at the time was probably not sure themselves either what was going to happen, how different functions should be executed and this way there was no consensus about who was doing what actions in the new system. I led to the situation where many users had to hold on to every possible detail in the training as they did not know what they really should be learning." *Male, 59*

"It would be better to have the training planned based on the workflow from one end to another to clear the big picture. Even though all of these functions would not have been working, it could have been introduced where it would be going so that you might have been able to direct your own work on that direction before the change" *Male, 50*

Later on, the need for new training and go-throughs have been seen important as there has been new development done all the time. Also, the key users – especially those who have just started their work, feel that the additional training would help them with their duties. Interviewees highlighted that learning is still an ongoing process and needs support from the organization.

"New training could be needed as many of the processes have changed." *Male, 59*

"We should sit down together, it takes only 1-2 hours, and go the changes through because the way to work is changed a bit and the original instructions that have been printed are not valid anymore, and nobody has the time to find them." *Male, 50*

6.2.7   User's own responsibility and social environment as a way to influence

The user also has one's own responsibility in the implementation project. The interviewees were of the same opinion that the user's responsibility is to accept the change, learn, use and report on problems. Everybody in the organization has not filled these responsibilities. There is change resistance to some extent, and it has caused negativity on the workplace as already mentioned earlier.

"To learn the system requires own output from every user." *Male, 56*

"User's responsibility is to be motivated to learn. Some have it, and some don't." *Male, 31*

The user needs to report on the problem and lift the cat on the table to take those matters forward. If you just settle for it that "this is what it is," it will never change." *Male, 49*

" If you don't speak out, it is useless to groan about it later." *Male, 56*

"I somehow sensed in the beginning that this could not turn out well as we all are falling into that negativity. Just how are we going to take this to use when we are already happily convinced that this is not a good ERP?" *Female, 54*

"Those who do the change resistance are loud and clear on their opinion. Sometimes processes stand because somebody in one of the production chain stages refuses to use the system." *Male, 26*

The overall atmosphere at the organization has been fine during the project. The interviewees highlighted great team spirit in all units which have triggered everybody's own motivation. People try to help and support each other, and the problems can be shared at the coffee table., In some cases, the interviewees felt that the spirit was even better than before the project as team members had a mutual problem to solve and fight with.

"We have a good atmosphere here towards changes. There have not been problems with that." Male, 56

"The atmosphere here is basically fine. We laugh to our new guys who are starting to use the system that you are not going to make it, but it is just pure joking." *Female, 41*

"Organizational attitude has been quite good." *Male, 55*

"There has been a great spirit among people to learn to use the new system, and they have really persevered through the process." *Female, 44*

We think together how it would be the best way to execute something. We have decided long ago that we will help each other in our team whatever new comes." *Male, 58*

"Especially in the beginning, this change joined our unit and team together as we were all in the same boat. As we all could not master the system and we all had problems with it, it kind of unified us even more." *Female, 61*

"Our team is loud and passioned, and sometimes it is necessary to get the negative things out. We do help each other and support each other. We have a great team spirit." *Female, 54*

There were not noticed serious rumoring or bad talking on a wider scale. Of course, the actual problems are discussed openly, and those have spread out over the organization, but this was not seen as a significant factor in interviewee's attitude or behavior. Actually, some of the interviewees noticed that it has impacted only to those who were not yet using the system. On the contrary, it was noticed that even though letting negative things out can purify the air; they might also cause a snowball effect and release more negativity.

"The closer we got to the implementation date the more there was talking about how the system really works and what problems have occurred. These talks affected me

negatively as I have been in the organization only for a short time and I could not know what was true and what was not." *Female, 25*

"People talk in the cafeteria over department boundaries. As everybody has some problems in the background, they come out as more heavier than positive things." *Male, 31*

"If the user has difficulties in using the system, he should not bad mouth it to others, especially those who don't even use it as it catches on to others too and makes other fear the change before they are even part of it." *Male, 58*

"In one way it is a good channel to take out frustration, but on the other hand it also can get expanded when the same negative things are talked over and over again." *Female, 44*

"The grapevine is quite fast when somebody tells about problems. Especially among those who do not use it yet. And for them, it is the most harmful." *Male, 58*

6.2.8   Other ways to influence

The organization and its culture did not have a significant role in influencing the users according to interviewees. The organization was seen positively aiming towards development and change in its operation, and the organizational culture has modified to receivable in these situations even though some resistance is always part of the change. Still, as the organization is large and its history long, some of the ways to do things were seen really stiff and outdated and changing of those thinking models being really difficult.

"The organization wants to renew and develop and its mainly fine, but accomplishments are sometimes missings. Things are not taken to the goal." *Female, 41*

"I believe that we are in some way kind of an old fashioned organization so that people are naturally a bit against all changes so that it is the overall opinion to all." *Female, 54*

"Overall organizational changes and others are difficult. It is hard for people. But on the other hand, we have learned that when the order comes, then we just do it. It is the principle." *Male, 58*

Either the project organization does not have any significant role in influencing the end users. The organization works quite independently and has not that much of touchpoint straight to the end users. The project organization is seen as a separate unit that might not have the best know-how in practice. These presumptions make the project organization quite estranged among the interviewees.

"The project organization didn't have enough touchpoint to the business - especially in function level. It feels that the project organization is separate from the actual organization." *Male, 26*

"They want to do some update or change without realizing how it affects the process. I can see, without being an expert, that there has been made mistakes by just deciding that this block works like this without understanding how it affects elsewhere." *Female, 54*

The process of fixing problems of the system and offered IT support have an influence on the users. The main problem with the fixing process in interviewees opinion was the slowness of it. Many of the interviewees also felt that the promised help was not received and the focus was moved to new roll-outs too early. They felt that they were left to cope on their own. Even some kind of schedule would ease users mind.

"Small fixes would help a lot. But they are now waiting in the line." *Male, 50*

"Some of the things move forward quickly, and some are hatched there, and they will maybe be fixed in some of the updates. It, of course, depends on the size of the matters." *Male, 49*

"Sometimes the whole thing might have changed, and when we get the update, it is old already and needs a new change." *Male, 26*

"The problem fixing process is important, but when the requests are just moved on over and over again, it discourages the mood." *Female, 52*

"There will be resource shortage in this kind of project that is in the continual starting phase. It means that we some are already using the system, and they face problems; there should be two different teams where others solve these problems, and another group is dealing with new starts." *Male, 58*

" I can see that there would be a time for some kind of time-out here so that those poor old people who already use the system could be taken even to some kind of contentment level before there are taken new people to join the misery." *Female, 41*

"The capital business is joining the implementation in summer, and they have their own thoughts and requirements, and these are now obviously those things that are prioritized so that our functionalities are left to wait. It means that all the changes and renewals are not going to get done in that schedule that we would need and want. Now we speak about the release that is coming in a year. One year is a long time to wait. It frustrates." *Female, 54*

"People need to feel that they are heard and their problems are taken care of." *Female, 44*

The externalized IT support was seen difficult as there are language problems and the common understanding is difficult to achieve with people who are on the other side of the World and who does not understand the business at all. An interviewee brought up that the discussion with the IT support might take weeks without having any solution for the problem and this builds up frustration among the users.

"Even though I have explained it as simply as possible with print screens and all, they don't understand it." *Key user (Female), 55*

"Once they called me back, and I could not understand a word what they were saying." Key user (*Male*), 55

One thing that was found useful and motivating before the implementation was the introducing of pilot results. One of the interviewees told that the pilot results made him feel more secure than before. The results gave an impression that the system was possible to get in use also in their function. Also, the first roll-out was complimented on how the change was sold to the end users. The interviewee told that in the beginning everybody was excited to be the first ones even though there were risks – they believed in it.

"The bigger managers said that this is a great opportunity to us. And even though some of the program's people thought that we could not make the big bang start, the decision making went close enough to the CEO, and the decision was made that we are going to do that. It became a kind of honor to us." *Male, 49*

What was still missing during the whole implementation project was motivation and encouragement. There came up even an idea of using non-financial incentives that could be utilized as a spiriting tool that could involve people better to the project.

"The organization could have involved us into this more positive and give the feeling that we are privileged to be part of this new thing, but it was not presented to us in that way." *Female, 54*

Another thing that came up from the interviews was the importance to have a chance to be involved and the possibility to effect on things. Many of the interviewees felt that they had a chance to be part of the implementation project and especially those end-user training where the team together tried to figure out best ways to handle certain tasks were seen important and useful. Those interviewees who had not been involved in this kind of situations did mention that they would have liked to discuss and brainstorm together with the key users and managers issues concerning the new system and its use. There was also a general feeling that the project organization was not interested in end-user needs. This was caused by the beginning of the project where teams were collected to think how certain processes should work and what functions were needed. In the result, the presented ideas were not taken into consideration.

"We had people in the development team, and we had many meetings when the system was designed but when the system came it was nothing like we had asked for. All the things were rolled over." *Male, 49*

"There has been no questions towards the users how this should be done according to their work tasks" *Male, 50*

"As we know the system and the business and those both are considered when doing the development and thinking about how to do things. We all have the knowledge of how we work in practice but how we are going to get it to bend into the system has been the advantage here. And when it stays as a small group, everybody opinion is heard and taken into consideration. It really gets through, and it can be even taken further." *Male, 26*

There should be an interactive forum where are all the right people at the same time so that decisions could be made at that moment." *Female, 52*

"When there comes an update that changes the way we should work, we in our small team including key user are gathered to a meeting room to think together how we should proceed with it." *Female, 25*

There were also found a few other related changes that had an impact on end users' behavior. First, one that came strongly out from the interviews was the increased workload that the system implementation, as well as the process changes, had caused. The change had in some cases been extensive, and employees have a hard time to cope in the new situation. The possible changes also caused stress and uncertainty that reflect on user behavior.

"More tasks and same salary - it feels like the knot is tightening up all the time. But we are used to it." *Male, 56*

"The thought of other changes in the company such as impact to the workforce causes worry." *Female, 52*

"There are people who cannot recover in a weekend. I have sleeping problems, and this is time to time horrible. I feel desperate." *Female, 41*

"Hurry is something that kills the team spirit as well as all development." *Female, 52*

7 DISCUSSION AND CONCLUSION

The aim of this research was to examine the role of individuals' emotions and cognitions in organizational IT implementation by defining user behavior in these situations, which way the behavior can be influenced and how successful these ways are. The research focuses on finding different ways from both perspectives to influence user behavior in organizational IT implementation by firstly collecting already used ways from the research target organization and then by gaining new suitable ways from the previous literature. In the result, there will be a comprehensive list of different influencing ways that will be measured with qualitative interviews in the target organization. This chapter includes a short summary of the research, implications for research and for practice and also limitations and directions for future research.

7.1 Summary of the key findings

The research question was how individuals' emotions and cognitions in organizational IT implementation could be influenced. To answer this question, one large organizational information system implementation project was examined by interviewing first several persons who had key roles in the project in preliminary interviews and later on interviewing actual end users in primary interviews. Based on literature findings the interviews were build to collect used ways to influence end users, end users' experiences of these ways.

As introduced earlier, the end user's behavior has interested researcher already for a long time, but in recent years the interest of business world has also risen as change has become as the new "normal" in working environments. Organizations change, and this also means changes in information technology which is an important part of the modern world's work and its tools. One important realization has understood of user's emotions influence on one's behavior alongside the more cognitive reactions. There were found multiple studies also concerning the emotional side of user behavior as well as several established research papers focusing more on pure thinking and cognitive behavior of users.

In this research, there were selected six theories that represent the variation of these focus areas.

The interviews were kept in the organization's premises so that the participation of the interviewees was as effortless as possible. The selected technique was theme interview in both preliminary and primary interviews. This choice turned out to be successful as it gave freedom for the interviewee and the interviewer to discuss without limitations of strict questions. The results of end-user interviews were found to be mostly in-line with each-others and especially the importance of the close support and informing of key user came up from each of the end user interviews.

7.2 Implications for research

Different ways to influence end-users that were found from the literature were used surprisingly widely also in the target organization's implementation project. It needs to be noticed that some of these ways were used more intentionally than others. There were also added some new ways to the list that were important in this project but were not mentioned at all or were partially involved with several other ways. Next, the different ways to influence end-user behavior are gone through by the same categorization that was used in the interviews. These categories are the system, organization, user and social environment. Later on, the reactions and emotions are examined based on the behavioral development model.

7.2.1 System-related ways to influence

System-related ways to influence user behavior that was found from literature (table 9) were almost all used in the examined implementation project at least to some extent. The social advantage, which was found from Rogers' diffusion of innovation as part of relative advantage (Rogers 2003, 15-16), cannot be seen as used way in this case as the system is mandatory for almost all of the employees and mastering it will not give the advantage of that kind for the average user. Obviously, the new system is meant to enhance job performance, which is already named in TAM as a significant factor (Davis, Bagozzi & Warshaw, 1989), by being more efficient tool than the previous system has been. Also, in this case, the new system was planned to have more modern functions and better system openness than before. The usefulness of the system is especially emphasized in the thinking-feeling model (Kim et al., 2007) but also brought up for example in TAM (Davis, Bagozzi & Warshaw, 1989) as perceived usefulness and in UTAUT as performance and effort expectancy (Venkatesh, 2003). Even though these things were taken into consideration the incompleteness of the system at the time of the implementation and even still has caused failing to meet users' expectations of the performance and needed effort.

What came especially out from the end-user interviews was the disappointment because of the fact that their needs were not taken into consideration after all despite the fact that they first were given a chance to figure out what was needed. The main problem in this was the lack of responding and answers to the questions why these suggestions were not executed and were they even considered in the first place. What could also be emphasized more is the emotional side of the user. By this is meant gaining the pleasure of the use which was added to the list of system related ways to influence from Kim's thinking-feeling model (Kim et al., 2007). These things can be small details that make the usage more pleasant or give for example peace of mind for the user. Example of this could be for example capability of the system to find possible errors before user saves the data which would ease the work of the user and also secure that follow-on tasks can be performed without problems.

SYSTEM RELATED WAYS TO INFLUENCE		End-user interviews
Literature		
Factor	*Ways to influence*	*Use and success*
Enhancing job performance	The efficiency of the system	-
The usefulness of the system	Enhancing functional usefulness	(+)
	Maximizing utility of the system to the user	(+)
	Designing a system by focusing on the user's needs and desires	-
Gained a relative advantage	*Social advantage*	*Not in use*
	Conveniency of the system	(-)
	Satisfaction for the system	-
Degree of ease	Easiness to understand and use	+
Technical infrastructure	System openness	+
Defaults	Offering structured default options or requirement of choice	+
	Offering interactive and multimedia interfaces which enhance user feelings	+
Pleasure	Providing new services considering the emotional aspects	-
- used but not succeeded (-) used but poorly succeeded (+) used and succeeded partly + used and succeeded		

Table 9 system-related ways to influence user behavior

7.2.2   Organization-related ways to influence

The organization-related ways to influence user behavior (table 10) is the largest area of the four categories. Most of these ways that were found in the literature were used in the examined project, but there were also found quite many new ones that were not at least specified in the literature as separate ways from the others. In this case, the possibility to influence was one of these. It is partially connected for example to system-related ways to influence, but in this research, it is allocated under the organization-related ways as the organization is, after all, the enabler of the influence. In the interviews, it was clear that end-users wished

to have a possibility to express their opinions and to feel that their experiences were valued during the implementation. Based on the interviews, these both wishes were also fulfilled. Supportive actions for this were the possibility to inform about problems and development-needs after the implementation as well as the surveys made by the project organization. To fully utilize this way of influencing the end-users, the earlier mentioned problems in the design phase should have been prevented in the early stages of the implementation process.

One of the ways that were found in Rogers' diffusion of innovation was organizational infrastructure that in its best supports the change (Rogers, 2003, 409-413). In this particular case, some of the organizational aspects from Rogers' theory (2003, 409-413) were better to observe from the project organization point of view as it has the decision-making power and the upper management of the organization has a role as a supporter of the project organization during the implementation stages. Of course, organization's size and employees' professionality have worked as mainstays in the change project as employees in a large company are used to changes, they understand that changes are inevitable and needed for the organization in order to succeed in business. The project organization, on the other hand, can help the change process with fluent decision-making and by having enough resources to proceed with the project. It is important that this kind of special organization has enough flexibility in its structure and processes. In this research, there were some lacking found from the flexibility from the end-user perspective as it was felt that some matters were either stuck with certain persons or that they were drowned in the explicit divide between functions.

Organizational culture and norms that were found from Dolan's MINDSPACE as ways to influence user behavior from are also an important part of its capability to change (Dolan et al., 2012). The end-user interviews revealed that the norms of the organizations are strong and similar throughout the whole organization. Employees know what is expected, what is the standard of working and what their colleagues expect from them. These norms are strengthened by managers and supported by general communication. Reinforcing the norms could be used more as a way to influence the end users, but in this organization, it has not been that necessary as the situation has been good even before the implementation project.

Another way to influence could also be some kind of rewards or incentives that could preferably be symbolic rather than things with monetary value. This way was not utilized in the examined project, but it could have brought possibilities to motivate the end-users especially during the most challenging moments of the implementation project. Still, some of the matters that were added under incentives in the literature were noticed during the project. It was obvious that managers and project leaders have the understanding that people tend to experience losses and negative outcomes stronger than positive gains. This was also noticed by the end-users, and it was found that they were able to consider the project beyond this and also find the good of it when needed.

ORGANIZATION RELATED WAYS TO INFLUENCE		
Literature		**End-user interviews**
Factor	*Ways to influence*	*Use and success*
	The magnitude of the incentives	*Not in use*
	Timing of the incentives	*Not in use*
	Amount of change for the individual effects on the power of the reward	*Not in use*
	The understanding of the tendency to overweight of small probabilities	*Not in use*
Rewards / Incentives	The understanding the tendency for losses to loom larger than gains	+
Literature		**End-user interviews**
Factor	*Ways to influence*	*Use and success*
	Organizations de-centralization in decision making *	-
	High level of employees' professional knowledge and expertise	+
	De-formalization of the organization *	(-)
Organizational infrastructure	Organizational slack of resources *	+
	Size of the company (the bigger, the better)	+
	Letting people know about desirable norms	+
	Relating norm to target people	+
Norms of the organization	Reinforcing of the norms	(-)
	Possibility to propose changes or fixes	(+)
Possibility to influence	*Different types of surveys*	+
TRAINING / SUPPORT		
Literature		**End-user interviews**
Factor	*Ways to influence*	*Use and success*
Degree of ease	Trialability of the system beforehand	+
Training	*Training gives tools to learn to use the system*	(+)
Trainers and support from close	*Key users selected by the business units by themselves*	(+)
	Key users are from the same level as the end users	+
MANAGER		
Literature		**End-user interviews**
Factor	*Ways to influence*	*Use and success*
Organizational infrastructure	Leader's attitude toward change	(+)
	Manager's role as a communicator	-
Manager's role	*Manager's role as a support and motivator*	(+)
COMMUNICATION		
Literature		**End-user interviews**
Factor	*Ways to influence*	*Use and success*
Salience for individual	Making stimulus novel, accessible and simple	(+)

Literature		End-user interviews
Factor	*Ways to influence*	*Use and success*
	Getting people to make a pre-commitment	**+**
	Offering symbolic goals	*Not in use*
	Increasing costs of failure	*Not in use*
Commitment	Utilizing the reciprocity (desire for fairness)	**(+)**
Emotional associations	Emotional provoking	**(+)**
Ego	Understanding that people view the world through attributions that tend to make one feel better about oneself	*Not in use*
Pleasure	Advertising the emotional aspects (for example peace of mind)	**(+)**
Compatibility with the social environment	Improving consistency with the existing values, norms, past experiences, and needs of potential adoption	**-**
	Finding similarity of characteristics between the receiver and the messenger	**(+)**
	Noticing possible automatic defense towards formal sources	**+**
	Observing overall feelings towards the messenger	**(-)**
The role of the messenger	Cognitive inconsistency	
Openness	*The openness of the communication*	**-**
- used but not succeeded (-) used but poorly succeeded (+) used and succeeded partly + used and succeeded		
*The organization in these certain ways are considered to be the project organization		

Table 10 Organization-related ways to influence user behavior

Three main organization related ways to influence end-user behavior are training and support, manager and communication. Training and support after the implementation were named crucially important during the end-user interviews. The training was not separately mentioned in the literature, but it was connected with several other ways as an example. Still, as it has such a significant role for end-users, it is handled as one influencing way as it is own. One thing that interviews highlighted was the possibility to see and try the system in the training mode. Even though it didn't always work as well as was planned, the training and trialing gave an idea of the daily usage of the system. Those end-users who had had successful training felt that it had a positive impact on their attitude towards the new system and the whole implementation project. Those whose training did not succeed, for example, because it was kept so early in the whole process that even the trainers did not yet have all the needed information, had opposite reactions. The training was said to make the end users more confused and afraid of the change. Still, despite how the actual training was executed, the most important influencer was the key users who worked as trainers and closest support for the end users. These key users were said to be the driving force during the implementation. The fact that these key users are co-workers who know the needs and challenges of their own working community made them invaluable. In some cases, the key user selection was not successful, and this caused troubles with the adoption of the system. This makes the key user role crucial part of succeeding in the implementation.

Also, the manager's role was seen as important, especially from the project organization's point of view. This importance of the manager's attitude in the process and one's individual characteristics have been pointed out in Rogers' diffusion of innovation (Rogers, 2003, 409-413). In reality, those end-users' who had manager's that were committed to the implementation project felt that manager role was effective, and those end-users' whose manager had left side from the informative and motivational tasks did not see their role that important. On the other hand, managers were hoped to stand up more for their employees and take their concerns forward to the project organization. Without this kind of support, the end-user felt like they were left alone with their problems. The communicational role of the manager did not actualize in the way that was probably planned in the project organization. Most of the end-user did not think that the manager would have informed about the implementation project. The information came through general communication channels or via key users. What makes it interesting, is the fact that this role as a communicator was actually not even needed by the end-users. The only thing that bothered some of the end-users was the overall ignorance of the manager as it caused problems with daily managing.

This leads to communication in general. In the background, literature communicational aspects were mostly brought up in Dolan's MINDSPACE theory where communication was seen as one of the robust effects on behavior (Dolan et al., 2012). Communication is one of the most visible ways to influence end-users. This visibility easily causes thinking that the information, especially marketing-like material, cannot be fully trusted. There were used several different communication channels, and the e-mails were considered most important among the key users according to end-users. Mostly the given information was seen useful, but the amount of it was considered quite large. This means that it was difficult to collect all the information that concerns the end-user individually even though it gave the impression of a project organization to be open and transparent. These e-mails were seen trustworthy but the marketing material in organizations intrasite not. This intrasite content had an actually negative impact on end-users as they saw that the problems were bypassed and underrated which caused annoyment and even hurt end-users' feelings to some extent. This is again a good example of a way that acts as a double-edged sword. The role of the messengers, which in this case are mostly the key users and manager, was successful. The information came from close from a person who was well known, yet even from a co-worker, that can be trusted and who is able to communicate it so that all participants can understand the message. What could have been used to get end-users more involved are ways concerning commitment such as symbolic goals or pleading to an individual's ego with marketing but their success is always depending on the current situation and type of employees. It came clear that communicational ways have only limited possibilities to influence end users.

7.2.3 User-related ways to influence

User-related ways to influence are listed in table 11. What came up during the interviews was also the user's own responsibility. There was clear shared opinion that user has a responsibility to take care of one's own work and if it means using a new system, then the new system has to be learned and used as supposed to. This responsibility is partly drawn by the norms and culture of the organization, but part of it comes from the user oneself. The offered motivation, support, and training will not work if the user is not receptive. This kind of change resistance can occur, and there are tools to change that. In the interviews the most important way to fight back, change resistance was mentioned to be the closest manager's support and activity.

Of course, there are things that can have an influence on behavior. For example, earlier experience, which all the interviewees in this research had, can influence positively as the user already knows how to use different systems, what it is like to learn new things and how easily one can adjust to new ways to work. Similar factors were found almost on every background theory of this research, for example, Self-efficacy from Compeau's model that is applying social cognitive theory for individual reactions to computing technology (Compeau & Higgins, 1999), computer anxiety from emotion in TAM (Venkatesh, 2000) and previous experience that was one of three moderators in UTAUT (Venkatesh, 2003). On the other hand, for example, computer anxiety can have a negative influence on user behavior, but in this case, there were none that felt this way towards computers.

USER RELATED WAYS TO INFLUENCE		End-user interviews
Literature		
Factor	*Ways to influence*	*Use and success*
Easiness to understand and use	Earlier experience of different systems	+
Self-efficacy	Computer anxiety	-
User responsibility	*Every user has a responsibility to learn and use the new system*	+
- used but not succeeded (-) used but poorly succeeded (+) used and succeeded partly + used and succeeded		

Table 11 User-related ways to influence

7.2.4 Social environment related ways to influence

One aspect of influencing end-users behavior is the social environment (table 12). The background theories of this research have several factors that can be classified under the social environment and all of them were found in the target company's implementation project. This environment is usually built over the years, and it can be difficult to change. Still, it is important to observe and acknowledge what is happening it the organization and understand what kind of impacts it

has on the employees. In this case, the social environment is active, which means that the employees are well interconnected with each other. This interconnectedness was also found from Rogers' diffusion of innovation as a part of organizational infrastructure that can positively affect the innovativeness of the organization (Roger's 2003, 409-413). This is a factor that can work in both ways, good and bad. In good, the employees work as spokesmen and motivate each other, but in the bad, the negative rumours and news will spread fast across the organization. In the target organization, both ways were noticed, but still, the positive stance was clear and also end-users had the ability to filter and assess these messages.

Also, similarities of attitudes and thinking among different groups of employees that was pointed out in Dolan's MINDSPACE (Dolan et al., 2012) theory was taken into consideration by the project organization. Still, for example, understanding the power of so-called descriptive norms have not been fully understood as for example in some cases some individuals have got privileges after refusing to use the new system. This kind of situations are favourable for others to observe and follow as this behavior seems to give positive results even though it is not in line with expectations of the project management. In the interviews, besides the overall social environment, the end-user's own working team was highlighted, and team spirit in it considered important to one's own attitude and feeling. This is why the atmosphere is added to the literature list.

SOCIAL ENVIRONMENT RELATED WAYS TO INFLUENCE		
Literature		End-user interviews
Factor	*Ways to influence*	*Use and success*
Organizational infrastructure	The interconnectedness of the employees	+
How others expect one to use the system	Making observations of the social influence in general	+
Ego	Understanding that individual thinks the same way for groups that one is identified in	+
	Understanding that descriptive norms can backfire	(-)
Norms of the organization	Taking into account the lifting force of declarative norms	
Atmosphere	*Team spirit*	+
- used but not succeeded (-) used but poorly succeeded (+) used and succeeded partly + used and succeeded		

Table 12 Social environment-related ways to influence

7.2.5   Behavior development

When interviewees were asked about their attitude towards the upcoming change, most of the interviewees saw the implementation project as an opportunity rather than a threat. Only one of the interviewees saw the change as a threat. On the other hand, most of the interviewees felt that they had and will have control during this process and only two felt that they lost the control at

least to some extent. What was interesting to notice, the interviewee who saw the change as a threat felt later on having high control during it. Then again those who felt that they did not have the control saw the change as an opportunity. When mirroring these results with different behavior constructs and their effect on selecting adoption strategy, they coincide with the literature.

In figure 12 there is highlighted the most effecting constructs based on this research. These were performance expectancy, facilitating conditions, intrinsic motivation, and social influence that all are based on UTAUT (Venkatesh, 2003) constructs and complemented with factors of other selected theories and frameworks as well as findings from the empirical research. Performance expectancy is seen highly affecting as the system itself had a great impact on end-users behavior in this research. This construct was associated in literature synthesis having an effect on the user's attitude on seeing the change either as an opportunity or threat. Also, the organization's effort to support the project succeeding was found as one significant factor in user behavior. This construct, based on literature findings, has an effect mostly in user's feeling of having control in the process. A good example of positively influenced way is the key user's whose role was mentioned to be the most important support by the interviewees. Finally, also the user's own intrinsic motivation and also social influence was named important factors on user behavior. For example, the user's own responsibility found pleasure and social environment, in general, had an impact on end users. These constructs can influence on both, opportunity and control, feelings. As said at the beginning of the thesis, the modifiers based on UTAUT (Venkatesh, 2003) are not taken into closer consideration in this research but the overall finding was that gender, age or professional experience made no significant difference in the users' attitudes. The only thing that did have some impact was the experience of using different systems and computers which all the interviewees had.
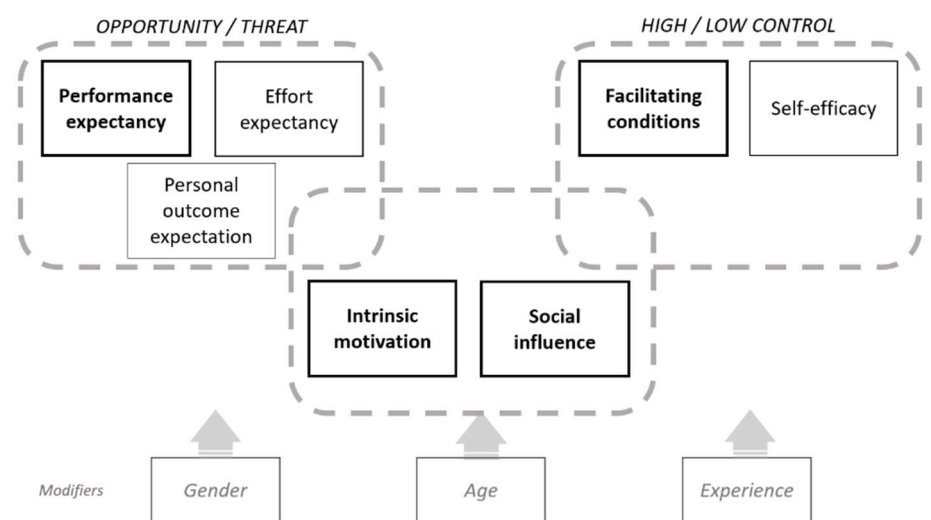

Figure 12 The most effecting behavior constructs and adoption strategies

As the emotional-focused model of adoption to technology by Stam & Stanton (2010) and the four different adaptation strategies by Beaudry & Pinsonneault (2015) together shows, the emotional reaction develops either approach behavior or avoidance behavior (Stam & Stanton, 2010) and based on the user's perceptions on whether the change is seen as an opportunity or threat and on their own feeling of having a control over the change (Beaudry & Pinsonneault, 2015) they will have promotion-focused or prevention-focused effects to the reaction. With these findings, it is possible to conclude that mostly the effects to emotional reactions have been promotion-focused (figure 13).

The actual feelings that end-user's had before, during and after the implementation changed during the process to some extent, but the overall attitude stayed promotion-focused during the implementation process. A possible explanation for this can be cross changes in the opportunity and control feelings so that neither one has been more positive than the other. For example, in the beginning, most of the interviewees saw the change as an opportunity but while the process moved on and implementation time was near, the feeling of having a control lowered down. After the actual implementation, the end-user's own know-how started to grow and this way the feeling of control started to come back while on the other hand, first possible disappointments with the system not to completely meeting one's own expectations lowered the system's image as an opportunity. Also, the cognitive side of behavior has an important role as end-users do understand that the change comes whether they like it or not and also that it is important to develop to succeed in business in general. Still, as was said in the interviews, after the implementation project is over and system in daily use, these emotions will moderate and use become more routinized.
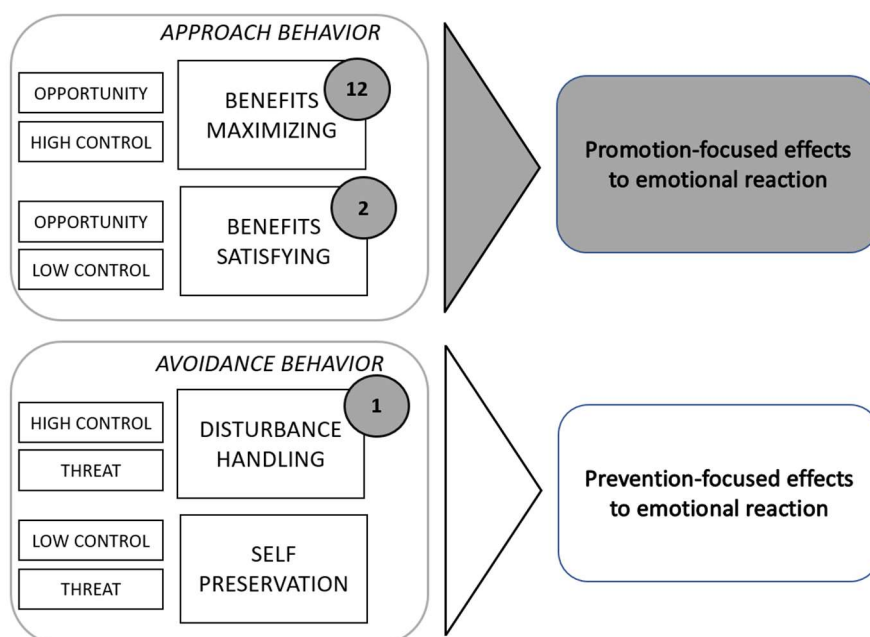

Figure 13 Behaviour development based on research results

7.3   Implications for practice

By these previous results of the research, it is inevitable that end-users emotions and cognition can be influenced by the organization in multiple different ways. Based on these results, there are certain ways to influence on end-user behavior in organizational IT implementation projects that are especially crucial to take into consideration:

- Offering the best possible conditions for the end-users to manage through the implementation project should be the priority of the organization.   This includes the system itself, its functions, IT infrastructure, the implementation project management, training, etc.
- Having help and support close-by with easy access is necessary to succeed in the implementation. Use of talented and enthusiastic key users and utilizing the manager's position as a leader but also as a spokesman for the team is great ways to influence end-users.
- End-users are a great resource of knowledge when defining needs and desires for the new system. This resource needs to be used wisely, and the generated proposals handled with honour even though some of them cannot be executed in the final system.
- The social environment needs to be seen as the strong influencer on its members. Even though the social environment is difficult to change, it should be at least monitored and preferably shaped with tools such as improvement of social interconnectedness, enforcement of the organizational norms or enhancing the existing team spirit.
- Communication is a powerful tool, that can act as a double-edged sword. It is important to hold on the truth but still find ways to motivate the end-users and market the new system.
- Using new innovative ways to influence the end-users in both, emotional and cognitive ways, can have a great impact — for example, ways to enhance end-users' commitment to the change such as the use of symbolic incentives.

7.4   Limitations and directions for future research

Limitations of this research are the individuality of this exact implementation project, interviews as a method and rather a concise sampling of interviewees even though they were selected from three different business units which were under the same business line. The individuality of the examined project makes it difficult to validate the results of the research by their own, but on the other hand, the results build up a good general picture together with the literature findings

that make it possible firstly to collect those ways to influence end-user behavior that are most likely common for all organizational IT implementation project in organizations and secondly to find practical implications to provide tools for organization leaders, IT implementation project members and also other stakeholders that are involved. Interview as a method gives a deeper perspective on end-users thinking, and it is a good way to examine this kind of phenomenon, but it is always difficult to maintain neutrality as an interviewer and also with the observation stage. These both are tried to be avoided with good planning and preparing but they might occur, and this needs to be taken into consideration. Also, the fact that all the interviewees were from the same organization, mainly from quite similar office tasks and use of the system can be taken as a limitation but it needs to be recognized that for this level of research larger sampling would have been impossible because of the timeframe and because of that it was a better choice to focus on exact business area and get wider participation from there.

Future research should first of all focus more on exact constructs of user behavior, and this way get a more comprehensive view on possible ways to influence user behavior. On the other hand, also a wider view of the literature could give interesting findings on the subject, for example, by reaching out more to the psychology field of research. Further empirical research would be recommended to give a deeper insight into ways to influence user behavior. When focusing more on the organizational aspect of user behavior, an interesting view would be studying how these different constructs and their impact differ across organizations and also across cultural boundaries. Thirdly one focus point for future research should be the individual characters, possible previous experience and other related circumstances that strongly effects on the behavior and also acceptance of the end user. Especially the end user perspective is relatively new as on previous research the individuality of the user has been treated as one factor in the process rather than a viewpoint for the whole research. Fourthly research is required to study how the emotions and cognitions change in different phases of the implementation process, how does the interplay between approach and avoidance behavior occur and which factors and constructs have the most impact on different phases of the process to this behavior.

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APPENDIX 1 END USER INTERVIEWS

0. INTRODUCTION
- First, I would like to go through the subject of this research
  - User's and their behavior has been studied a lot in the information systems science.
  - In past years, the role of the user's affective side has been emphasized and it among the cognitive side builds up the basis of user behavior.
  - At this point, I will show you one figure that sums this thought up really well.
    - So, there is this cognitive side, that can be roughly seen as pure thinking and more of rational reasons why the user behaves in a certain manner
    - There is also the affective side, that is more emotional and means all the feelings that user experiences.
  - In this kind of implementation project, the organization wants to influence the end users in different ways to succeed in the project. These different ways can concern either one of this side or even both.
  - The idea of this interview is first to get to know you as a user, then go through the different phases of the implementation project and your feelings and thoughts during them and finally collect those ways that are used to influence you and how you have felt about them.
- Do you have any questions at this point or do we move on to the interview?

- There are a few common matters that I would like to through now before I start asking the questions:
  - The interview is done anonymously, and the answers are handled in the research so that they cannot be targeted to any particular interviewee
  - If there is a question that you do not want to answer or if you feel that you want to quit the interview, just feel free to say so.
  - I hope it is fine that I will record this interview? It helps me to concentrate better on this discussion if I don't have to write everything down.

    ** TURN RECORDING ON**

1. BACKGROUND INFORMATION (15 min)
First, we will start with background questions concerning you.

1. What is your age in years?
2. (Gender)
3. What is your educational background?
4. How long have you worked in the target organization?
5. What is your work title at this moment?
6. What kind of tasks does it include?

7. Do you have a separate role in this implementation project?
8. How much do you use this new system on a daily basis?
9. In what kind of tasks do you use the system for?
10. How much has this project, including the actual implementation of the system and all other related changes for example in ways of working, changed your daily working? You can use a scale from one to five where one is "not at all" and five "significantly." Why did you end up to this number?

Then a few questions about your own relationship with computers and information technology:
1. In overall, do you like information technology?
2. Is it part of your hobbies somehow?
3. Do you use information technology in your free time?
   a. If you do, do you use it daily, weekly or less frequently?
   b. In what do you use it for?
4. Are you interested in new innovations of information technology?
5. Do you feel that it is easy for you to learn new systems or is it difficult for you?
   a. Why do you think that it is easy / difficult?

2. THOUGHTS AND EMOTIONS IN DIFFERENT PHASES OF THE IMPLEMENTATION
The second part of the interview concerns the actual implementation process. I am especially interested in about your feelings and thoughts in different phases of this project and reasons for them.

At first, we will go back in time to that moment when you first time heard about the upcoming change.
1. Do you remember when it was?
2. Where did the information come from?
3. How did you feel and what did you think?
4. Did you see it as an opportunity or a threat?

If you look back to the time just before the actual implementation…
1. When was it?
2. What kind of things had happened before that in the project (informing, training, etc.)?
3. How did you feel and what did you think?
4. Did you feel that you had the control over your own part of the change?

Let's move to that moment when the system was just implemented.
1. When was the implementation done?
2. Did your feelings or thoughts change after the implementation? Why?

3. WAYS TO INFLUENCE
In the third part of the interview, we will go through different ways that are used to influence your behavior as a user in this project.

First going through those that are already coming up previously on the first or second part of the interview:
1. You previously mentioned *** which is one way to influence.
   a. How was it executed? / What was it like?
   b. How did it make you feel? Why?
   c. What was good and what was bad about it?
   d. Did it change your behavior or thinking somehow? Why?
   e. How could it be better for you as a way to influence your behavior?

Moving on with mirroring technique and trying to find ways into all four categories (organization, system, user and social environment):
2. What other ways were used?
   a. How was it executed? / What was it like?
   b. How did it make you feel? Why?
   c. What was good and what was bad about it?
   d. Did it change your behavior or thinking somehow? Why?
   e. How could it be better for you as a way to influence your behavior?

! If/When needed, the figure of four categories is shown to the interviewee to help thinking of different ways and to guide the discussion.

3. Are there any other ways that were not used but which would have had a significant influence on you?
   a. How would it be executed? What would it be like?
   b. How would it influence you?