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A tale of success of complete disaster?

A case study of the post- implementation phase of a new ERP system

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Abstract

Enterprise Resource Planning (ERP) systems are considered to be the backbone of many organizations, however, many implemented ERP systems do not live up to the expected potential of organizations. The pre-implementation and implementation phases of ERP projects have received a fair amount of attention in previous literature, but the post-implementation phases have not received the same amount of consideration. This thesis will therefore aim to answer the research question of “How do employees perceive and experience the post-implementation phase of ERP systems?”. The thesis takes a qualitative research strategy in the form of a case study together with a public organization. In total, five semi-structured interviews were analyzed through a thematic analysis. In addition, one observation was conducted, and ten pages of internal documents were used to further contrast the data. The study shows that employees perceived an increase in autonomy from their interaction with the ERP system in the post-implementation phase because of an increase of availability of information, ability to collaborate, and flexibility. However, the employees experienced more complex tasks in the post-implementation phase of the ERP system. The study contributes to the understanding of the emergent changes among employees in the post-implementation phase of ERP systems.

Keywords: ERP systems, Post-implementation, IT-enabled organizational transformation, Affordances, Constraints

1. Introduction

As a reaction to an emerging competitive landscape, many organizations have throughout the years invested in new digital technologies to enhance their operations and meet strategic goals (Senior & Swailes, 2016). The efforts to do so can differ, however, the goals are often explained to be the same - “to leverage the capabilities of IT to make fundamental changes in how business is conducted.” (Ranganathan, Watson-Manheim, & Keeler, 2004, p. 2). Yet many IT projects fail (Garcia, 2022), or at least do not live up to their desired potential and operate below the intended value (Bucy, Schaninger, VanAkin, & Weddle, 2021; Saunders, 2022). A prominent example of this are Enterprise Resource Planning (ERP) systems which have throughout the years been identified for being notoriously expensive and complicated to implement (Ranjan, Jha, & Pal, 2016). In fact, in 2018 55% of ERP projects did not meet the benefits expected by the stakeholders of the project (Saunders, 2022) despite the often-high costs of implementation.

ERP systems can be seen as a particular type of Information System (IS), characterized by their holistic scope and scale (Nestell & Olsen, 2018). IS can be defined as components that are interdependent to each other storing, collecting, and manipulating information and then feeding back that information that employees can use to reach a specific goal (Zemmouchi-Ghomari, 2021). However, an ERP system is a combination of information systems made to support the entire enterprise, often being referred to as the “backbone” of organizations (Ranganathan et al., 2004). The use of ERP was initially only present in large scale

organizations but has now come to spread in small to medium-sized organizations (Coşkun, Gezici, Aydos, Tarhan, & Garousi, 2022).

Due to the large-scale involvement of implementing ERP systems, many factors have to be considered to ensure that the intended value is generated from the ERP system and even after an ERP system implementation, the system has an integral part in the organization's operations and is continually developing (Vailshery, 2022), Not only in the private sector but in the public sector as well.

The public sector has been reported to be capable of managing and investing in new digital technologies such as ERP systems, however, the post-implementation evaluation of such investment ensuring they have been fully realized is lacking in many public organizations (DIGG, 2020). The importance of following up public procurements in the public sector to ensure that the specifications, deliverables, and services have been met from contractors have seen a rise in interest in Sweden (Karlsson Westergren, 2023). When public organizations in Sweden purchase services, goods, and hire contractors, the deal is made by following a process regulated by the public procurement act (Konkurrensverket, n.d.). In short, the criteria for these purchases are made on who delivers the best service or product at the best terms. Karlsson Westergren (2023) emphasizes that if you do not follow-up on the contractual frameworks specifying the deliverables; the expected potential of the implementation could be lost.

The problem is therefore that public organizations in Sweden are not following up if the specifications of a deal are fulfilled after they have been delivered as envisioned in the planning stages of a public procurement. Insight in the post-implementation phases of an investment, such as an ERP system, is therefore necessary.

IS research has a long tradition of being devoted to understanding the organizational consequences of IT-system implementations (Besson & Rowe, 2012). Gathered under the concept IT-enabled organizational transformation (ITOT), IS researchers have dedicated their attention to understanding the opportunities and challenges of developing and implementing IT (vom Brocke, Schmid, Simons, & Safrudin, 2021), including ERP systems (Wessel, Baiyere, Ologeanu-Taddei, Cha, & Blegind Jensen, 2021). However, change is a complex phenomenon as it is hard to predict what consequences that comes with an IT implementation, as effects from it arise interactions between technical and social systems (Markus & Robey, 1988)

Recently, research has argued that IT-projects whose purpose is to replace an existing system warrants specific attention. As a particular form of ITOT, technology renewal which is a process where organizations partially renew their technology for strategic purposes (Wimelius, Mathiassen, Holmström, & Keil, 2021). Within ITOT and Technology renewal literature, the post-implementation (follow-up) stages of an ERP system implementation have not had as much consideration (Osnes, Olsen, Vassilakopoulou, & Hustad, 2018; Hsu, Yen, & Chung, 2015). There is a need for a change of perspective, moving from the pre-implementation and implementation phases and focusing more on the later phases of ERP issues, the post-implementation (Osnes et al., 2018). Many of the sources of serious organizational conflict of an ERP project emerge have been identified in the post-implementation phase (Osnes et al., 2018; Kerr & Huoghton, 2014; Shaul & Tauber, 2013), where the employees and the end users have a central role in the outcome of the change (Osnes

et al., 2018, Ranganathan et al., 2004). The importance therefore lies in the need for further investigation in the later stages of an ERP project after a system has been introduced, by conducting a qualitative case study from the perspective of the employees.

The aim of this study is therefore to understand the emergent changes following the introduction of new information systems and ITOT as a result of technology renewal in an organization after the implementation has happened, where we provide new insights and contribute to ITOT literature. This thesis could additionally contribute to practitioners working with implementing ERP systems, expanding knowledge in the post-implementation phase. As described by Wessel et al. (2021, p. 122) “*With transformation all around us, it becomes important to have a better understanding of it*”, which is our objective through this thesis by extending the literature of ITOT. With our research aim and objective, the research question is the following:

How do employees perceive and experience the post-implementation phase of ERP systems?

To address our research question, we have performed a case study in a public organization located in northern Sweden. The data collected for this study consists of semi-structured interviews and internal documents provided by the case organization. To understand our empirical data, the analytical framework of Technology Affordance and Constraints Theory (TACT) has been used since it specifically focuses on the interaction between actors and technology, as well as the outcomes of said interaction. As such, our thesis contributes both in an academic and practical setting as well. As we are conducting our research in the context of a public organization in Sweden, we argue for our research to have practical contributions for the public sector, extending the need for following up public procurement agreements. This logic is extended to future initiatives of public procurement of ERP systems in Sweden, where our research could act as an insight for managers of public organizations to understand the post-implementation influences among users.

2. Related research

The following section contains related research to the main areas of this thesis. The structure is divided into the research field of IT-enabled organizational transformation and Enterprise Resource Planning Systems.

2.1 IT-enabled organizational transformation

The following section displays the history and research of ITOT and how the concept is distinguished in this thesis. Furthermore, the section conceptualizes technology renewal and addresses the research gap related to it.

IT-enabled organizational transformation (ITOT) is a phenomenon explained as a core of the IS discipline (Besson & Rowe, 2012). ITOT comes from the concept of organizational transformation, which explains the process where organizations transform themselves in qualitative ways (Besson & Rowe, 2012). ITOT emerged as a concept in the mid 1990s by Henderson and Venkatraman (1994) and has after that occurred in different studies engaging researchers from several disciplines (vom Brocke et al, 2021; Wessel et al, 2021). During its

long history as a core area of research in IS research, the concept of ITOT has been defined in different ways by previous scholars.

Henderson and Venkatraman (1994) explained that prior to their research, IT was traditionally seen as back-office support, where the authors instead conceptualized that organizational transformation occurs through IT. IT should therefore be viewed as a tool to support organizational strategies and gain competitive advantage in the market (Henderson & Venkatram, 1994). More recently, Wessel et al. (2021) also refers to ITOT as how IT is used to transform an organization, with a slight difference that transformation that comes with the implementation of IT supports the organizational value proposition and, in the end, a reinforced organizational identity. The value proposition is defined as the expected benefits the organization provides from a consumer's perspective (Osterwalder, Pigneur, Bernarda, & Smith, 2015) and organization identity as what the organization is and how it's perceived by its employees (Wessel et al, 2021). Building on above stated explanations, we understand ITOT within this thesis as how IT transforms organizations, not to the extent that it creates an entirely new organizational identity and value proposition, but a reinforced one.

Organizations can be conceptualized as a product of their own history built up by culture, structures, and workforces from within. These are influenced by internal and external factors which forces organizations to adapt and change to maintain competitiveness (Senior & Swailes, 2016) Digital technology on its own does not change the organization and its behavior, (Davenport, 1998), instead turning focus on individual, organizational and technological factors to achieve ITOT (Ranganathan et al 2004; Davenport, 1998).

Change in organizations does not only affect the organization itself but everything and everyone within it. Organizations are considered to be a culture rather than having one and since people create their own norms related to personality and professions, subcultures can emerge as well (Senior & Swailes, 2016). Therefore, learning to manage change can be challenging because individuals have different responses depending on their perception of events (Senior & Swailes, 2016). These changes can be leveraged through strategy, structure, and operational processes. To understand these changes an understanding of informal processes (e.g., power, politics, culture, leadership) are needed as well (Senior & Swailes, 2016). This can also mean that changes intended or unintended by IT can differ depending on the organization. The emergent perspective by Markus & Robey (1988) refers to the fact that the same technology can be implemented in different organizations, which will affect them differently. This means that it is uncertain to know how the implemented IT will be used and what consequences it will bring, and the social context and meaning play a big role to decide that (Markus & Robey, 1988). Therefore, some useful lessons by Ranganathan et al. (2004) is that management needs to be engaged through the process and stay strong when problems arise. Additionally, the pace of change should be consistent with the appearance of the ones affected. Lastly, the individuals within the organization are a big part of the transformation, where embracing the change is a necessity for achieving transformation efforts. Individuals' beliefs must be transformed through learning and understanding of the transformation, which if successful eases the resistance to change (Ranganathan et al., 2004).

The digital era that we now live in has created an environment that entails organizations for the need to renew both digital platforms and infrastructures (Wimelius et al., 2021). This

phenomenon can be explained by the concept of technology renewal and is defined as “[...] *the activity through which organizations seek to replace their core digital platforms and infrastructures in order to realize their strategic goals*” (Wimelius et al., 2021, p. 199). The process to renew technology in organizations is reviewed as highly complex and thus critical for managers to take into consideration, involving the implementation of it. As many ambiguous choices and situations can occur which calls for some decisions having to be made. This can entail that technology renewal can create an uncertain future (Wimelius et al., 2021). For example, there is often not certain how and if employees will adopt and accept the new technology (Shirish & Batuekueno, 2021). Wimelius et al. (2021) has identified tensions in the organization related to technology renewal. The first tension is between *established* versus *renewed technology usage* which entails that tensions can arise from established patterns related to the older technology and the new. Another tension is between the *deliberate* versus *emerging renewal practices* explaining how employees or other actors support or resist efforts to replace the old technology. Lastly, *inner* versus *outer renewal contexts* explain the tensions between the organization and its culture and external driving factors from the competitive, economic, social, or political market.

Even though these tensions are identified, Wimelius et al. (2021) means that the concept of technology renewal can be further researched which motivates us further in researching the phenomena. The digital era contributes to a new climate where continuous change and renewal are essential to keep up (Ranganathan et al., 2004; Senior & Swailes, 2016; Wimelius et al., 2021) and when renewing technology, the phenomenon of ITOT is likely to occur in organizations. The success of transformations of any form of change relies on different aspects but acknowledge that individuals of organizations are influenced by their earlier experiences related to both private and professional factors (Senior & Swailes, 2016). Renewal of technology can be one of these factors.

2.2 Enterprise Resource Planning Systems

The following section is concerned with gaining a deeper understanding of how ERP systems work and the reasons for adopting them. This section will also touch upon the employee perceptions and experiences found in previous literature regarding the post-implementation phase of ERP systems. The aim of the following text is to contextualize the ITOT process in the setting of ERP since ITOT can look different depending on what technologies and systems are introduced.

Technology renewal entails the renewal of digital systems and infrastructure. One such system that has been replaced heavily in organization the last years is the ERP system. ERP systems are commonplace in many organizations today, from small to large scale enterprises. However, implementing and sustaining an efficient ERP solution has been shown in history to be far from easy to maintain as it is both costly and difficult if not done properly (Nestell & Olsen, 2018). In its essence, ERP is an application software constructed in multiple modules that encompasses an organization's various processes (Nestell & Olsen, 2018). The software is usually tied together with a relational database system (Nestell & Olsen, 2018), tying together all the organizational processes and information.

Common reasons to adopt new ERP systems are for replacing a legacy system, simplifying and standardizing systems, and additionally to gain competitive advantages (lower cost, better service), business practices (implementing better ways to operate tasks) or to just adopt more powerful technology that are integrated with a high level of flexibility. Therefore, the argument for adopting an ERP system in the organization is because “[...] *they offer an integrated system shared by all users rather than a diverse set of computer applications, which rarely can communicate with each other, and with each having its own set of data and files.*” (Nestell & Olsen, 2018, p. 4).

By eliminating the presence of different types of applications throughout the organization with an ERP system; information assets and flows are expected to be more easily coordinated and removes intra-organizational silos hindering the overall objective of the company (Nestell & Olsen, 2018). Also, individual productivity and customer satisfaction is highly affected by the usage of ERP in organizations where the inter and intra-departmental processes enabled by ERP could in the end heighten customer service (Chang et al., 2011; Coşkun et al, 2022). The heightened customer service is enabled by the informative role of the ERP system that allows for generating information in a more efficient and accurate manner (Chang et al., 2011).

However, adopting one system throughout the organization implies that there is also only one procedure for everyone, meaning that everyone has to adjust to one system (Nestell & Olsen, 2018). The time beyond the initial implementation is an important aspect for organizations to realize the value of a chosen ERP system through adjusting and conducting training for its users (Ruivo, Oliveira, & Neto, 2014) that is continuously developed to ensure the ERP system is being used to its full capacity (Hsu et al., 2015). Osnes et al. (2018) reviewed the post-implementation challenges in the context of an ERP system and highlights that demands of standardized practices are unavoidable where local adoption is necessary for avoiding workarounds. Concurrently, Osnes et al. (2018) stresses the importance of either establishing or continuing programs for change management. Such actions could entail activities that actively communicate the benefits of standardization of a shared system, as well as creating a common understanding of how the system works through high quality training programs for everyone (Osnes et al., 2018, Shaul & Tauber, 2013). Introducing ERP in an organization should not be viewed as a regular software project involving only the decision of which system to choose (Coşkun et al, 2022), it should be viewed as long-term solutions that requires post-implementation learning among its users (Chang et al., 2011). Hence, learning in the post-implementation stages of an ERP system can have significant effects on usage among users since those who are continually learning are more prone to embrace ERP usage in their work (Chang et al., 2011; Ruivo et al., 2014). It is customary to establish pre-implementation training for user when adopting a new ERP system, however, the knowledge gained from this is limited where knowledge sharing and communication among users in the post-implementation phase is significant for learning (Abdinnour & Saeed, 2015) and in the ability to obtain heuristic knowledge (Chang et al., 2014).

3. Analytical framework

The analytical framework chosen for this thesis will allow us to answer the research question and address the research gaps identified in this thesis. The framework was chosen as it became apparent after collecting the data that it proved to revolve around affordances and constraints. Our thesis aims to understand how employees perceive and experience the post-implementation phase of an ERP system, and it is therefore an analytical framework that specifically focuses on the interaction between actors and technology, as well as the outcomes of said interaction.

Theories in the IS literature often contribute to the understanding of how information systems are used, designed, and affect people and organizations of today (Majchrzak & Markus, 2012). A theory to understand and to study in which ways people, organizations and their collective performance are influenced by information systems is through the Technology Affordances and Constraints Theory (TACT). As outlined by Majchrzak and Markus (2012) in their research, it is vital to understand the interactions between individuals in an organization and the organization itself and subsequently the technologies they are using (Majchrzak & Markus, 2012).

TACT comprises specific concepts that accentuates the interaction between human actors and IT that are useful for understanding the outcomes of IT implementation in practice. First, TACT involves Technology affordances, which is what an actor or organization can achieve when interacting with a technology or information system when they have a specific goal in mind. This can be defined as an action potential. Secondly, a technology constraint involves in which ways actors or organizations are inhibited from reaching specific goals in their use of technology or a system.

As a result, the technology affordances and constraints are viewed as relational concepts where the focus is not determined by the separated properties of the technology or people and is instead understood as the potential interactions between them (Majchrzak & Markus, 2012; Majchrzak et al, 2016). In their article, Strong et al. (2014) explored organizational change from an affordance perspective where the interviewees gave their perspective of the affordance possibilities to achieve their goals. The affordances relation between technology and people was reinforced by Strong et al. (2014) that affordance can differ between groups and not exist for others. This is due to the fact presented by Strong et al. (2014) where human action is required for affordance actualization.

Despite the increased interest in incorporating technology affordance in IS literature (Strong et al., 2014; Effah et al., 2021), Majchrzak & Markus (2012) highlights the importance of integrating constraints with affordances since they aid in the understanding of two regular observations. The first, as explained by Majchrzak & Markus (2012), is the fact that it is not always realized by individuals and organizations the possible potential of a given technology when they are using it. Secondly, the technology is used by people or organizations in ways that the designer of the technology never intended it to be used for. Identifying and highlighting both affordances and constraints found in TACT allow for a balanced view and highlights the relation between social actors and technology (Effah, 2021).

The technology affordances and constraints will in this research context be used for understanding the change context in the case organization without losing the relationship

between social actors and digital technology artifacts. The framework by Bernhard et al. (2013) and the later revisitation by Wang et al. (2018) is adopted to understand the role of affordances in the IS context. Both the technology affordances and constraints are made up of three phases respectively. For technology affordances it is perceived affordance, the action possibilities noticed by an actor. Next, actualized affordances is the interaction with a technology (such as an ERP system) by actors and the action that emerges from it. Lastly, affordance effects are the outcome of the affordance that have been actualized. To complement the process of actualization, constraints will be integrated because they are what inhibit affordances and could prevent goals envisioned on the organizational level (Majchrzak & Markus, 2012; Effah, 2021). Therefore, three phases of constraints are considered as well, where perceived constraints are factors that limit perceived affordances. Actualized constraints refer to why perceived affordances are prevented from being actualized. Finally, constraints effects are the result of the actualized constraints. In this case study, the technological affordances are the action possibilities in which the implemented ERP system caters to the goals of the organization regarding the desired impact goals. Secondly, the actors consist of the individuals working within a specific process within the organizational context at the case organization who interact with the ERP system. Third, the constraints are what impede affordances from materializing.

4. Research methodology

The following chapter will lay the basis for the methodological choices made by us as researchers to answer the research question. The chapter begins with explaining our philosophical stance and research approach, ending with a presentation of the case organization. The chapter continues with our practical methodologies of data collection and data analysis, ending with an ethical reflection.

4.1 Interpretive case study

This study assumes the philosophical perspective as interpretivist research, which revolves around the assumption of understanding a social reality through the subjective understanding and interaction of the people in a studied phenomenon (Myers, 2013). Our thesis aims to understand how employees perceive and experience the post-implementation phase of ERP systems, where we believe the epistemological interpretive view is the most suitable for us. We want to understand the participants' own understanding of the phenomena we are studying, which require closeness between us as researchers and of what is being researched (Collis & Hussey, 2014). The qualitative research approach is therefore the most suitable for our research. The collection of data is characterized by words and pictures in qualitative research where the social reality is viewed as emergent and varying by nature (Bell et al., 2019), which perfectly suits our aim of understanding the gathered data.

Within the qualitative research strategy there are several paths to choose from. In this thesis, we have chosen to conduct a case study to gain a rich understanding from our methods of data collection (Saunders et al., 2007). Case study research is beneficial for understanding a certain aspect of one or several organizations (Myers, 2013) where the importance lies in the

context of the study and could take place in a single business, among a group of workers, and so forth (Collis & Hussey, 2014). As we have established our research to be inductive in nature, the case study approach will be best suited for answering how employees perceive and experience the post-implementation of ERP systems.

This case study is performed together with an organization in property management and development in the public sector located in northern Sweden which currently employs approximately 200 employees. In 2018 they started a journey to replace their old legacy system, which consisted of several separate systems tailored for specific tasks and purposes. The new ERP system was to replace all of these to a new ERP system which was finished in 2020 with the entire organization now using it. We saw this as a perfect opportunity to investigate since they are currently in the post-implementation phase of their ERP venture. Their main goal with replacing the new system was to improve the efficiency of their property management processes which includes their functions for operations, maintenance, renting, contract administration, notifications, and other related support functions. This included five impact goals (Internal document) that the ERP implementation would contribute to which were:

- Reduce costs related to the system.
- Create common principles and processes.
- Easily & efficiently create analysis and reports.
- Free up working time through better system support and streamlining.
- Be able to adapt the system interface to different users.

In line with our research question, we focus on the perceptions and experiences of landlords in the organization in our study. The responsibility of the landlords is to be the primary contact to tenants, involving the management of renting, error reports, property inspections, checkups, among other tasks. Each landlord manages an area of responsibility, with approximately 400 tenants each. Almost all their system-related work-tasks are done in the module called technical management. Therefore, to receive a more detailed understanding, that is the module that will be focused on in this thesis, not the ERP system as whole. The implemented system was a standardized cloud-based ERP system (delivered by a company that specializes in the construction and real estate industry) which contains different modules serving different purposes and departments of the organization. The ERP system is available on desktop but also available on smart devices (smartphone, tablet) and can be used outside the office. All employees were given training in the new system before and during the implementation. As new versions and updates emerged, manuals were also created to support employees in new and old workflows.

4.2 Data Collection

For this study we collected data through interviews and document analysis, together with an observation of the ERP system in the case organization. Our five semi-structured interviews (see Table 1) included an existing protocol with prewritten questions (see Appendix 1). This provides consistency but also flexibility as the interviewer can ask additional questions and change questions during the interview (Myers, 2013). We viewed the participants as knowledgeable agents of their work (Gioia, 2012), because even if we got an introduction of the

system, we would not be able to understand the relationship between the technology and organization as they do. If the protocol would be tailored from already existing theory and terminology, there is a risk that the sensemaking of the informant's own concept can be lost (Gioia, 2012) which we wanted to avoid. The flexibility that came with semi-structured interviews suited this thesis as we view our participants as knowledge agents, but also are in a specific research area. As our research paradigm is interpretive by nature, we do not have to consider our sample to represent a population (Collis & Hussey, 2014). We decided to perform purposive sampling for understanding how employees perceive and experience the post-implementation phase of ERP systems. In purposive sampling, the researcher chooses who to include in their research due to their particular characteristics or experience within a given area of concern (Collis & Hussey, 2014). We needed participants that had experience with the ERP system, were employees at the organization, and had the same role as others that we interviewed. Hence, the purposive sampling was considered the best method for answering how employees perceived and experienced the post-implementation phase of ERP systems. All participants in our study either had the role of landlord or have it right now and everyone has experience with the ERP system. All participants except for one had experience with the replaced legacy system.

As a complement to our interviews, we also collected documents to widen our understanding of the studied ERP project (Myers 2013). The documents were primarily related to the pre-implementation phase, describing which specifications and characteristics the new ERP system should have. There were in total two documents which were ten pages in total.

To facilitate our understanding, we conducted an observation of an employee which showed us how the system is constructed and used in daily work tasks. We additionally observed the legacy system to understand the differences when interviewing and analyzing the data. These demonstrations laid the foundation of our final interview protocol (see Appendix 2). All interviews were performed within a two-week window. During the process small notes were taken and discussed between us as researchers. The respondents can be seen in Table 1, when the date of the interviews was held and the duration of each interview, along with the number of pages transcribed. We decided to not include age, gender, or any other information that could reveal the identity of our respondents as it could lead to the identification from someone within or outside of the organization.

Table 1. Sample overview

Respondent	Date of interview	Duration of interview	Pages transcribed
Respondent 1	2023-04-20	32 minutes	12
Respondent 2	2023-04-25	21 minutes	9
Respondent 3	2023-04-27	29 minutes	8
Respondent 4	2023-04-27	32 minutes	11

Respondent	Date of interview	Duration of interview	Pages transcribed
Respondent 5	2023-04-27	32 minutes	12
Total		146 minutes	52

4.3 Method of data analysis

The process of analyzing the collected data followed the guide for thematic analysis by Braun & Clarke (2006) which enables the analyzing empirical data into themes in a flexible manner. One disadvantage with thematic analysis can be that the flexibility it brings can mean that it is also possible to code at a very broad range, and it can be difficult to know which perspective the researcher should have when interpreting the dataset (Braun & Clarke, 2012). However, this thesis uses an analytical framework in the analysis which enables us to view the empirical data in a certain way as, in this case in technical affordances and constraints.

Although the data analysis was highly iterative in practice, we explain our analysis process in a linear fashion. First, we acquainted ourselves with the collected data (Braun & Clarke, 2006). We started this step with transcribing our interviews (see table 1). All our interviews were recorded and transcribed with permission from the participants on Microsoft Teams. The auto-transcribed material was then directly looked through by us while the information was still fresh in our heads, fixing faulty sentences and spelling. One clarification about the interviews was that they were held in Swedish as all the participants had Swedish as their first language. When material is used in this thesis, the Swedish text is translated by us to English. A danger with this is that translations could change the context, however, we have together tried our best to keep the translation as close to the context and meaning of the participant's original answer. Later, we read and discussed the transcription and documents to gain an initial understanding of the data collected.

Secondly, we imported our data into the analysis tool MaxQDA to initiate the coding process, which was theory driven (Braun & Clarke, 2006). The analytical framework (TACT) mentioned earlier in the thesis was used as a theoretical lens suited to explain our empirical observations. We analyzed our data according to the different phases of the tact framework which were (1) Perceived affordance, (2) Actualized affordance, (3) Affordance effects, (4) Perceived constraints, (5) Actualized constraints, and (6) Constraints effects.

The data that explained the perceptions that were on the new ERP system in the pre-implementation phase were coded as perceived affordances and constraints. How the participants perceived the system right now in both positives and negatives were in the post-implementation phase and coded as he actualized affordances and constraints. The data that relates to how the actualized affordances and constraints were perceived to affect them were coded as affordances and constraints effect, also in the post-implementation. Figure 1 is an example of the process. What the participants said were coded into a subcategory fitting a theoretical theme.

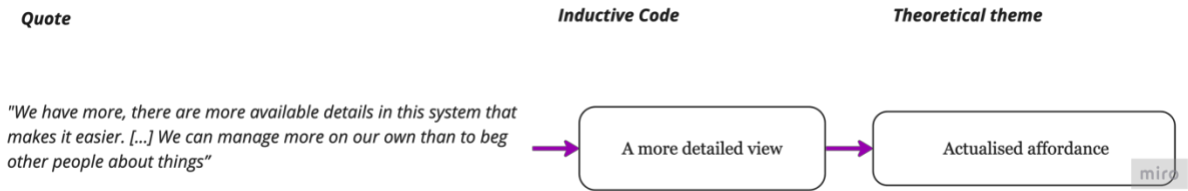


Figure 1. Example of coding

This is demonstrated in Figure 2 which shows the empirical data in the codes and the theoretical themes are the different phases from the analytical framework, which all exist either within the dimension of Affordances or Constraints. As you can see, the theoretical themes are called after the phase in the implication is described and what it withholds and not how the theme is named in TACT as you can see in figure 1. This is because we want to describe the content of the theme and not the concept. Figure 2 is inspired by the Gioia (2012) data structure of aggregated dimensions.

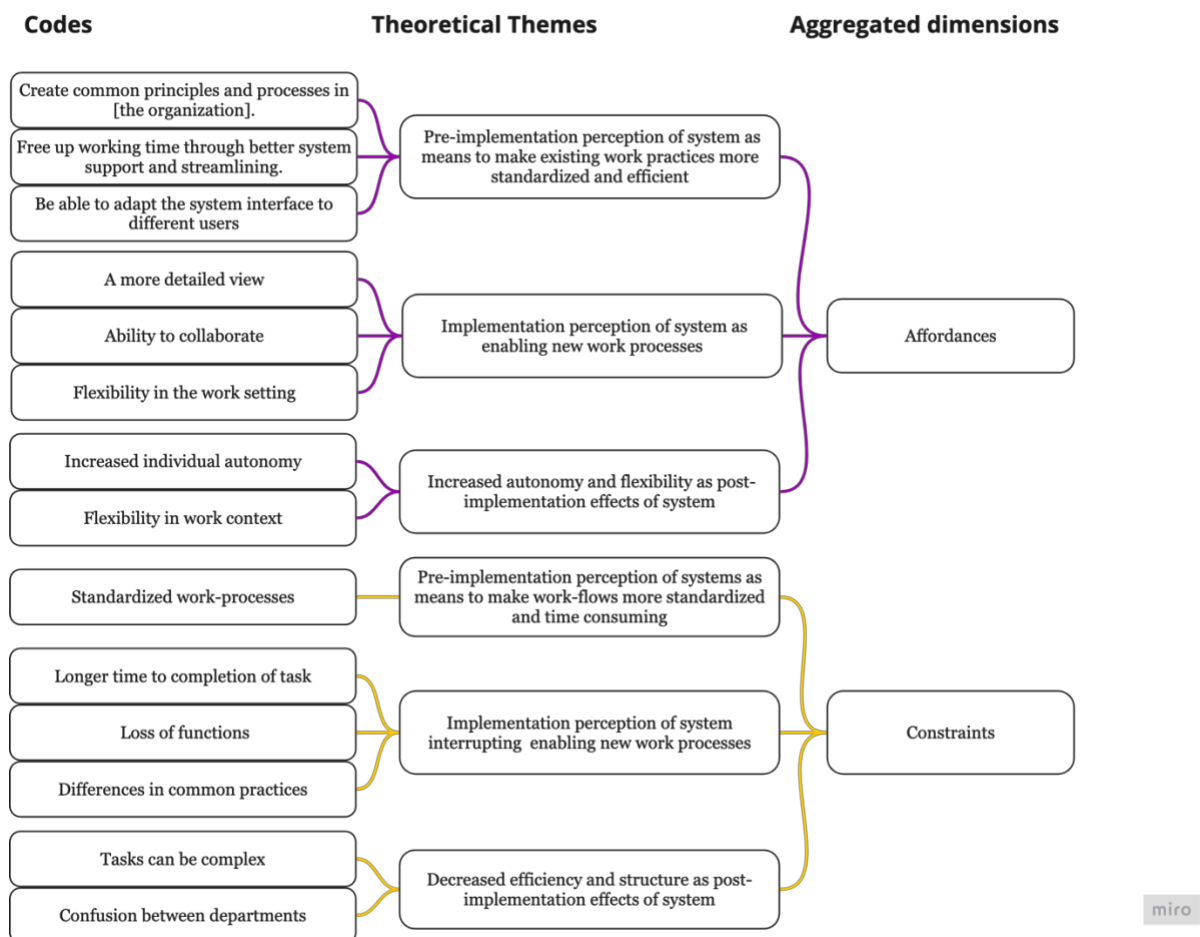


Figure 2. Thematic data structure.

4.4 Ethics

Moral values and principles are what defines ethics and shapes the code of conduct we as researchers adhere to (Collis & Hussey, 2014). As researchers we have made our best efforts to not let our actions, explicit or implicit, affect the quality of our study or harm those that have

been involved in any shape or form. To help guide us in our academic journey, four areas of ethical principles proposed by Diener and Crandall (1978; cited in Bryman & Bell, 2011, p. 128) have been in consideration throughout the writing of the thesis, and even more importantly when interacting with participants of this study. The first area of ethical consideration revolves around making sure harm is never placed upon the participants of the study (Bryman & Bell, 2011). The second area is to ensure strict and clear informed consent from people participating in our research, where the third area emphasizes that we as researchers ensure privacy to our participants (Bryman & Bell, 2011). Lastly, the fourth area of the ethical principles is to ensure that deception from us as researchers is not taking place (Bryman & Bell, 2011).

In all our interactions with external people that have been considered to being able to contribute to our study and expand our understanding of the subject at hand (such as employees, managers, and other key people), we have made sure to inform them of the intent of our thesis and their rights as participants of an academic thesis. Participants should not feel uncomfortable and know their rights to the data we collect. We therefore always informed every one of the intents of our thesis when reaching out for a possible interview. Later, when a meeting took place, we made sure that we read out and confirmed how we as researchers collect and handle their data collected in the interviews would be processed. This was strengthened with sending out a consent form of how we process their personal data according to GDPR before the interviews took place, so they had the opportunity to read it at their own pace. Furthermore, privacy is something that is of importance when conducting research and we have ensured that people participating in our study cannot be identified in or outside the written report. In the report, we have through aliases covered up identifying factors so no one can deduce the identity of a respondent. Recordings, videos, and other sensitive material have been uploaded to a Microsoft Teams channel only accessed by us and our supervisor to ensure real names and other sensitive information cannot be accessed. Finally, we do not want to deceive anyone involved in this thesis and have only been focused on this study with a clear goal in mind of what we want from our participants and conveyed that to them. Questions and other inquiries have been aligned with the research question and purpose in mind, not deviating from the subject to be in line with the above-mentioned ethical principles.

5. Data analysis

Our thesis aims to understand how employees perceive and experience the post-implementation phase of an ERP system. The following chapter will demonstrate findings from our analysis. Our analysis shows that different perceptions about the effects of the ERP implementation were salient at different stages of the process, and ultimately, the results included unintended consequences for the organization. In what follows, we show this in detail by reporting how different forms of affordances and constraints emerged in different stages of implementation.

From our analysis, the perceived affordances of the new ERP system were to create common principles and processes, free up working time, and adapt the system interface to different users. We can identify three actualized affordances in the case organization where a more detailed view, increased collaboration and flexibility are present. The affordance effects are

then the result of the actualized affordances, including increased autonomy and flexibility in the post-implementation phase. On the contrary, the perceived constraints were that the standardized system would not be as tailored to their existing workflows and that it would be challenging to learn when you are new to the system. The actualized constraints consisted of longer time to completion of tasks, loss of functions, and differences in common practices. The constraints effects of the actualized constraints were observed to be that tasks can be complex and cause confusion between departments.

5.1 Pre-implementation perception of system as means to make existing work practices more standardized and efficient

Following section explains the pre-implementation perceptions the organization had on the new ERP-system. This reflects the impact goals found in the internal documents whereas the aim of the implementation was to enhance or better facilitate their already existing work processes.

The case organization perceived that a new standardized ERP system across the whole organization would achieve effective management of their operations. It was therefore perceived that the new ERP system would improve in several areas and take the form of impact goals, which were then evaluated towards the proposed solutions by vendors. The perceived affordance of the ERP system that would be envisioned for the employees are, as described in the internal document, included the following:

- Create common principles and processes in [the organization].
- Free up working time through better system support and streamlining.
- Be able to adapt the system interface to different users.

The old legacy system previously used was viewed as a collection of several systems that were separated from each other. This entailed several challenges that the migration to a new system would be able to meet and improve in several areas.

“The goal with the future system solution is to gain an efficient handling of the property management, which includes functions for service, upkeep, fault reports, renting contract administration, notifications, as well as financial accounting and administration” - Internal document

To measure the usability of a proposed solutions from vendors, management of the organization adhered to the industry standard ISO 9241-11: *“the extent to which a system, product or service can be used by specified users to achieve specific goals with effectiveness, efficiency and satisfaction in a specified context of use”* (ISO, 2018). This was further supplemented with Jacob Nielsen’s Usability Heuristics involving (1) clarity, layout and design which encompasses the graphic unity for the user and different parts of the system. The evaluation is then founded on (2) navigation and workflow which revolves around how the user perceives (among other things) the ease and efficiency to reach different functions. Furthermore, the system is evaluated on the (3) minimization of errors and help which involves to which degree the user receives support errors, how easy it is to understand and find a solution.

Thus, standardizing and the effectivization of work processes was the key perceived affordances found in our analysis of the pre-implementation perceptions within the case organization. As we explain further below, these perceptions of abilities of the system would be re-evaluated by users during the implementation.

5.2 Implementation perception of system as enabling new work processes

The following section presents the perceived actualized affordances related to the post-implementation phase that enable the participants of this study in their daily work-tasks. The main areas surface around more and richer information flow, allowing the employees to collaborate and more flexibly perform daily tasks that include using the ERP system.

5.2.1 A more detailed view

A common theme observed from the interviews with the respondents in the case organization was the fact that the information in the ERP system provided greater visibility in connection to their associated work tasks. The majority of the respondents had previously experienced the old legacy systems prior to the change to the new standardized system currently used.

“[...] it is a big difference compared to the previous system [...] I can see all of the details in the organization. In the previous system I could only see my own tasks and eventually someone else's tasks if they were on leave, but that had to be assigned beforehand”. - Respondent 5

The consensus among all of our respondents were the possibilities that the system enabled them to receive higher visibility in many of their work-related tasks. This was partly in the number of different types of information the ERP system provided them with.

“All the information that we need is there and it is there we publish tasks if we need help with something in the apartments from external [contractor] people or internal people. We have more, there are more available details in this system that makes it easier. [...] We can manage more on our own than to beg other people about things” - Respondent 2

Accordingly, the participants perceived that they had greater visibility and availability of information enabling them to perform more tasks.

5.2.2 Ability to collaborate

A common advantage expressed by the respondents when interacting with the ERP system in their work was the ability to collaborate and retrieve information about other colleagues' tasks. The aspect of collaboration is actualized when respondents have to take over, gather information, or in any other way access information about other colleagues' personal tasks and customers.

“I access everyone's tasks in [the ERP system]. It is like now when my colleague is on parental leave then I can see all his errands that are active or not active, or when the tenants call then it goes straight to me through the phone”.
- Respondent 3

This ability to collaborate and access other colleagues' information is not only something that is restricted to those sitting in the same office space or in the same residence area, but it also provides the employees with the ability to access and support other employees across the organization.

"[...] If someone [other employee] from the other side of town needs assistance, of course, I might not have full insight into what he is doing but I can access everything". - Respondent 3

The benefits of being able to access information and collaborate on other employees' responsibility areas is seen as something that provides more independence in relation to their work tasks and responsibilities. This is exemplified by Respondent 2, stating that due to the availability of information in the system the employees can manage more on their own and not request other people to do tasks for them due to a lack of information.

"We access it [information] in another way than what we did before. We might have more authority at this stage in a way. It makes it easier, and we can manage things directly". - Respondent 2

The aspects of collaboration and access to information was seen to be of importance to the respondents as the work conducted is heavily geared towards their customers and tenants. Being able to quickly help the customer was seen as a positive outcome that provided better service due to being able to answer questions, resolve unclarities and create new tasks, both within and outside of the employee's responsibility area.

5.2.3 Flexibility in the work setting

During our interviews it became apparent that the responsibilities of the respondents meant that they had to work in their designated office and onsite with their customers. As explained in our case description, the ERP system allows employees to have a desktop version as well as a mobile version compatible with smartphones and tablets. Respondents expressed that the use case for the different versions allowed them to not be restricted by only having the information tied to the desktop version, as well as inputting and extracting information on the spot in the field.

"If I'm in my area and I'm making a fault report then I can take a picture and make a report directly on the phone if I am out. [...] I think it is more efficient that you are able to do it when you are out because then you can attach a picture in a convenient way and it becomes easier for the one I report it to as well" - Respondent 3

Among our respondents it was however not a coherent picture of how the utilization of the ERP system was used between the context of the office versus out in the field. The mobile version of the ERP system was observed to be of great value for gaining information about the historical changes and information about the object (such as renovations, change in home appliances, and so forth). The difference between the respondents starts to emerge when registering and creating tasks in the mobile version instead of the desktop version.

“We primarily use it [mobile version] when we conduct apartment inspections and log notes about the condition of the apartment or if there is anything else that should be logged” - Respondent 2

The availability of being able to have a mobile version with you was therefore of value when conducting inspections as it would directly go into the system records, instead of having to log it again at the desktop version in the office. Creating new tasks, such as fault reports were not as common to the respondents as the desktop version was smoother and provided a clearer overview for logging the information. Conducting fault reports was too time consuming and did not ease the point of being able to create new tasks directly.

6.3 Increased autonomy and flexibility as post-implementation effects of system

This section explains the perceived effects caused by the actualized affordances in section 6.2 in the post-implementation phase. The main findings were that the individual autonomy and flexibility in the work context increased with the new ERP system because of higher and richer information flow.

5.3.1 Increased individual autonomy

In the end, there are some effects of the affordances that can be found in the case organization in relation to change when implementing the ERP system. It is observed that the improved insights into the system, greater information flows, and ability to collaborate and gain access to other users' information increased individual's feelings of autonomy and independence. In their interactions with the ERP system, respondents could retrieve more information and conduct tasks without having to go through an alternative pathway.

“We access it [information] in another way than what we did before. We might have more capacity at this stage in a way. It makes it easier, and we can manage things directly” . - Respondent 2

This positive effect of increased autonomy is therefore the outcome from the process of actualization when interacting with the ERP system, actualizing the action potential of streamlining the work process. It becomes clear that the actualization process creates a more efficient way of working when employees have to assist or contribute on a task that is not their own or outside of their ordinary responsibility area. This effect extends towards their customers who receive better service as autonomy is heightened.

5.3.2 Flexibility in work context

The next affordance effect found is the flexibility among the employees to choose when to use the ERP system depending on the work context. Flexibility led to users choosing when to input and extract information when it suited them the most during their various work tasks. Conducting a fault report did not only make the process of registering the necessary information for completing the task, but additionally easing the ability to look at historical records of the changes made in the apartment.

Despite the lack in some areas of the mobile version of the ERP system lacking in providing a clean overview regarding fault error, the actualization of the action potential influenced the

employees in having the possibility to work in flexible ways and customizing their work flows according to their needs. The input is the same in either desktop and mobile version of the ERP system but the chosen methodology of how actors engage in the technology (ERP system) is flexible and dependent on the employees wishes.

5.4 Pre-implementation perceptions of systems as means to make workflows more standardized and time consuming

This section explains the perception constraint that the employees had on the new ERP-system which focuses on how standardization can result in a less tailored overview. Thus, the understanding that workflow would be more time-demanding was perceived and to an extent challenging to learn as a new user.

5.4.1 Standardized work-processes

The respondents had the perception that the system being purchased would be more standardized than the earlier legacy system, which would result in that the functions and tasks flow would not be as tailored as the earlier. One respondent also lifted that the perceptions.

“It is cumbersome. And with that said, it is a standard system. I guess we knew that when we bought it” - Respondent 4

This was also related to new employees and how they were introduced to the system. One perception was that if not trained enough, it would be challenging to execute at a good level. This related partly to the standardized overview and the many steps to perform work tasks.

“But then we also had joint briefings as well. You probably need that as a new employee, I think. There’s a lot to click on” - Respondent 2

The consensus of this code was that the participants, even if they did not know exactly what the new system would entail, did not feel surprised that a standardized system would have more tasks.

5.5 Implementation perception of system interrupting the enabling of new work processes

The following section describes the perceived actualized constraints related to the post-implementation phase that inhibited the participants in their daily work-tasks. The main findings were that the new ERP was perceived to have many steps in order to complete tasks, that the lack of functions bounded how tasks are performed and that practices could differ from each other.

5.5.1 Longer time to completion of task

Gathered from the interviews, the respondents stated that the steps needed to complete tasks were too complex and time-consuming. Everyone with experience of the old system stated that the current ERP system in comparison to the old one required more time for completing tasks. Some respondents addressed that if they had not had experience with the old system, maybe they would not have thought of it as so struggling. The respondent who did not have earlier experience also addressed the issue with the several steps you could take to complete a task.

“It is just this thing about the fact that earlier it was so smooth in some way, you didn't have to go on and click on to get to where you wanted. Before, you could get there directly more or less. There are so many steps you have to work with.”
- Respondent 3

This was related to the perception of information overflow as the respondents could see information related to other departments, making it harder to navigate through the system.

“The system is used by everyone in the organization but we have different tasks. And it might have been a thing that if you are a landlord, you have a version where you peel off what is not needed more than if you work in finance or as an operating technician [...] then you might have another version that is kind of adapted for them so that it becomes kind of easier to just orient yourself in the system” - Respondent 1

Other respondents addressed this issue as well, stating that the information overflow sometimes resulted in it being difficult to find different specific information. Whereas they needed to search for it to request support when performing tasks that were relatively new or not that common to perform. Also, respondent 1 and 5 stated that there was a risk with many steps that something accidentally got forgotten, with the consequence that tenants fault errors remained unfinished.

“Yes, as I said, it is very long sometimes to get everything [tasks] ready. For example, on this with checkmarks [...] the order can remain until the tenant gets in touch and says, why aren't they coming to check on my fridge? So oh, I forgot to uncheck this checkmark.” - Respondent 5

Thus, when interacting with the system the employees feel that their tasks were more time consuming than they were with the legacy system.

5.5.2 Loss of functions

Respondents stated that functions that could make their tasks easier in the ERP system did not exist. Such functions did however exist in other modules that were not as commonly used. As stated earlier, landlords have responsibility over the apartments of their located area, some even have responsibility for premises. In terms of control of the estates, the work-task is not different, but a much more detailed description is included for the apartments. Resulting in the respondent having to manually put them in.

“You can put a note on a door or on carpentry or on windows or, but it is not in the room list, but then it is just floor, wall, fridge, and freezer. Then I write myself then like: yes, single door brands, wear and tear skirting boards. In an ordinary apartment it already exists as a tab.” - Respondent 3

Not all functions were not located where the respondents wanted them. For some working tasks, respondents had to use different modules to complete them. In the older system, these could be completed at the same time.

[...] just such a thing as that we want to check what it is for rent on an apartment. Then it does not exist in Technical Management. If we are going to give a rent

reduction to a tenant who's been without a bathroom for a month. Then we need to know what the rent is [...] we thought we bought 1 system, we didn't, have we understood" - Respondent 4

Hence, the employees felt hindered when performing some tasks as then requested functions not available resulting in this code.

5.5.3 Difference in common practices

One theme that emerged during the coding was that there was no real common practice. All residents seemed to, even though most of their daily tasks are similar, had different ways of approaching them. For example, did some prefer to do inspections and fault errors on the app, and some did not. One reason that came up by Respondent 5 was that the application does not have the time overview that the system on the computers have, instead a lot of scrolling is needed to be done.

"But it is probably different depending on how people work I think. You find your own routine that fits you the best. So everyone works really different"

- Respondent 3

The respondents also expressed that they had varying levels of knowledge of the system, but they all felt like they had knowledge enough to complete their daily tasks. This was also communicated through Respondent 4, who have slightly other working tasks and instead receive fault errors from landlords did both sense the varying levels of knowledge and that the difference seemed to have different workflows.

"Yes, the offices behaves like their own beehives where they have their own workflows" - Respondent 4

The respondents also addressed that when new employees are introduced to the system, their main training is from their closest colleagues. Our respondents that were relatively new addressed this, speaking about how she got taught by her colleagues and that they.

"So the only training I've received is from the one I am a substitute for. I think that is how it usually works, you teach the new ones [...] if she uses it one way, then I do too, because I haven't had the energy to learn new ways"

- Respondent 1

This was also further explained that a lot of learning happens when you perform the tasks by simply testing and clicking. The learning curve was explained to be long by Respondent 1 and took some time to fully know how to use the system for the daily work tasks.

"When you're in my profession, it can be hard to have to learn if you want to know it before it is a real situation before the tenant stands here and looks at you, so you want to be able to as well" - Respondent 1

So, this subcategory covers how the participants found their own way of working, depending on what was efficient for them. As the landlords are teaching each other some tasks were performed like their colleagues and some were not.

5.6 Decreased efficiency and structure as post-implementation effects of system

This section explains the perceived effects caused by the actualized constraints in the text explained in section 6.5 in the post-implementation phase. The main findings were that the landlord perceived that they needed to spend more time performing tasks, that the many steps and rich information flow could result in performing tasks wrong resulting in increased customer service and lastly how flexibility in the system can cause confusion between departments.

5.6.1 Tasks can be complex

The first realized effect of the constraint is that with the new systems, tasks are demanding more time than before. This is a result of longer workflows and situations where the system does not fully support their task. This results in a perceived decreased efficiency when performing daily tasks that are related to the ERP system.

“The system takes more time out of me [...]. I have less time for simpler stuff that I have done before so I do. I sit more in front of the system than before”

- Respondent 5

“What efficiency decreased. Free up working time, I do not think we have done that [...] I would imagine when you talk to the landlords that they don't think they've saved any time, I guess”

- Respondent 4

Related to the effect of longer workflows, respondents expressed a concern of missing steps resulting in some tasks being forgotten. The constraining effect of this is both that the tasks do not get completed, but also that the tenants can be forgotten which from their perspective can make them feel like errands take a lot of time / are not a priority.

“So that sometimes you forget about tasks, and the tenant can suffer a little” - Respondent 5

Hence, the actualized constraints were how the employees perceived that their working tasks were more time demanding and some did not have all functions perceived necessary to perform tasks were the reason that tasks were perceived to be unnecessary complex.

5.6.3 Confusion between departments

Another effect is that there can be confusion between departments. As different departments (and offices) have different workflows and tasks, it can cause confusion between them. In the system, all that you can see is the tasks but not the thoughts of the employee responsible for the task.

“We can get a question from the economy department as well, for example, who goes in [the system] and looks and says, why do you have this many claims open? You can't do all these at once, can you? Yes, but we work this way as well. And yes, so that there can be some miscommunication sometimes between different departments so that you don't really understand each other's ways of working and so on” - Respondent 4

Hence, different practices could confuse employees between departments.

5.7 Summary of analysis

Throughout our interviews and the following analysis, it was observed that there was a constant comparison between the legacy system and the current standardized ERP among the employees. The opinions of the current ERP system were twofold, where the benefits included a more detailed view, more available information, and an increase in autonomy. However, other aspects of the system where the main issue was to work efficiently in the system. The actualized affordances and constraints feed off each other, where the improved detailed view meant that not only could employees increase collaboration between colleagues, but also assist customers as well. At the same time, the same work flows as before in the legacy system now took longer time to complete in the new ERP. More is possible to do in the post-implementation phase enabling a sense of increased autonomy, however, the time to do so takes longer and is not as personalized for their work flows as before. Therefore, the result is that the efficiency is perceived to have increased in the organization but at the same time not in the employees' individual work tasks.

Even though the differences in the post-implementation phase, all seemed to have found their way to complete their tasks related to the system, but our analysis shows that there are contradicting ways of working and executing tasks across the organization. The participants felt more flexibility as there were several ways to complete tasks or requests, for example by either doing it in the mobile version or on desktop. Instead, it was perceived that new tasks could be difficult to guess how to do. But how do we know which workflows that best match the impact goals related to the project? One of the perceived affordances was to make joint processes within the case organization. However, the actualized constraint showed that there are differences in common practice which inhibited coherence in what is the best way and acting on the action potentials. A natural transition from the discussions about the different common practices was how learning took place in the post-implementation phase they are currently in. As explained by many of the respondents, learning is done through the closest colleagues in many cases where they are physically located. Beside the initial training in the implementation phase of the ERP system, no new training or development was done through the organization and learning instead relied on colleague knowledge or manuals uploaded internally. Therefore, differences in practice of the ERP system were observed in the case organization where the learning is locally where there exist “beehives” as portrayed by one respondent.

6. Discussion

The aim of this thesis is to understand the emergent changes following the introduction of new information systems, in this case study of an ERP system. Given this aim, we have by conducting a case study tried to answer the following question:

How do employees perceive and experience the post-implementation phase of ERP systems?

In the following section we will compare and discuss findings from our empirical analysis in relation to previous research. This section will also address theoretical and practical contributions of this thesis and discuss limitations and recommendations to further research.

6.1 Increased autonomy when interacting with the ERP system in the post-implementation phase

The employees perceived that their autonomy increased when working in the post-implementation phase of the ERP system. The autonomy is expressed by the perceived increase in available information that employees could see in relation to their work. It was evident that all the employees at the case organization experienced the interaction with the ERP system to aid them in various tasks. The available information could therefore assist them in retrieving useful information, collaborate with others, and help their customers and tenants in a better way.

Previous literature has emphasized that an ERP system should ease coordination between actors and remove organizational silos that otherwise inhibit collaboration and information sharing (Nestell & Olsen, 2018). We found that employees could act more independently and not have to rely as much on others if new tasks or requests came up in their work in the post-implementation phase. This was exemplified by one of our respondents stating that if a customer calls and needs information, the employee could directly look up and answer the errand without delay. This is found to be in line with the conclusions made by Chang et al. (2011) and Coşkun et al. (2022) that higher usage of an implemented ERP system in turn generates a higher degree of both individual productivity and customer satisfaction. The employee's perception and experience in the post-implementation phase of the new ERP system is seen to enable autonomy for the employees, where the actualization of the action potential revealed that the system contributed to both better customer service and collaboration.

As described by Wessel et al. (2021), in ITOT the digital technology supports the value proposition of the organization, while the transformation outcome is a reinforced organizational identity. The perceived affordance was not that the ERP system could re-evaluate the identity of the organization or what the core value of their offering was. Instead, the aim was to "gain an effective handling of their property management" (Internal document). As evident from the interviews, the employees and management did not perceive the new ERP to have the possibility to change the value proposition of either their own work or of the organization. Instead, the actualized affordances were identified to reinforce the employees' work processes through new capabilities when acting on the action possibilities in their interaction with a new technology (the ERP system). The findings from the case organization highlights that the ERP enabled the possibility to better involve the employees to make informed decisions due to the availability of information, rather than something new being created. The ability to see and take over other employees' ongoing tasks or help customers on the spot is an action that existed before, but instead just took longer than it does now in the post-implementation phase with the new ERP system.

6.2 Complex work tasks take longer time and different workflows as a result of differences in learning in the post-implementation phase

The employees perceived their tasks to be time-demanding in relation to their older legacy system and even some participants wished that it was possible to only show the functions related to their working tasks. However, implementing one system to an entire organization often means that all must adjust to the same thing (Nestell & Olsen, 2018), and as highlighted previously, one of the benefits with implementing an ERP-system is to gain an enhanced overview by increasing information assets and flows (Nestell & Olsen, 2018). Even though the introduction of a standardized system was seen as a perceived constraint, it was also communicated as an actualized constraint affecting their workflows. However, the employees seemed to understand the link between these, where they can do more due to a more detailed view, but as a consequence tasks take more time where the information might not always relate to them.

An implementation because of technology renewal can raise tensions (Wimelius et al., 2021). One tension caused by technology renewal is the tension between established and renewed technology usage. The implementation did not only switch the technology but also the use of it. The change of technology and subsequent use changes the structure, processes, and culture in an organization where everyone might not want to do these changes (Wimelius et al., 2021). Our findings showed this tension as well as some respondents created workarounds in the use of the system compared to how they used it before. For example, waiting to fill in information until at the office instead of doing it in the app. One factor that can affect how this tension arises in an organization is how knowledgeable the employees are, and one risk factor is not having enough knowledge about the possibilities with the new technology (Wimelius et al., 2021). This differed between the participants, Markus & Robey (1988) discussed how IT can change organizations because that the social context is of great importance, and depending on the organization the consequences can strike differently. And even if Markus & Robey (1988) discussed different organizations Our findings showed traces of emergence as the employees seemed to adapt differently to the technology depending on department and office.

6.3 Learning is important in the post-implementation phase

Our findings showed that education was given in conjunction with the implementation, and that new employees are taught by their colleagues. Despite the respondents having access to manuals and people to call regarding issues, the opportunities for training do not exist to the same extent in the post-implementation phase. As highlighted by previous literature, continuous communication from management about the benefits of any given system is vital for establishing a common understanding of how the system works (Osnes et al, 2018; Ruivo et al., 2014; Shaul & Tauber, 2013). This is emphasized by Chang et al. (2014) stating that the change management programs existing in the pre-implementation should continue even in the post-implementation phase of an ERP system.

Additionally, knowledge sharing and communication between employees are important building blocks for continuous learning in the post-implementation phase (Chang et al, 2014), which was occurring not only for the employees with longer experience in the organization, but

also for new members. Our analysis showed that employees had different ways of performing tasks that in some cases could cause confusion between different departments. This could be a result of people in organizations creating their own subcultures and therefore reacting to change in different ways (Senior & Swailes, 2016). When standardized systems are implemented, if no common workflows are established people tend to work in different ways by creating their own routines (Osnes et al, 2021). This seemed to be the cause in this organization, as there are several ways to complete tasks different workflows have emerged, whereas one respondent even named the different offices “beehives”.

6.4 Contributions to practice

Beyond our scientific contributions, we believe the findings of this thesis can contribute to the practical lessons for managers and practitioners in the public sector. As we have established previously, reports and reviews of the current state of following up public procurement deals in Sweden is shown to be lacking (Carlsson Westergren, 2020). Even though there are many factors to consider when evaluating if investments have been fully realized, the qualitative case study perspective can provide deeper insight than just numbers gathered from performance reports. Other public organizations and managers in a similar field of property management and development can gain a greater understanding of how work processes are perceived and influenced by an ERP system in the post-implementation phase. Lessons for practitioners could therefore not believe that an implementation of an ERP system (or any system) is the final learning opportunity for employees. As from our findings, implementing a new ERP system can be perceived to enhance the autonomy of the employees by having access to more information and in turn give better customer support. Practitioners should however continue with learning opportunities that support employees' use of the system for them to use it in more ways in relation to their work tasks. By understanding the relationship between the employee and the technology, technology affordances and constraints theory could be used to further elaborate this in the post-implementation phase. This thesis should only be viewed as a small contribution of how to manage and develop ERP systems in organizations. However, our contribution could be a small step for a better understanding of public procurement in Sweden and what to look for and/or avoid in the future.

6.5 Limitations and suggestions for further research

Future research could extend the scope of our research, investigating an organization throughout their operations. Due to the time scope of this thesis, we were unable to cover the entirety of the organization and in our single case study only focused on a specific part of the organization and module of the ERP system. Future scholars could therefore extend this by looking more into interdepartmental perceptions and experiences found among employees in the post-implementation phase of an ERP system. This could be further extended for the researchers to follow the pre-implementation, implementation, and post-implementation stages of an organization's journey with a new ERP system as it would provide deeper understanding of the post-implementation. During this thesis we were only able to follow the organization after the implementation had happened. If future research of the topic could

follow these three implementation stages, we believe the post-implementation findings would be more deeply understood and better contextualized.

7. Conclusions

This chapter will present the main findings gathered from the study. To answer our research question of “*how do employees perceive and experience the post-implementation phase of ERP systems?*”, we conducted five semi-structured interviews in a single-case organization. The gathered data from previous literature, respondent, and internal documents allowed us to gain a comprehensive understanding and insight of the subject at hand.

The findings from our study highlight that employees perceive to have gained more autonomy when interacting with the ERP system in the post-implementation phase. This was observed to be due to a more detailed view, the ability to collaborate and flexibility in the ERP system. However, employees experienced the ERP system in the post-implementation phase to have complex tasks where work tasks take a longer time and that differences in learning can create different workflows within the organization. To capture the intended values when renewing technology organizations should continue to encourage and continue the learning of how employees use the system in the post-implementation phase. Thus, the conclusion of this study contributes to understanding how emergent change in users' perceptions of a new ERP system can be understood through Technology Affordances and Constraints theory in the post-implementation phase, as a result of technology renewal.

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List of appendices

Appendix 1 - Interview guide

Checklist before interview

- Introduce ourselves and clarify that the interview is conducted as part of our research for our thesis.
- Make sure to describe the purpose of the thesis, the topic and why the interviewee is selected.
- Describe for the interviewee their right to make notice if something is unclear.
- Clarify the interviewees anonymity, confidentiality and describe again the conditions of that no harm or judgment will be done.
- Describe where the thesis will be published.
- Make sure to get permission to record, store and for how long it will be stored.

Theme	Questions
Background	
	Vad är din roll hos [företag]?
	Kan du beskriva din roll? arbetsuppgifter mm
	Hur länge har du jobbat hos bostaden (olika roller?)
	Har du använt det tidigare affärssystemet [gamla systemet]?
Research questions	
	Hur använder du [ERP-systemet] affärssystem i ditt jobb? <ul style="list-style-type: none"> • Datorn • App
	Hur upplever du [ERP-systemet] i ditt arbete
	På vilket sätt förenklar systemet ditt jobb?
	Vilka utmaningar upplever du med systemet?
	På vilket sätt får du stöttning i användandet av [ERP- systemet]?
	På vilket sätt får du utbildning inom systemet?
	Riktlinjer för att använda systemen? Är det något som du är medveten om
	Hur upplever du din kunskapsnivå i att använda de system som du använder i ditt jobb?
	Hur kan kunskapen och självförtroendet i att använda systemen öka inom företaget (eller bland kvartersvärdar)
	Om vi tänker systemet) Har ditt arbete förändrats sedan du började <ul style="list-style-type: none"> • långsiktigt, bytt ut? • kortsiktigt, uppdateringar
	Hur hanteras det? Behöver du lära dig nya saker när du använder [ERP systemet] i ditt arbete?
	Vi har förstått att ni sitter några kvartersvärdar i varje kontor, kan du beskriva det samarbetet lite närmare? <ul style="list-style-type: none"> • systemet • delar ni samma felanmälningar

	Hur ser samarbetet mellan andra kontor/avdelningar (annan fysisk plats)
Closing questions	
	Har du något du vill tillägga som vi har missat att fråga eller som är relevant för vår studie?

Checklist after interview

- Make sure all questions have been asked.
- Ask if we can contact the interviewee again if we need any clarifications.
- Provide information of when the final report will be available and thank the interviewee for their time.