Linköping University | Department of Management and Engineering
Master's thesis, 30 credits| Master's programme
Spring 2020| LIU-IEI-FIL-A--20/03460--SE

A consultant perspective on Digital transformation

– Experiences of successful digitalization

Kristoffer Karlsson
Nikolas Karl Spyrou

Supervisor: Fredrik Söderström
Examiner: Ewa Braf

Linköping University
SE-581 83 Linköping, Sweden
+46 013 28 10 00, www.liu.se

ABSTRACT

Progress in digital technologies has influenced organizations and individuals alike. The focus of organizations has been to adapt to the dynamic digital landscapes; ranging from expanding the boundaries of existing markets, to conquer unexplored and unclaimed opportunities. These include collaboration in novel partnerships with external actors, creating additional value through alternative use of existing technologies and services, provided to the customer in the growing digitally interconnected ecosystem.

The purpose of this work is to explore contemporary consultant's experiences related to the digitalization of their client organizations. Which major factors, in their experience, increase the success rate of digitalization or digital transformation projects, and which factors form the greatest risks?

In order to answer the research questions and thereby fulfill the purpose, a case study was performed, where eleven semi-structured interviews were conducted with consultants from two firms. A thematic analysis was conducted, and the results were presented in the more general topics Perspectives on change, Change management, User involvement, Digital maturity, and Cultural aspects.

These adaptations made by organizations need to be aligned with the overarching goals and values they may hold. In order for such an investment to stand a chance of being successful, support is needed from all levels of the organization. Both through the willingness to adapt, and suitability of the proposed investment. In order to provide support is through proper change management, with a specific focus on the human side of the planned change. If the implemented system or process is not being used, or not utilized as intended, the generated improvement will be less than expected. The digital strategy was argued to be of less use to the organization the less connected it was to the general strategic perspectives. The digital aspects described in such a document must be incorporated in the identity and culture of the organization to remain useful, they need to become part of their DNA.

Keywords: digitalization, digital transformation, digital maturity, digital strategy, change management, organizational culture

PREFACE

With this work, we are coming to the conclusion of yet another chapter in life. During the years spent at Linköping's University, we have met many new people, discussed the highs and lows in life, and shared experiences from all over the world.

We would like to thank the participating consultants, as well as their organizations. Further a thank you is in order, to HG for all the cups of coffee, and for correcting the alignment of the pool table.
A thank you to VilleValla Pub is also in order, for both the celebratory events reaching milestones, as well as motivation provided when needed the most.
Finally, we'd like to thank our supervisor Fredrik Söderström for the feedback and help provided.

Thank you,

Kristoffer Karlsson and Nikolas Karl Spyrou

Linköping, May 2020

"*Once your organization has selected its music, it needs to decide how each section of the orchestra will come together to deliver a memorable performance. Timing is essential. Companies face similar decisions when it comes to digital transformation. Which parts of the organization are needed to execute the strategic direction, and how will they work together to ensure harmony rather than dissonance*?"

- Wade, Noronha, Macaulay, and Barbier (2017, p.7)

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1. INTRODUCTION

This chapter will present the concept of digitalization and digital transformation, and motivate why these are ever more relevant and present in our day to day lives. The chapter continues by describing the problem, the research questions, as well as the purpose of the report. Finally, a description of the intended target audience and a definition of the scope and limitations of this work is presented.

1.1 Background

Consultants working with IT and Management are faced with an increasing amount of digitalization related projects, however due to difficulties of narrowing down the meaning of the concept, it is not always readily apparent what the client is requesting. Krüger and Teuteberg (2016) explain that those working with leading and managing the processes of digital transformation may find themselves requiring new competencies than previously expected. Meanwhile, Aguiar, Gomes, da Cunha and da Silva (2019) mention that far from all the initiatives are successful. Thus, digitalization and digital transformation is not entirely unproblematic.

An increasing amount of people rely on technology to fulfill both mundane and more complex tasks (Cöster & Westelius, 2016). To support society's new habits and ways of living the companies have to adapt and evolve. Gobble (2018) explains that the adaptation of businesses, to both sense the shifts in the market and to react appropriately is not a simple task, which is neither accidental nor organic. Rather the so-called "digital transformation" is compared to a journey, with the need for an elaborate plan to reach the destination (Gobble, 2018).

Every day more and more processes are using digital technology in some form and the traditional way is becoming obsolete, as an example of this trend, the bank sector has created systems to allow customers to perform errands online (Cöster & Westelius, 2016). To illustrate the meaning of the digitalized society further an example from the bank systems spanning the last few years, including quite a few changes regarding payments. In Sweden, the perception is that many stores have gone from accepting cash to just accepting cards or other forms of payment through different applications and services (Riksbanken, 2018).

1.1.1 Digitalization in practice

To keep up with the rapid changes in society companies might perceive the need to adapt or they risk losing their relevance. Two keywords closely related to these recent changes to society are "digitalization" and "digital transformation".

Due to the fact that the concept of digital transformation lacks a widely agreed-upon definition, this work will use the definitions by Gimpel and Röglinger (2015) presented below:

Their definition of ***digital transformation*** is as follows ***"****Managed adaptation of companies in light of progressing digitalization in order to assure sustainable value creation"*

and the concept ***digitalization*** is defined as *"The increasing penetration of digital technologies in society with the associated changes in the connection of individuals and their behaviors."* (Gimpel & Röglinger, 2015)

As can be seen in the definitions of the terms presented above, the concept of digitalization bears with it the changes in the way human individuals act and behave, which consequently necessitates that organizations adapt accordingly to remain relevant and generate value for their customers and stakeholders.

It is important to understand and differentiate digitalization and digital transformation from digitization. According to Feldman (1997) digitization can be seen as *"basic conversion of*

information from physical or analog to [a] digital format". Meaning that digitalization, digital transformation, and digitization have a close relationship with each other (ibid.).

The adaptation of an organization to the digitalized society can be a revolving experience for the organization, which can either adopt a digital strategy and implement it into their business model, or by making organizational changes they can introduce new roles with the responsibility of leading the transformative work and implement the necessary changes. Tumbas, Berente and Brocke (2018) describes the latter, by giving the example of the role of Chief Digital Officer (CDO). They explain that some companies have chosen to introduce a CDO to their organization (ibid.). The role of CDO is investigated further through the perspectives of 35 organizations who have chosen to appoint a person to fill the role (Tumbas et al., 2018).

From the first industrial revolution, utilizing steam engines and railroads, and the second where electricity was introduced as opposed to combustion engines, followed by the automation of processes and production lines using robotics which is argued to be the third, we now see the effect of the fourth industrial revolution (Mohelska & Sokolova, 2018). This revolution is not a change in the industrial "muscles" similar to what the first two, or arguably even three was. Rather the adaption of the control, comparable to the industrial "brain", or as Mohelska and Sokolova (2018) calls it: the 'smart industry'. They further explain that we are presently at the doorstep of Industry 4.0, or even past the threshold of the concept (ibid.) which will be discussed further in section 3.1.2. The views on industry 4.0 are not unanimous, with Buer, Strandhagen and Chan (2018) counting over 100 definitions of the concept. Depending on the company's digital maturity some see it as a revolution and others as an evolution (Romero, Flores, Herrera & Resendez 2019).

Buer et al. (2018) writes that Industry 4.0 share similar and sometimes overlapping objectives and goals as the Lean philosophy when applied to manufacturing. They describe some aspects of the Lean philosophy as lessened production costs, shorter lead times, and an increase in the overall flexibility (ibid.). The relation between the Lean philosophy and Industry 4.0 could be described as potential enablers of each other's ideals, where one enables the other to thrive and be efficient and vice versa (ibid.). Lean philosophy in the context of industrial manufacturing supports the development and implementation of Industry 4.0, and the implementation of Industry 4.0 technologies can support Lean manufacturing practices (ibid.).

As Cöster & Westelius (2016) write in their book, digitalization is a concept adopted by many private organizations. However, the digitalization is not limited to the private sector, contemporary public organizations may also find that technology and development are getting indispensable, as mentioned above. With each passing year, more and more actors within the public sector are trying to achieve change through applying digitalization, as can be seen through, for example the establishment of the Swedish Agency for Digital Government (DIGG) which was founded in September 2018 (DIGG, 2020a). Today the gap between countries is wide. For example, one of the first countries to introduce digital services was Estonia *(e-estonia, 2019)*. Today 99% of their state services are online. Even a large percentage of the Estonian people vote using e-voting (e-estonia, 2019).

During its brief existence, DIGG has served as a catalyst to accelerate the digitalization of the public sector (DIGG, 2020b). According to a report by Organization for Economic Co-operation and Development (OECD) an agenda with the name 'The 2015-2018 Digital First

agenda'. The Swedish first agenda covers five core areas of work regarding digital government efforts (OECD, 2018). Those five core areas are as follows: (i) A national digital infrastructure, (ii) digital maturity, (iii) capacity for digital innovation, (iv) one agency for digital government and (v) legal reform for digital first.

1.2 Problem

The path to succeeding in the journey of digital transformation as described by Gobble (2018), is also described by Kane (2019). He elaborates on common themes necessary for the organization, including increasing the agility and experimental environment of the business(ibid.). Encouraging innovation through a culture that enables continuous learning process and collaboration amongst other aspects are also fundamentals, rather than focusing on which new technology to implement, the primary foundation for digital transformation is the corporate culture (Kane, 2019).

Gobble (2018) continues to explain the key point of digitalization by mentioning a few necessities from the organizational point of view: the organizational need to rapidly adapt to digital changes. To exemplify she draws focus to a strategy that emphasizes flexibility in all layers, organizational structure, employees, and the technology it chooses to implement (Gobble, 2018). As a second and third point, she points out both the importance of enabling innovative processes by allowing risk-taking and autonomy for the employees (ibid.). The third point touches on the significance of a collaborative culture, which focuses on cross-functional work (ibid.). These points are part of her explanation of what can and can't be considered a digital strategy (ibid.).

To return to the quote by Wade, Noronha, Macaulay, and Barbier (2017) above, the path to a successful digital transformation for an organization is not clear (Wade et al., 2017). They describe the necessity of the organization to adapt to their specific context, like an orchestra who all need to be in sync and work towards performing a harmonious piece of music (ibid). The example they use showcase that the organization has to define how to work together and also that a clear strategic vision is necessary (ibid.).

As Wade et al. (2017) explains, a problem when dealing with digitalization involves handling each individual case differently due to the varying natures of each organization. They compare the act of succeeding in supervising and managing the changes brought forth by digitalization, to an orchestra creating harmonies (ibid.), which less figuratively expressed mean that as a consequence of the specific organization's experiences, digital maturity, objectives and other influencing factors need to find their own way to balance each of these factors, while changing their contexts around them.

Due to the diverse nature of projects relating to digitalization or digital transformation, Aguiar et al. (2019) explain there is no agreement on the practitioner or the researcher level on what they actually are, or how to implement them. The latter is part of the problem this work is striving to investigate.

Further, Aguiar et al. (2019) also describe that digital transformation can be considered a buzzword, and continues by elaborating on the frequency of failed initiatives related to digital transformation, despite the monetary investments being noteworthy (ibid.).

The ease with which new hardware and services form the digital infrastructures in a digitalized organization will not be the topic for discussion, rather the value gained by utilizing the technologies correctly and the monumental changes in processes that might need to be implemented for the transformation to be directly valuable for said organization is the issue at hand.

Krüger and Teuteberg (2016) write about the novel need for IT consultants to understand the social aspects, while strategy consultants need to be aware of technical aspects when taking on work related to digital transformation. This is problematic, due to the need for additional expertise outside of the knowledge one can usually apply to solve their task. Further they write, that when relating to digital transformation the Information Systems (IS) field is lacking the appropriate theoretical concepts regarding the transformative work (ibid.). Krüger and Teuteberg (2016) also describe their assumptions regarding the set of skills necessary for a consultant to act as a change agent, driving a digital transformation (ibid.). This assumed figurative toolbox includes a range of technological competence, an understanding of economical assets as well as communication skills (ibid). The assumption is a sign of an uncertain state of understanding regarding what the consultants working with digital transformation, acting as change agents' experiences. Furthermore, as Aguiar et al. (2019) mentions, there is a high amount of non-successful initiatives, which is another part of the problem this work is intended to investigate.

To tackle the problem, consisting of dealing with organizations of various natures as mentioned by Wade et al (2017), and how to implement the digitalization or digital transformation initiatives like Aguiar et al. (2019) describes, while avoiding the pitfalls which a majority of initiatives fall into (ibid.), the intent is to explore the experiences of practitioners with competence in these areas and investigate their view of which figurative tools are needed, as Krüger and Teuteberg (2016) discussed.

1.3 Purpose

The purpose of this research is to gain a deeper understanding of the perspectives of consultants tasked with leading projects related to digitalization and digital transformation, specifically regarding both the possibilities and obvious as well as less than obvious problems they may have encountered. It is the perception of the authors to this work that an accessible account of the experience of consultants working with these kinds of assignments would be useful. An attempt to achieve this will involve investigating the perceived problems and possibilities which a consultant can face when involved in projects related to:

a. implementing digital transformation of some scale in an organization, in order for the organization to achieve a pre-defined objective.

b. evaluate the digital maturity level of an organization in order to prepare them for a digital transformation.

By mapping the perspectives and experiences of consultants working with these issues, it is the intent of the authors of this work to contribute to the understanding of what measures an organization might have to take prior to the embarkation on the journey towards a digital transformation. Another major contribution which might be helpful for practitioners of similar

projects is the insight in differences in approaches by fellow consultants who chose to participate and contribute towards the body of empirical data this work is presenting.

The clarity which can be obtained through this work, includes the understanding of the steps which might have to be taken by the organization, as well as the valuable experiences from this kind of work which can be of use to those who are yet to embark on the journey. It could also aid those who think about contacting experts to help them but are unsure of what to expect. Finally, it could also end up ensuring a more joint approach from the consultant practitioners before taking on future projects related to digitalization or digital transformation, thus potentially increasing the quality of their future work.

1.4 Research questions

In this report we aim to answer the following research questions:

Q1: What are the major elements of influence in projects regarding digitalization or digital transformation from a consultant perspective?

Q2: What forms the greatest obstacles for an organization to overcome in order to successfully complete a project related to digitalization?

1.5 Target audience

This report has a wide target audience from many different sectors. Due to the fact of being a master thesis, it is of course written for those with an interest of the academic perspective of the Information Systems (IS) field. Because of the fact that to achieve the following results we collaborated with consultant companies, our goal is that this report will be a rewarding read for that audience as well. By describing the experience of the participants in a neutral way the target audience could also include members of an organization interested in understanding the nature of the work involved. The experiences will describe organizations in both the public sector as well as in the private sector.

1.6 Limitations and delimitations

Our goal with this report is to achieve the best possible result, but given the constraints on time, resources and current social factors, not all of the areas we originally set out to explore can be included. To improve the quality of our work, and to be able to focus and dig deeper into particular problems defined earlier in sections 1.3 Problem and 1.4 Research questions, we have had to define a specific scope. We have chosen to not focus on how a consultant uses and adapts previously formed models, frameworks, tools, or procedures utilized in different contexts, given the specific client or their differing goals. Nor will we cover the concept of innovation, which was frequently mentioned during the interviews. It is our belief that to make justice to the huge concept of innovation would require our undivided attention for a longer timespan than available. We will also not focus on how the solutions are managed or maintained after the consultant completed their work. The initial idea included observatory studies and possibly even holding a workshop in order to get a deeper understanding of the experiences described, however, due to the current pandemic, and abiding by the guidelines given by the Public Health

Authority of Sweden (April, 2020) the decision to only perform the planned interviews, and even these had to be converted to take place through digital means rather than face to face.

1.7 Disposition

The disposition of this work is presented in figure 1.1 below.

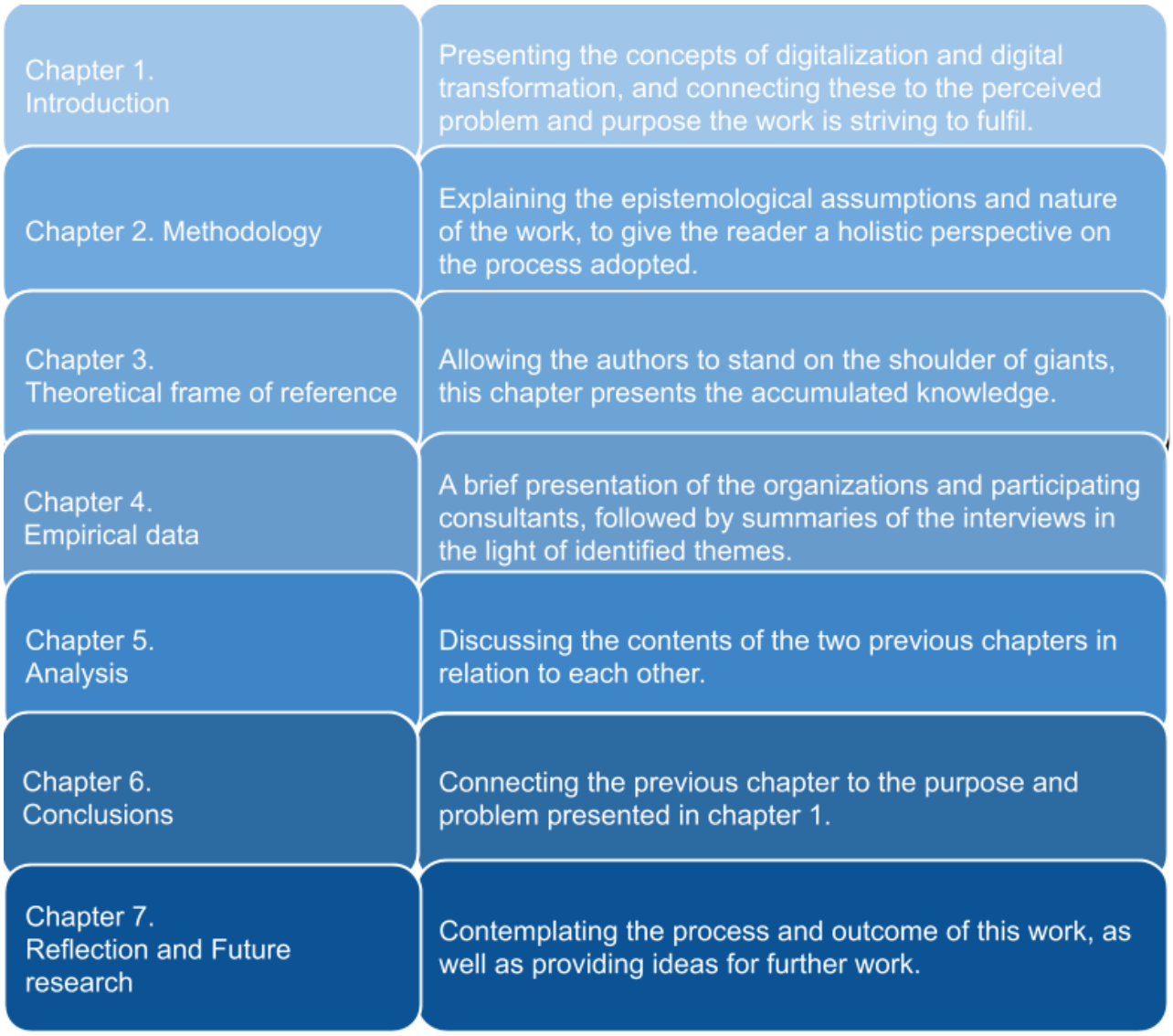

Figure 1.1: The disposition of this work and a brief description of each chapter.

CHAPTER 2. METHODOLOGY

In the chapter below the assumptions in the form of research philosophy and methodological design upon which this work is based are presented. Arguments for the choice to proceed with a qualitative study as well as the usage of semi-structured interviews are also presented. The chosen analysis method, thematic analysis, is also described. Furthermore, concepts including ethics, quality measures, and generalizability are also discussed.

2.1 Prior understanding

Despite having different experiences and backgrounds, both authors share quite a few perspectives and interests. The thesis is part of the IT and Management program, which entails perspectives on topics such as digitalization within the public sector, the importance of gaining insight in the organization and which culture is present in the said organization before any transformative work is done, and also project management with a focus on IT projects.

With one having a Bachelor's degree in Information Technology and the other a Bachelor's degree in Cognitive Science, the authors of this work have insight into both the more theoretical and technical spectrum that the University has to offer.

During the Master's program in IT and Management at Linköping University the point has frequently been made, according to the experience of the authors of this work, that the point of both the user-centric development and adaptation of IT-supported solutions is a necessity in order to create the value that a client is requesting. This involves a thorough analysis of the organization at hand and the people involved in its processes.

2.2 Research philosophy

Myers (1997) presents the fact that all research is based on some assumptions about the suitability of research methods given different situations and different objectives. Within the IS field, these assumptions are often in the epistemological form he continues (ibid.). This means what perspective on knowledge the researcher has, and takes for granted. Based on this perspective, different approaches and choices of method may be more or less 'valid' (Myers, 2013). A rough categorization according to Myers (1997; 2013) leads to the positivist, the interpretative and the critical forms. He further points out that these three do not necessarily stand as clear opposites, and whether or not several of them can be used within a single study is debated (1997; 2013). The choice of epistemological form does not affect the choice of research method he concludes (Myers, 1997.). Qualitative research methods have been developed to provide a tool to study social and cultural phenomena in social sciences (ibid.). He further explains that quantitative methods are developed to, and suitable to study natural phenomena (ibid.).

This study will take a qualitative approach, which is suitable when investigating and attempting to describe the experiences of human beings (Howitt, 2013; Bell, Bryman & Harley 2019; Myers 2013). Myers (2013) explain that qualitative research methods by design are intended to help form an understanding of both people, as well as their inner states.

When quantified much of the depth in the form of a participant's perspective and understanding of particular social contexts risk being lost, Myers (1997) state, which further points towards qualitative research methods rather than a quantitative research method as being the best-suited choice for this work. As stated in 1.3, the purpose of this work is to gain insight in the perspectives of consultants with relevant work experience, which would be difficult to achieve using quantitative research methods.

Bell et al. (2019) write that attempting to find the explanation of human behavior is part of the positivist school of thought, while the attempt to understand human behavior is considered part

of the interpretivist philosophy. The interpretative approach is based on the need to understand the experience of those involved in a situation or social phenomenon (ibid.). Myers (1997) explain that positivists often attempt to test a theory and assume that the phenomena they are studying are objective reality, independent of the observer, or the observatory method. Oftentimes, he continues, positivist studies are aimed towards testing a hypothesis in order to draw conclusions based on the sample to a stated population (ibid.). The interpretive researchers rather aim to understand contextual factors, the influences between systems and are basing their research on the complexity of how human beings make sense of the world around us, rather than measuring dependent and independent variables (ibid.).

Hence, when keeping Myers (1997) argument in mind, describing the general objectives of an interpretative researcher. The second part to keep in mind, is the explanation from Bell et al. (2019); the interpretative approach can be useful when attempting to understand situations, or social phenomenon, and how they can be experienced by those involved. Combining these two led us to adopt the interpretative research philosophy, in order to answer the research questions in this work.

2.3 Methodological approach

In order to answer the research questions presented in section 1.4, a clear steppingstone is the empirical data gathered from those working in the field in order to understand their experiences. Myers (1997) writes that the research method chosen reflects on the strategy used, when moving from the underlying assumptions to data collection. The different methods put different demands on the researcher in the form of skills, research practices as well as philosophical assumptions (ibid.). Further, qualitative research methods are by design suitable to help understand people and the social and cultural contexts surrounding them (ibid.).

Bell et al. (2019) describe the methodological approaches of deductive and inductive reasoning. They explain the deductive process as moving from a theory and then analyzing data in order to confirm or deny the formed hypothesis. In contrast, the inductive process is based on observations and theoretical concepts are formed (ibid.).

While deduction and induction form two of the three major forms of inference, abduction is the third (Douven, 2017). Deductive inference necessitates that the conclusion drawn based on the premises must be true, given that the premises are correct (ibid.). Inductive and abductive inference, however, are potentially less precise, basing their conclusions upon premises which may be less absolute (ibid.). Douven (2017) elaborates by presenting the example, that based on the number of gray elephants one might have observed, combined with the lack of elephants of other colors observed by that person, he or she may infer that all elephants are gray, despite not having observed every elephant in existence (ibid.).

Ho (1994) describes how the deductive reasoning is found wanting when attempting to discover new knowledge, and how inductive reasoning is described to summarize numerous instances of a phenomenon and extract a suggestion for a general law upon those (ibid.). However, he describes induction as having trouble when the context of new instances is not similar to those instances summarized, due to the possibility of either new rules or new evidence amongst them (ibid.). Abduction however, Ho (1994) explains, can lead to a conceptual understanding of the

topic investigated, and that the objective on the abductive stage of research is to explore the data in order to find a theoretically plausible description that later could be investigated through deductive and inductive reasoning respectively (ibid.). The abductive approach is thereby best suited to the purposes of this work, which are aimed towards generating an understanding of the experiences, rather than verifying them or generating universal laws based on the findings. Thus, this is the approach that is chosen for this work.

2.4 Research design

Myers (1997) describes that "case study" can entail several different concepts, either the research method or it could be the actual unit of analysis. He describes the method case study research, as the most frequently used qualitative method used in the field of information systems, and that it is an empirical inquiry that explores a phenomenon in its natural context (ibid.).

The case study research method fits well into the objectives of IS research generally, Myers (1997) claims, based on the statement that the objective of the discipline being studying organizational issues rather than technical ones. When performing a case study, interviews are a conventionally used data gathering technique (ibid.).

Thus, this work will adopt a case study research design, with the use of interviews as a primary source to access empirical data. The suitability of this choice is based on our understanding of Myers (1997) explanation of the fit of the method with the purposes of this work. Dealing with handling issues rooted in human behavior and cultural or organizational factors, rather than focusing on the technological development of a solution to implement when working with a digital transformation specifically or a digitalization project generally.

When conducting using a case study research design, Bell et al. (2019) write, the case investigated can hold several different functional roles. Those mentioned are the critical, the unique, the revelatory, the representative or typical, and finally, the longitudinal (ibid.). The different roles the case can hold are presented in table 2.1 below.

Table 2.1 An overview of the characteristics of different categories of cases, as presented by Bell et al. (2019)

Case	Description
Critical	Is often meant to either confirm or falsify a previously formed theoretical proposition or hypothesis.
Unique	Can be described as deviant or extremely unlike others and even the opposite of the Representative case below.
Revelatory	Either described as a case that has not been accessible previously, or more loosely described as a case that is used when the researchers use a heavily inductive approach.
Representative	The typical situation or expression of the phenomenon studied.

Longitudinal	Primarily interested in how the case changes over a period of time.

With these categories in mind, the case studied in this work would be of the representative form, as well as arguably of the revelatory form as well.

The representative form motivated by the case involving investigating the specifics around the consultant's experience about the studied phenomenon, as detailed in 1.3 Purpose and 1.4 Research questions above. The arguments for the revelatory form would be due to the abductive relationship with theory as described in 2.3 above.

2.5 Generalizability

Unlike quantitative research, where a natural consequence of the applied method and the objective of the studies might be to find the universal element in that which is being studied, the qualitative approach has a less clear relationship with generalizability (Howitt, 2013).

Lee and Baskerville (2003) mention the different perspectives and objectives that generalizability is supposed to accomplish depends on which research approach is taken. The qualitative approach of an interpretivist nature might consider generalizability from a sample to members of the same group or entities the member comes from to be quite suitable (Lee & Baskerville, 2003).

Several frameworks for adapting the concept of generalizability to the qualitative research approach exist. One such framework is presented by Tsang and Williams (2012), mentioning five dimensions of generalizability. Cross-population generalization is one of these five, and entails the generalization from a sample of a given population to members of another population, who exists in a similar context and time (ibid.). The possible generalization from this work will be of this sort, where consultants from different firms and with different clients are working on a similar assignment with the tools and processes available universally. The understanding gained from interviewing consultants at a firm, with experience from several differing assignments (members of one population) and applying that perspective on the challenges and possibilities ahead of other consultants working in a similar field with similar objectives (member of another population). Tsang and Williams (2012) use different airline firms with a shared nationality as an example of cross-population generalization. They explain that the firms share nationality, mission, and context (ibid.).

2.6 Literature selection

For this literature review, we were inspired by a method called systematic review which is described by Bell et al. (2019). The systematic review was downscaled to be more suitable for the proportions of a master thesis.

The source has been the library of Linköping University as well as some articles through Google Scholar. After specifying our scopes, we used keywords to obtain relevant articles. The keywords used are the following:

- Digitalization
- Digitalization framework
- Digital transformation
- Digital transformation framework
- IS implementations
- Industry 4.0
- 4th Industrial revolution
- Microfoundations
- Change management

After reviewing and discussing the articles as described above, a selection was made to keep only the most relevant articles. As an additional source, we also reach out to articles we cross paths with under our prior studies.

This search for literature was mainly done using the EBSCOhost database, and Google Scholar was used as a supplement for specific articles.

We read the title, keywords and abstract in order to determine if the articles were of relevance to this work. If the examined article touched on topics related to the purpose of this work, and within the scope defined it was included. As time passed and the data collection had started, more and more sources got added due to the growing understanding of the subject and topics related to the subject, as goes in line with the abductive approach described in 2.3.

2.7 Respondent selection

When working on the respondent selection for this work, aspects of both convenience as well as snowball sampling has been present. When focusing on convenience sampling, which is a more pragmatic approach than random samplings, one needs to keep criteria of what is practically achievable in mind, given the resources or time available, or other factors such as geographical proximity (Etikan, Musa & Alkassim, 2016). Snowballing is useful due to an increasing number of potential interviewees, where one respondent might recommend another person to approach (Myers, 2013). These are both possible to criticize as Bell et al. (2019) show, by discussing the problem of generalizing the findings of such samples to a general population. However, as described in 2.4 above, the design of this work does not claim to provide a critical case, relating to an 'absolute truth' in order to confirm or deny the existing theoretical hypothesis. Rather it suits the description of the representative and possibly the revelatory forms, exploring the experiences of the participant's everyday work relating to the investigated phenomenon. Both Howitt (2013) and Myers (2013) explain that even if a researcher may formally have access to a social setting, in many settings the concept of a gatekeeper is present. These are the ones opening the figurative 'gates' to allow the researcher access to the setting informally as well as formally (ibid.). By both attending a Career Fair arranged at the University, several suitable consultant firms were approached. Besides face to face contacts consultant firms were also approached by email. Some of these decided not to participate, however replied with contact information of others they thought would be suitable. The respondent selection was later

handled by consultant managers on the two consultant firms who agreed to participate. The consultant managers, acting as gatekeepers, were informed in-depth on the subject and what experience could be of use. They shortly returned with a list of suitable respondents, who were later on contacted and an appointment for the interview to take place was scheduled. During the interview background information was obtained, as can be seen, summarized in table 2.2.

Terry (et al. 2017) estimates that for the use of thematic analysis in a master thesis, the number of interviews to be conducted should range between six and fifteen. In this report, we have conducted eleven interviews with consultants.

Table 2.2 Summary of information regarding the participants.

ID	Role	Experience	Private or public sector	Interview (media)	Length
P1	Consultant	20 years	Both	Face to face	~1 hour
P2	Consultant, Gatekeeper	30 years	Both	Face to face	~1 hour
P3	Consultant	15 years	Both	Online	~1 hour
P4	Consultant	9 years	Both	Online	~1 hour
P5	Consultant	20 years	Both	Online	~1 hour
P6	Consultant	12,5 years	Both	Online	~1 hour
P7	Consultant	9 years	Private only	Online	~1 hour
P8	Consultant	20 years	Both	Online	~1 hour
P9	Consultant, Gatekeeper	25 years	Both	Online	~1 hour
P10	Consultant	12 years	Both	Online	~30 min
P11	Consultant	22 years	Both	Online	~30 min

The participants held different consulting-titles, but during the data gathering process the focus laid on their experiences with work related to digitalization projects and digital transformations. Hence, the participants will be referred to as the shared title of consultant in this work.

2.8 Interviews

Regarding interviews, there are no set of principles that are applicable in all cases, due to the varying nature of different interviews (Howitt, 2013). The researchers have to determine the appropriate shape of the interviews to be conducted, ranging from strict where each question is predetermined and no deviations are allowed, the aptly called structured interview, to the more loosely structured, or sometimes not previously planned interview in the shape of unstructured interviews (ibid.) which easily can be compared with a simple conversation. Howitt (2013) further states that this latter form is more of a theoretical approach, which is hard to see applied in research: is there any research done in a truly unstructured fashion, where the researcher has no plan of what to investigate? In between these extremes lies the semi-structured approach to interviewing respondents, where themes are predetermined (ibid.). Howitt (2013) calls these "qualitative interviews" rather than "semi-structured" however. Bell et al. (2019), describe semi-structured interviews as a wide range of instances, however often it refers to a situation where several questions in series are prepared, with possible deviations from any planned interview schedule allowed (Bell et al., 2019). Interviews are the primary source of data when conducting case study research (Myers, 1997).

Howitt (2013) also describes the situation as built on a script with questions, and possibly with clarifying follow up questions scripted (ibid). Furthermore, Howitt (2013) also notes that in these semi-structured approaches non-scripted deviations from the planned questions are allowed and can even be seen as fundamental, allowing the researcher to delve deeper into the unknown which he or she is striving to understand. Bell et al. (2019), also mentions the general nature of the questions, however, closed questions also have their place in the semi-structured interview: they are a fitting way to collect background information or to increase the clarity of some perspectives mentioned in more open questions (Bell et al., 2019).

Howitt (2013) explains that the researcher needs to keep the balance between collecting material of rich nature, while at the same time avoid asking leading questions, affecting the respondent's answers. A good qualitative interviewer, Howitt (2013) writes, is one that is an active listener, absorbing as much as possible of what is said, and also in real-time formulate additional questions to cover any gaps left open previously during the interview (ibid.).

The stages in the data collection phase when conducting interviews of a qualitative nature is described by Howitt (2013). He presents a three-phase division of activities, that can either be before the interview takes place, during the interview and finally after the interview is finished (ibid.). Some part of these activities is of the organizational nature where interviews are conducted in parallel by several interviewees, hence not relevant to this work since the interviews will be conducted in a serial fashion. Below in appendix 2 is a table describing the activities described by Howitt (2013), adapted to only include those activities relevant to the procedure of this work. The activities are divided in three phases, Before the interview, During the interview and After the interview. Before the interview Howitt (2013) describes that the researcher should have a thought-out idea about what to investigate, and have formulated the interview guide accordingly. The potential respondents should be able to answer the questions to a satisfactory degree of depth, and the questions should be verified through a pilot interview or reviewed to be

of relevance (ibid.). If several interviews are held, topics of special interest may arise prior to the current one, and those should be covered in subsequent interviews as well (ibid.). Sampling must take place in order to have anyone to interview, and those respondents should be treated with respect and a courteous reminder that the interview is taking place could be sent, and finally the prospect location of the interview should be suitable to lessen the risk of disruptions (ibid.).

During the interview, if it is going to be recorded, the technology used should be tested to ensure good enough quality (ibid). The interviewing party should introduce themselves, explain the purpose of the interview and allow for questions that may arise, as well as mention the voluntary nature of the participation and follow praxis throughout, until finally concluding, allow for questions and thank the participant (ibid.).

Lastly, the data should be handled with care not to risk exposure in any way, and transcriptions should follow beforehand agreed patterns regarding confidentiality, anonymizing all necessary parts (ibid.).

These steps are shown illustrated in figure 2.1 below:

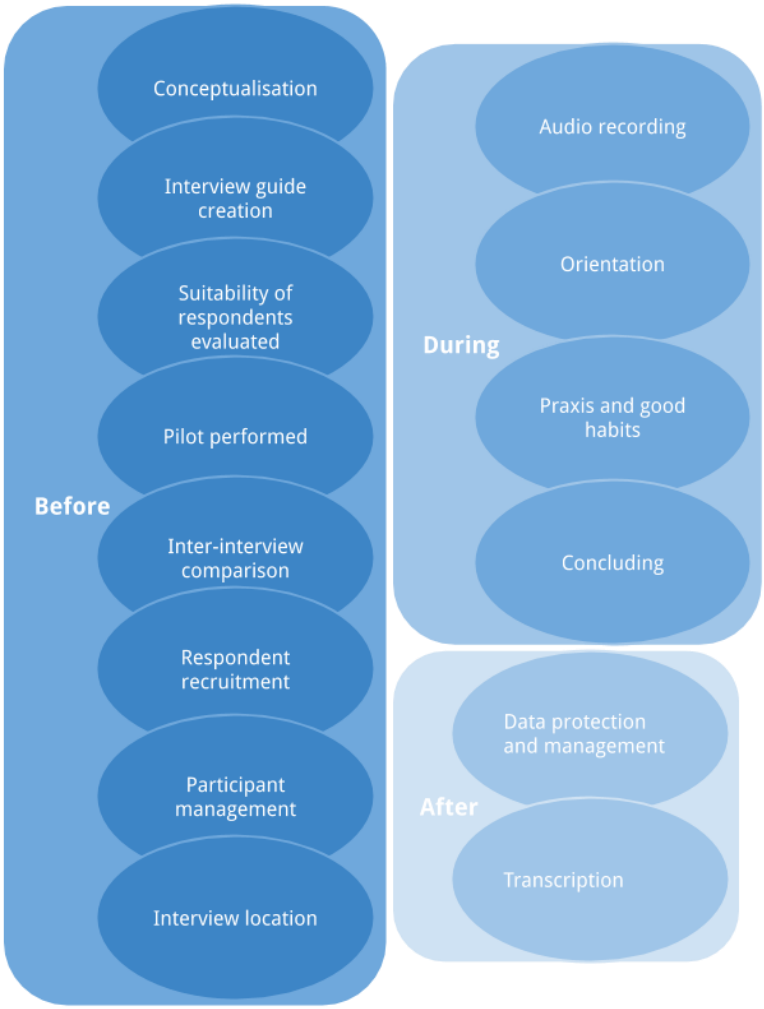

Figure 2.1: Illustration of the steps taken during the three phases of the interviewing process, adapted from Howitt (2013)

The use of semi-structured interviews has not gone without its criticism however, Bell et al. (2019) list a few critical points, including that the topics and as a consequence, possible limitations presented by the interviewing researcher can affect the depth of the reply the respondent provides, as well as details or entire subjects might be omitted (Bell et al., 2019). Further, they explain that through interviewing alone, details about social interaction, or other behavior that might for any reason be hard to put into words risk remaining unnoticed (ibid.). Lastly, they remark that due to the existence of an interview guide the interviewing researcher might be less willing or able to deal with an unexpected topic (ibid.).

As described in 2.4 above, based on the commonly used source of data in case studies being interviews (Myers, 1997), and the adaptability of the semi-structured interviews (Howitt 2013; Bell et al. 2019) the use of semi-structured interviews was deemed appropriate for this work, and hence adopted. Howitt (2013) also describes good practice when using interviews as a source of data, explained in appendix 2 in more detail. Bell et al. (2019) and Howitt (2013) both describe fairly in depth, some procedures to create and to evaluate the interview guide as a means to confirm the relevance of the interview guide. Keeping these aspects in mind the aspects pointed in out in the criticism above have been taken in consideration. By following the procedures presented throughout the section above, the choice of semi-structured interviews appears to be both a reasonable and preferred source of data given the purpose of this work, as detailed in 1.3.

2.9 Transcription

Howitt (2013) describes that spoken words are the most common form of data in qualitative research. He further describes that the process of converting the spoken word into written text in order to enable analysis on the material is called transcription, and can take several forms, ranging from more detailed and fine-grained methods such as Jefferson transcription, or less detailed but more commonly used playscript or orthographic transcription (ibid). An important effect of the process of transcription, noted by Bell et al. (2019), is the increased trustworthiness of the analysis of said material.

When concentrating on what is said rather than how it's said orthographic transcription is more suitable (Howitt, 2013), which is why that form will be utilized on the empirical data gathered during our interviews.

A problem with orthographic transcription as mentioned by Howitt (2013), is that the process eradicates any recipient design intended to clarify the meaning of that which is being said to the listening part. When deemed necessary clarifications on gestures made during the interview will be noted in the transcripts.

2.10 Thematic analysis

Most approaches in qualitative data analysis include the search for themes within said data; some approaches that fit this description are mentioned by Bell et al. (2019). They include grounded theory, discourse analysis, and narrative analysis (ibid.). They further write that in some perspectives a theme is essentially a synonym for a code, while in other perspectives a theme is a

collection of codes (ibid.). When identifying themes, Bell et al. (2019) mention that the reader can be watchful for a few different forms of expression. These include patterns such as recurring topics, expressions that are unfamiliar in some way, metaphors or analogies, the nature of transitions between topics, relationships within the data specifically similarities or differences between topics (ibid.). Furthermore, the reader is encouraged to explore the causal connections made by the interviewed participant, by keeping expressions such as "because" or "since" under close watch. Finally, they mention that missing topics can be interesting, such as what has been omitted, as well as investigating how a social scientific concept to use as thematic springboards (ibid.).

Before the thematic analysis is initiated, the choice between an inductive or deductive approach is necessary (Bell et al., 2019). An inductive approach starts from the data, developing codes and themes based on the material (ibid.). Deductive approaches, on the other hand, bears the legacy of previous theoretical concepts, and base the coding upon these concepts (ibid.).

According to "*The SAGE Handbook of Qualitative Research in Psychology*" by Terry, Hayfield, Clarke and Braun (2017), there are essentially two separate approaches to conduct thematic analysis. The first can be described to follow a strict guideline regarding what can be coded and not, based on a list of codes relevant to the scope of research (Terry et al. 2017). The second approach when conducting Thematic analysis, however, is granting the researcher the responsibility to identify the codes by themselves after reviewing the data in order to familiarize themselves with the material (ibid.). The latter approach was chosen for this work as this description follows the more inductive relationship theory adopted in this work of abductive nature, as discussed in 2.3 above.

When identifying themes there are several factors to consider. Bell et al. (2019), explains that even if a topic is repeated frequently in the data, be it a single interview transcript, or across several transcripts, repetition is in itself not enough to call that topic a theme. The topic also needs to bear significance or relevance to the research in question (ibid.).

Terry et al. (2017) describe a model of thematic analysis which consists of six phases, which are not strictly sequential, the researcher may have to review and revisit previous steps as the analytical process unfolds. These repetitions of previous steps may take place several times (ibid.). The six phases can be seen in table 2.3 below.

Table 2.3: The model of thematic analysis as presented by Terry et al. (2017)

Step	Description
1. Familiarization	Granting the researchers a point of entry into the analysis by immersing themselves in the data.
2. Coding	Different segments in the data set are labeled.

3. Theme development	The labels are combined in order to create different themes, according to a central organizing concept.
4. Reviewing themes	The clustered labels are reviewed, going back to the previous step (if necessary) in order to enhance the quality of the developed themes.
5. Defining themes	When a theme is deemed to be an accurate description of the concept, the theme is considered to be in a stable and structured state. At this stage, the different themes are named, and the analysis is initiated.
6. Producing the report	The conclusion of the thematic analysis comes when the "stable clusters of labels" are finalized for presentation through the report. This presentation is not necessarily strictly bound to the analytical point but rather a description of how the analysis is contributing to the research as a whole.

Steps 4 and 5 can be performed simultaneously, however, both need to be present for in order to assure the quality of identified themes and an accurate analysis of said themes (Terry et al., 2017). Figure 2.2 below shows the reiterative nature of the process, which was used in this work, where after step 1 is finished, the following steps can be revisited and adjusted if deemed necessary (ibid.).

Figure 2.2: The process of thematic analysis as presented by Terry et al. (2017) with a focus on the non-linear form, allowing the researcher to freely move between the steps once familiar with the material.

Bell et al. (2019) explain the theme generation, as a three-step process. To link their explanation to the table 2.3 above, the following step relates to the steps 1, 2 and 3: They write that Initially an open coding is performed to generate first order concepts which emerge from the data, and are grouped together as a form of preliminary concept (ibid.). Next, they write, a secondly an axial coding takes place, where the emergent themes found in the first order concepts generated through the previous step are grouped together in a higher-order category of concepts (ibid.). These higher order of concepts relate to the second order concepts in figure 2.3 below and correlate with steps 3, 4 and 5 in table 2.3 above.

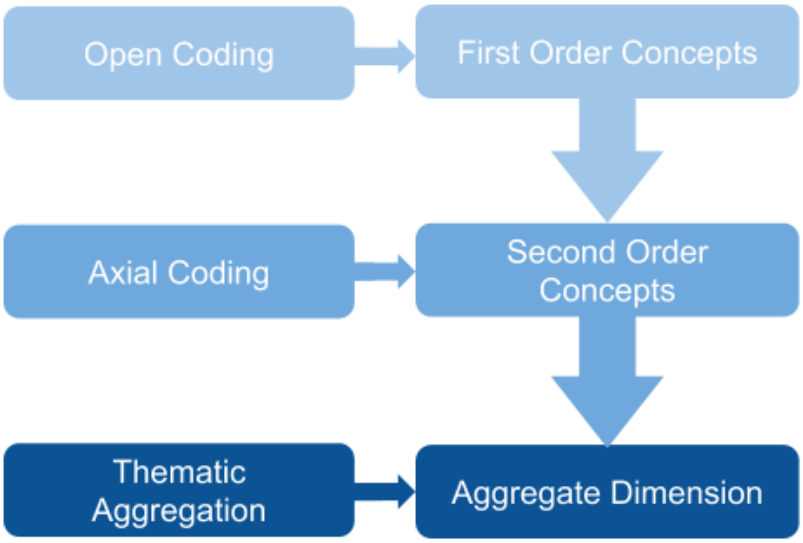

Figure 2.3: Our interpretation of the description of the thematic analysis process according to Bell et al. (2019).

Finally, the themes generated from the axial coding are grouped together in what Bell et al. call "*theoretically fertile dimensions*" (Bell et al., 2019, p. 526), which can be described as groups of themes structured in such a way that they make theoretical sense, and are suitable for continual developing the understanding of the field. This final step as described by Bell et al. (2019), is highly relatable to steps 4, 5 and 6 in the model presented in table 2.3 above. Further, the work in previous steps relate to understanding the first-order concepts and their internal relationships. Namely, when the first-order concepts within a data source have been identified, the next step includes reflection upon how they relate to each other (ibid.). This reflection is intended to bring a sense of understanding of the continuities between the topics, and how they link together and fit the bigger picture (ibid.). The presentation of the higher order concepts, which are aggregated from the lower order concepts as described in figure 2.3, are presented in chapter 4.

2.11 Quality measures

In quantitative research, the terms reliability and validity are commonly seen as a quality control indicator (Howitt, 2013). The reliability concept in quantitative research approaches can entail how well the same test would score the same result if used repeatedly over time (ibid.). That is, given the assumption that the phenomenon being measured is in a stable state, not prone to change (ibid.). Another way to put it could be the internal consistency of the measure, Howitt (2013) concludes. Bell et al. (2019) describe the possible division of reliability within qualitative

context into external and internal, where external reliability, in short, can be described as how close to the original a replication of the study would come (Bell et al., 2019). A possible problem with this metric is the constantly changing social world (ibid.). Internal reliability is described as the consensus of observing perspectives, or how well the team of researchers agrees on the meaning of a transcript (ibid.).

Given the context and ambitions of this work, reliability could be seen as a two-edged sword. If several interviews end up bringing too similar replies the depth of the question this work is striving to answer could be debated as being too shallow, and the analyzed data ending up being a step by step manual. If on the contrary, the answers share little or no ground, however, that could indicate a severe lack of comprehension about the field and terminology used.

Like reliability, validity is also usually seen within quantitative research and means how well something measures what the researcher intends to measure (Howitt, 2013). A study can contain validity in several ways, ecological validity for one, is how well the context or environment supports the task which is being measured (ibid.). How well connected is the task to the everyday work task, the researcher is trying to simulate in order to investigate the finer workings? Another way a study can relate to validity is through external validity, how well the findings apply to another setting than the one researched (ibid.). The ways validity relates to qualitative studies include the fidelity of the transcribed material to the source conversation, or that the validity of qualitative work about social phenomenon can be said to be higher than its quantitative counterpart due to the analysis proximity to the data (ibid.). Another perspective on validity is similar to the division of reliability above. Internal validity can be described as the congruence between the analyzed data and the theoretical concepts, either as a foundation to the study or as the result of the study (Bell et al., 2019). External validity includes factors of generalizability to different social contexts, which bears the problem of the general usage of small samples within qualitative research (ibid.).

In the case of this work, the aspects critical and relating to validity can be argued to be the relevance of the questions asked to the respondents work in projects related to digitalization or digital transformation, meaning the sample recruitment and respondent management as described in subchapter Interviews 2.8 above.

The need to adjust the quality metrics to better reflect on the nature of qualitative research rather than quantitative research is of importance for qualitative researchers (Howitt, 2013; Bell et al., 2019). The proposal exists, that the two dimensions trustworthiness and authenticity are better aligned than reliability and validity for qualitative purposes (Bell et al., 2019).

Bell et al. (2019) declare that trustworthiness contains four parts, namely credibility, transferability, dependability, and confirmability. These have parallel criteria in quantitative research and are described in table 2.4 below (ibid.).

Table 2.4: Description of the components of trustworthiness in qualitative research as described by Bell et al. (2019)

Component	Parallel criteria	Description
Credibility	Internal validity	Confirming with respondents that the understanding is correct, ensuring that the result is an accurate description of the phenomenon.
Transferability	External validity	Description of the context within which the data was gathered is vital, enabling understanding of nature within which the phenomenon was investigated.
Dependability	Reliability	Ensuring the method adopted is described in detail to allow independent assessment of the justification of theoretical inferences made by the researching party.
Confirmability	Objectivity	Showing the research has been done in good faith and not been affected to color the findings according to personal values or other factors.

As declared by Bell et al. (2019), trustworthiness is one part of ensuring sufficient quality within qualitative approaches, but it is not enough by itself. The second part described is authenticity, which is described as the demand that the researcher represents differing viewpoints. Similarly to confirmability, authenticity is meant to ensure that while a phenomenon is brought into the light by the research, external issues are kept in mind (ibid.) The issues the researcher also takes into account include any broader social or political issues that can arise from the research at hand (ibid.).

Given these criteria, the trustworthiness of this work is ensured by following interview praxis with open questions and following those up to gain an understanding of what's said. Performing respondent confirmation while conducting the interviews, as well as requesting permission from each respondent to contact them again to clarify any potential misunderstandings.

To approach the transferability measures were taken to both describe the respondent selection process, and gaining insight into the different backgrounds and experiences they had. Measures were also taken to ensure a good number of interviews, such as described by Terry et al. (2017), see section 2.8 for information about the empirical data collection. A conscious effort was made to highlight the different perspectives given the variety in the participant's previous experiences and expertise. Some descriptive data is shown in table 2.2 above. Dependability is assured both by having an external part acting as supervisor, by peer reviews during the semester during which this work was written, as well as the detailed descriptions in methods chosen and how they were applied. The peer reviews, supervisor guidelines as well as some respondents asking to receive the work once finished should cover both the confirmability aspect as well as the authenticity aspect. The latter is further cemented by handling all data confidentially, anonymizing the respondents, their respective employer, as well as names or context of any clients they mention,

which could in some way have an effect on themselves or the clients mentioned, as described further in the upcoming section.

2.12 Ethics

Bell et al. (2019) explain that prior to the actual data collection is started, it should be made clear what is to be disclosed with the publication of the research (ibid.). The participants should also give their informed consent to being part of the data collection, with the keyword being *informed* (ibid.). This means, Bell et al. (2019) explain, that the participants should be informed of as much as is virtually possible regarding the study before deciding whether or not to consent to take part. This includes the purpose of research as well as any methods applied directly such as recording devices, and also receive a chance to get any questions they might need to be answered beforehand (ibid.).

The respondents agreed beforehand to have the interview recorded, and the resulting audio files were deleted once transcribed. The respondents were also informed of the purpose of the interview, given the chance to ask any questions before the interview started, as well as was informed of their rights to withdraw from the study at any time without the need to explain why, if they choose to do so. They were also informed of what steps would be taken to ensure their confidentiality. Further Bell et al. (2019) describe that in the transparent behavior described previously a point should include the data management, or how the data is going to be handled at all steps from collection to disposal (ibid).

The collected data were handled with care, ensuring they are not stored at any unsafe locations, and during the transcription process a thorough anonymizing step of any names of both the respondent, and companies or organizations the respondent mentions that can be used to either identify the respondent or to gain insight in the clients the respondent has done business with or for.

CHAPTER 3. THEORETICAL FRAME OF REFERENCE

In this chapter the theoretical foundation of this work will be presented. Theoretical concepts and models that contribute to the argumentation made in subsequent chapters are detailed, and their relevance motivated. The chapter consists of two categories, "The process of transformation" and "The roadmap to transformation". The categorization of the concepts presented is intended to give the reader a holistic understanding to stand on when approaching the transformation, starting with the potential benefits, showcasing examples on successful digitalization such as in the concept of Industry 4.0, and proceeding all the way to implementing the change, by adopting change management models and influencing all involved parties, and their stance towards change.

3.1 The process of transformation

As presented in section 1.1.1 above, there are different approaches to digital transformation and digitalization in practice. Industry 4.0 can be seen as a concrete example of digitalization in practice, but as mentioned it lacks a single definition (Buer, et al. 2018). The process to implementation may take several forms, and needs to take a plethora of factors into account. The digital Lean transformation framework presented below is one of these forms, and organizational culture is an example of a factor of major influence.

The upcoming subchapter will present a framework regarding Lean transformation. The framework is later connected to the concept Industry 4.0. Furthermore, organizational culture and its ramifications on transformative work is discussed.

3.1.1 Digital Lean transformation framework

Romero et al. (2019) describe how the lean approach is a trusted, several decades old philosophy, which focuses on continuous improvement through the focus on processes and culture in a context, rather than the implementation of modern technologies. They further describe the Lean Thinking principles as a main focus on putting the need of the customer first, while also achieving the highest level of efficiency possible, which in the longer run entails making a profit through the combination of the first two (ibid.).

According to Romero et al. (2019), a digital transformation can be achieved through the application of their proposed framework. The framework makes use of lean thinking practices and tools in order to identify where value for the customer is created (ibid.). It also highlights which steps in the organization's processes that are not adding value, and allows that knowledge to be used in order to maximize efficiency through the adoption of suitable technology or processes (ibid.). One such tool is the Value Stream Mapping, which can be seen as a fundamental tool when applying lean production principles, by helping improving processes by reducing abnormalities leading to wasteful activities (ibid.).

Romero et al. (2019) points out that the use of the framework mentioned above used in combination with for example the concept of Value Stream Mapping, creates a valuable synergy.

The method Value Stream Mapping is intended to achieve control by coordinating the processes when applying lean production principles (Busert & Fay 2019). When combining the framework with the method companies can identify where the value for their customer is, hence helping the organization to make use of the most appropriate technologies for the given situation (Romero et al., 2019). Busert and Fay (2019) elaborate that the concept of the value stream mapping is a procedure for systematically analyzing both processes within production and the logistical processes surrounding the production.

Romero et al. (2019) also point out the illustrative properties of value stream mapping used to visualize the actions needed in order to provide an overview of the process, thus providing a technique to quickly identify the steps which are adding value and which ones are not. With such a map the wasteful activities can easily be highlighted and improved (ibid.).

3.1.2 Industry 4.0 and the Human perspective

As mentioned by Romero et al. (2019) above in section 3.1.1, when applied correctly, the tool value stream mapping can help identify the most appropriate technologies and thereby create increased value and effectiveness in the digital process. This is something that goes in line with what implementation of Industry 4.0 strives to achieve as described by Mohelska and Sokolova (2018), as well as noted by Busert and Fay (2019) amongst others.

According to Kagermann, Helbig, Hellinger, and Wahlster (2013) the concept Industry 4.0 started as a government program in Germany to help increase the competitiveness of the local industry. To be more exact it was announced in 2011 at the Hannover Messe (Drath & Horch, 2014). As time passes the word has been used and discussed more frequently in academia. Even though it is used more and more and has established itself as a buzzword, there is today not an agreement on a definition regarding Industry 4.0 (Brettel, Friederichsen, Keller, & Rosenberg, 2014; Hermann, Pentek, & Otto, 2016; Rüttimann & Stöckli 2016; Hofmann & Rüsch 2017). Drath and Horch (2014) write that there are those who claim that Industry 4.0 does not contribute to something new but is just old technologies combined and given a new name. Such differences can lead to difficulties regarding research and education related to the concept of Industry 4.0 (Pettersen 2009). In this report, we have chosen to define Industry 4.0 as follows:

"*Industry 4.0 could be seen as the utilizing of opportunities brought forward by the introduction of digitalization in the industrial context, using robotics and automation in novel ways* ", which is the description of Mohelska and Sokolova (2018). Using the Internet of Things (IoT) as infrastructure to build interconnected processes, including development, production and even distribution of services can lead to lessened production cycles, and more efficient and automated maintenance of machinery or equipment (ibid). Autonomous robots can control and regulate themselves through this network of sensors and connections, potentially leading to lessened need of human labor, and increased flexibility through ease of reorganization of production lines (ibid.)

De Winter and Dodou (2014) examine the old theoretical concept called "Fitts List", which is more commonly referred to as the acronym "MABA-MABA". The acronym is written out as 'Men are better at, Machines are better at' and when interpreted in a literal sense it highlights aspects that should be automated and which aspects should not (ibid.). The concept of the list is fairly straightforward, and upon closer investigation the name holds a thorough explanation of its contents. The list assumes that both human operators as well as dedicated machines are acting based on information available, and that they both can be seen as information processing systems, however with differences in capabilities (ibid.).

The division of properties a task should have to make a human operator better suited rather than where a machine is the better fit is a hard one to make, De Winter and Dodou (2014) writes. When presented in the 1950s, the original authors were hesitant to claim their conclusions were definite (ibid.). The reason being the impossible task to understand the capabilities of future machines (ibid.). Due to the nature of automation, the human operator is seldom removed from the picture entirely, rather the human is requested to adapt to new tasks in relation to the changed procedure (ibid.). When automating the new tasks are hard to foresee, and sometimes not even the designer can anticipate the shape or nature of these new tasks (ibid.).

3.1.3 Organizational culture

As stated previously, the organizational culture has a high potential to influence the process of transformation. The way individuals act can be seen as a reflection of the culture that surround them, as well as the culture is influenced of the actions of the individuals. If the culture allows change and innovative thinking, the process of transformation can be much less problematic than if it does not.

Like many other terms, organizational culture has a number of different definitions. In this report, we have chosen to include different definitions in order to highlight different aspects of the term definition.

Armstrong (2006) defines organizational or corporate culture as follows: "*Organizational or corporate culture is the pattern of values, norms, beliefs, attitudes and assumptions that may not have been articulated but shape the ways in which people in organizations behave and things get done. Values refer to what is believed to be important about how people and organizations behave. Norms are the unwritten rules of behavior"* (Armstrong, 2006).

On the other hand, Schein (2004) focuses on the subconscious and defines organizational culture as a *"deeper level of basic assumptions and beliefs that are shared by the company's employees: it acts subconsciously and forms a basis for reflection of the company, both internally and externally"* (Schein, 2004).

To better understand the term culture that also is the foundation for an organizational culture we have chosen to include a definition by Osborne and Brown (2005). Their definition is presented by Mohelska and Sokolova (2018) as follows: *"Culture is the unique whole – comprising shared ideas, customs, assumptions, expectations, philosophy, traditions, mores, values and understanding – that determines how a group of people will behave. When one talks of a corporation's culture, one means that complex interrelated whole of standardized, institutionalized, habitual behavior that characterizes that firm"* (Mohelska & Sokolova, 2018, p.2228).

A question one may ask is whether good and bad culture exist. According to Wallach (1983) there is no good or bad culture. A culture must be able to support the goals of an organization in order to be viewed as effective however (Wallach 1983). Wade (et al. 2017) pinpoints the importance of culture regarding a successful digital transformation. He explains that culture often is viewed as the most significant barrier to digital transformation (ibid.). Culture brings with it the need to have the answers to question regarding behavior, motivation, and resistance towards change.

3.2 The road map to transformation

When the initiative to digitalize or digitally transform the organization is in motion, the way to proceed may be uncertain and full of potential pitfalls and mistakes to avoid. The strategic perspective needed to succeed where others have not can be influenced by several aspects and methods. These can include delegation of responsibility to an appointed official, or the necessity to influence primary stakeholders, to ensure their cooperation. A necessary method could also be the formulation of a strategic approach covering topics ranging from how to incorporate novel use of technology in existing processes, to the creation of new processes with new stakeholders in mind, thus expanding the boundaries of their market. This section will present the various

tools and concepts related to transformation, and the way to reach the organization's goals. The topics include aspects such as digital strategy and change management.

3.2.1 Digital strategy and CDO

The planning and responsibility of an implementation could arguably be of utmost importance. As mentioned, methods to succeed when treading the unknown ground of the digital landscape include forming strategies to act as guidelines for future work, which forms the section 3.2.1.1 below, or appointing a responsible party whose mission it is to guide and connect the digital reality with the organizational reality, which is touched on in 3.2.1.2. This subchapter will handle the concept of digital strategy as well a new and upcoming role of Chief Digital Officers.

3.2.1.1 Digital Strategy

Today the number of organizations trying to keep up with the digital age, and the new ways of doing business are increasing in a rapid pace (Cöster & Westelius, 2016). That has led to businesses to try to follow the same route in order to maximize their efficiency and profits (Ross, Sebastian & Beath, 2017). Two different types of digital strategies exist (ibid.). The first kind is described as "*A **customer engagement strategy** targets superior, personalized experiences that engender customer loyalty"* and the second kind as "*A **digitized solutions strategy** targets information enriched products and services that deliver new value for customers"* (Ross, Sebastian & Beath, 2017, p.8). After presenting these two, Ross et al (2017) declares that it is important that the organization choose only one and not both strategies (ibid.). The importance of choosing just one strategy and not attempting to combine both can be extended to the importance that the organization has a clear vision, and set goals that it is trying to reach, which will be discussed further in 5.2.2 and 5.4.1. The choice of strategy may also affect the culture within the organization. Organizational culture is based on a set of common beliefs, norms, values, assumptions and attitudes (Armstrong, 2006), and the strategy may hold severe influence over the organizational culture, when affecting decision makers and operational employees alike.

Ross, Sebastian and Beath (2017) defines the purpose and result of a digital strategy as follows: "*A great digital strategy provides direction, enabling executives to lead digital initiatives, gauge their progress, and then redirect those efforts as needed."* Furthermore, Gobble (2018) points out the importance of a digital strategy that brings forwards and focuses on flexibility, organizational structure, technology, and people.

Kane, Palmer and Phillips (2017) points out that concepts such as culture and strategy are of the essence when considering the concept of digital maturity. They continue by describing digital maturity as the adaptation of an organization to become, and to work more digital, in order to increase it competitive advantages (ibid.).

In order to strive for digital maturity, simple investment in new technology and implementation of new IT-systems is not enough (Kane et al., 2017; Manyika, Ramaswamy, Khanna, Sarrazin, Pinkus, Sethupathy, & Yaffe, 2015). Rather, the concept of digital maturity also consists of the process of continuous adaptation to the ever-changing digital landscape (Kane et al. 2017). In order to achieve a level of digital maturity, organizations may face different challenges such as

creating a strategy and connecting it to the organization's vision and goals (ibid). Kane et al. (2017), describes the relation between digital maturity and culture, saying that culture influence digital maturity but that digital maturity also influences core aspects of culture.

In order for an organization to achieve a satisfying level of digital maturity, Kane et al. (2017), believes that four principles must be adopted. Firstly, an organization must try to embrace the digital aspects, to make them a part of its core (ibid.). Secondly the organization must have secured and allocated funding beforehand, which can be used to conduct intense but brief digital experiments in order to set the pace for future implementations (ibid.). Through these sprint-like developments, the organization can gain and keep up the digital momentum through the continued work of previously implemented solutions or practices (ibid.). Thirdly it is important for the culture to support an environment where the development and growth of digital maturity is possible (ibid.). Lastly Kane et al. (2017), explains it is important to make the organization attractive to talented employees in order to acquire and retain the expertise needed.

3.2.1.2 Chief Digital Officer (CDO)

The role of CDO is a new role and it is still not agreed upon what exactly it means. Due to the role not being completely defined overlapping with other roles may occur within their turn can turn in to tension (Dyche, 2015).

Tumbas et al. (2018) describes that they've seen the persons upholding the new title generally keep a keen eye on both their organization's existing IT department, with their roles and responsibilities. Further, they simultaneously attempt to distance themselves from the previously established roles, by putting emphasis on the digital aspects (Tumbas et al., 2018). They further describe two commonly expressed responsibilities of the CDO amongst those organization's they've investigated (ibid.). The first of these is connecting the business logic to the digital aspect, and hence develop a business specific '*digital logic*' (ibid.). The second is the enabling of the formulated logic through anchoring it to the business itself, and through strategic work guide the organization towards their vision (ibid.).

3.2.2 Change management

In order to reap the benefits that the changes brought by digitalization or digital transformations can bring, the transformed or profoundly altered state of things must be utilized correctly. On the more operational level the opinion of those influenced more or less directly of a change should be taken into account to increase the probability of success. On the more strategic level, getting members of management to see the importance of the initiative as well as positively affecting their willingness to both invest and support is a necessary component. Change management is a framework intended to support the employees affected by change, enabling them to adapt accordingly (Jägare, Karim, Söderholm, Larsson-Kråik & Juntti, 2019).

3.2.2.1 Change within an organization

Digitalization brings forward the need for flexibility and agility within any given organization, which could cause difficulties for the board and the overall strategy. (Cöster & Westelius, 2016).

The reasons organizations choose to undergo those changes despite all the challenges include increased efficiency, cost management, or reform in order to explore new opportunities, for example, new markets (Tillväxtanalys, 2016). Digitalization is essential since the benefits mentioned earlier can be crucial for an organization to keep up with their competition, and continue to offer value to its customers (Cöster & Westelius, 2016). A significant ally in the digitalization process is new technology and changes in the IT-sector, where systems are being implemented to help employees with different tasks (Janssen & Joha, 2006). It is important to remember that implementing changes affects different employees in different ways; for example, the implementation of a new system or machine can replace a process which was until then conducted manually by some employees (Cöster & Westelius, 2016). Digitalization does not just take away jobs and replace them with machines and new technology, it also creates the need for new skills and new expertise within the organization for the current employees to adapt to and adopt if possible (Hagberg & Jonsson, 2016). Sefyrin (2010) writes about the difficulties accompanying the changes to the employees, and how the worry of losing one's job can be perceived to be silenced by avoiding mentioning that part of the result. Digitalization, like all changes are made in order to move the company forward. Hence it is essential to also keep in mind that those transitions potentially lead to some employees losing their jobs, because they are being replaced by a machine or a new IT system (Sefyrin, 2010). Oftentimes these new systems are even developed using the employee's inherent experiences and expert knowledge within their domain (Sefyrin, 2010). One of the most commonplace mistakes is assuming that the introduction of a change will not affect the productivity, and that the employees are not given a reasonable time to adjust to said change (Karten, 2009).

3.2.2.2 Change models within Change management

Change is something every organization is going to face at one point or another. To deal with change effectively, it is crucial to be familiar with change management. During the interviews specific change management models were mentioned, which according to the abductive nature of this work led to us including those models, in order to gain an understanding of the emerging themes.

One commonly applied theory related to change is divided in three steps, and referred to as Lewins's change management model (Jägare et al., 2019). The steps are (i) unfreezing, (ii) moving, and (iii) refreezing (ibid.). The first step involves preparing the group that the change will affect, which can give them a better chance to be embrace the new way (ibid.). The second step includes the deployment of said change, by focusing on the employees involved, and support the implementation with frequent communication to avoid the spreading of misinformation and similar causes for concern among those involved (ibid.) Thirdly, the new ways of doing things must be integrated into the culture, along with training of those supposed to adapt, and give support where needed (ibid.). The soft aspects of a change are quite commonly the hardest (Jägare et al., 2019).

ADKAR is a model created by Prosci (Prosci, [n.d.]), which is intended to help both individuals and organizations implementing change more effectively. ADKAR is an acronym and stands for **A**wareness, **D**esire, **K**nowledge, **A**bility, and **R**einforcement (ibid.). For the model to have the

desired effects the individual must be getting through all five steps in order, starting with awareness and ending with reinforcement (ibid.). The model is an evolution of Jeff Hiatt's (founder of Prosci) earlier work (ibid.).

The framework can be applied in different scenarios in order to achieve different results (ibid.). For example, the framework can be used to diagnose the employee's resistance to change (ibid.). It is important to note that the changes affect both sides involved; the "*business or project side of change*" and "*the people side of change*" (ibid.) shown in the figure 3.1 below adapted from Prosci ([n.d.], p.6).

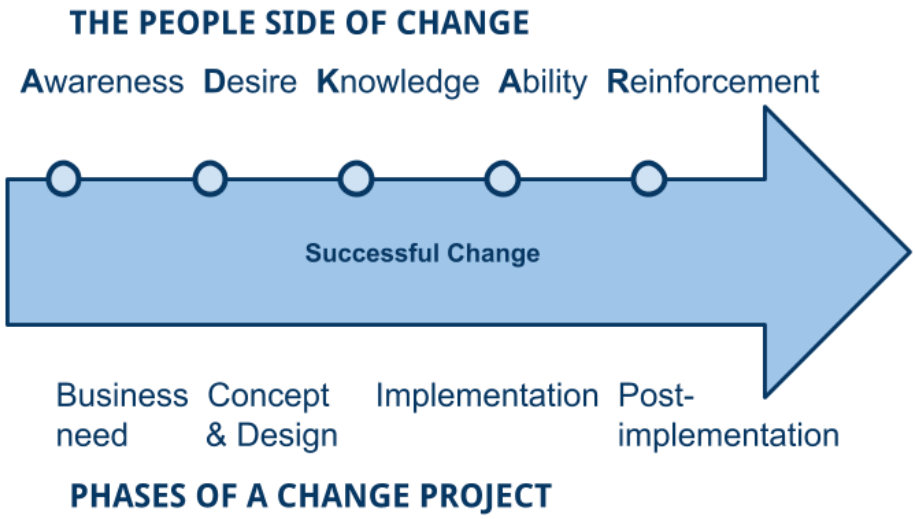

Figure 3.1: Our illustration based on the ADKAR model from (Prosci, [n.d] p.6)

The Satir Model, the name of another change model, which can be used to formally explain the change process in an implementation, and describing how to manage the change (Karten, 2009). The Satir model also focuses on assisting those undergoing the change to cope with it, which is a factor contributing to its usefulness in the workplace (ibid.). Karten (2009) describes that the Satir model has been appealing to both those influencing change and manage it, as well as to those who are in some form affected by the change.

The model depicts change as a journey with six phases; (i) Old status quo, (ii) Foreign element, (iii) Chaos, (iv) Transforming ideas, (v) Practice and integration and finally (vi) the New status quo (ibid.). The elements can be seen illustrated in figure 3.2 below.

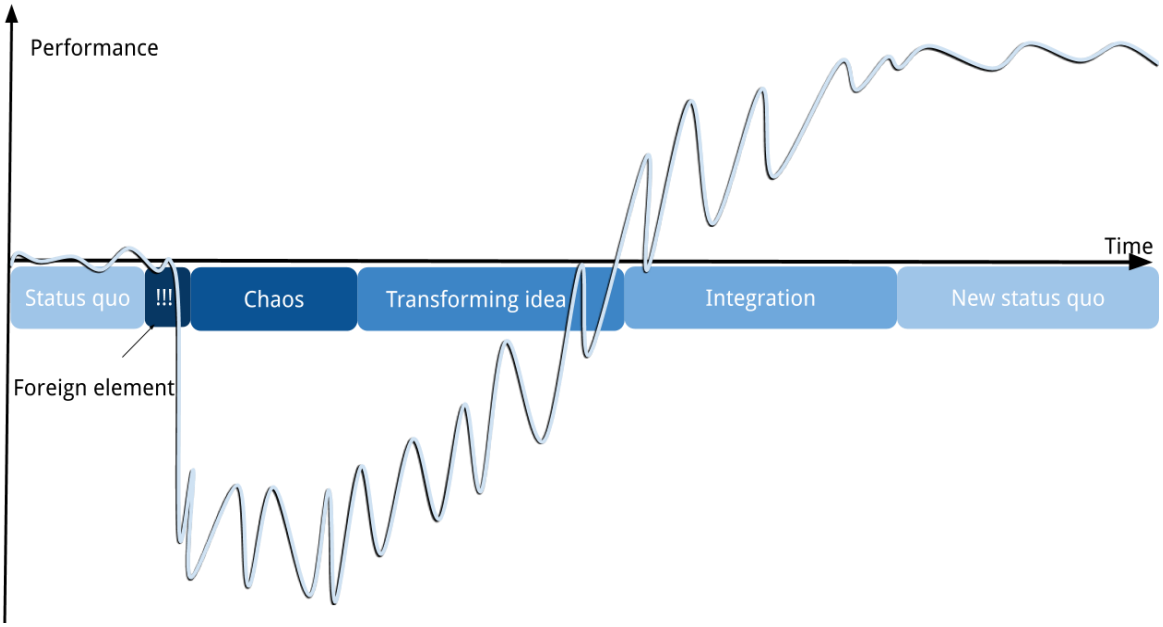

Figure 3.2: The performance levels during the stages according to the Satir change model. Adapted from Karten (2009).

When the old status quo is introduced to a form of disruption, which can take many forms, a thought or realization, a rumor or anything else that affects the balance in the old status quo (ibid.). The disrupting element leading to change can be of both external and internal origin, and include the presence of something unfamiliar or the absence of something familiar (ibid.). When this foreign element has been introduced the old status quo is gone, and replaced with a state of chaos (ibid.). Chaos is the term used in this model to describe the state of turbulence which has been initiated by the foreign element, with the result of a state in which productivity could be impaired, and may also entail confusion for those involved (ibid.). To regain the balance after a reaction to a foreign element the next step is to guide the involved parties towards integrating the new context the turbulent state has brought (ibid.). The way to achieve this is to find a way to adopt to the new situation, however if the suggested approach to the situation is rejected it is of no value (ibid.). When an idea has been allowed to root however, the next step includes to practice and integrate the new competence necessary to perform adequately in the new situation (ibid.). When the situation is no longer new and unfamiliar for the involved party, a new state of stability will settle, which in this model is called the New status quo, which is the desired state (ibid.).

3.2.2.3 Users attitude towards change

Change is affected by many factors, of which two major ones are motivation and resistance.

In previous research regarding the users, involvement, and attitude towards change, motivation was one of the terms observed (Bovey & Hede, 2001; Kotter & Schlesinger, 2008). Karten (2009) describes that an efficient way to motivate a person distraught by change to keep trying, is by reminding them of a prior situation when their situation was disrupted and turbulent. When

faced with the facts that the situation a person is accustomed to is going to change, getting used to the new situation might seem distant for that person (ibid.). Oftentimes however, when exposed to the novel situation it gradually grows familiar to the person and he or she can find themselves in a state of both acceptance and appreciation for the new situation (ibid.).

Kim and Kankanhalli (2009), present the Status Quo Bias theory. According to the researchers, the theory aims to help us understand why individuals want to maintain their current conditions. Grama and Todericiu (2016) writes that resistance towards change can be argued to grow with the frequency of undergone changes. Further they explain that there is a connection between rapid changes and lowering several factors, including trust, level of engagement and also the performance of the person undergoing the changes (Grama & Todericiu, 2016).

In order to counteract resistance to change the employees who will be affected should also be involved in the process (Grama & Todericiu, 2016). The importance of the perspective of the employee is not to be underrated. Indeed, the employees play an active part when faced with change, since they are the ones providing an answer to the different circumstances (ibid.).

Furthermore, Grama and Todericiu (2016) write that the resistance to change is often connected to so-called "organizational cynicism". The implication of this concept is that it is connected to the intention of employees to resist change (ibid.).

Today the term "cynicism" is often associated with negative emotions ranging from apathy to suspicion (ibid.). Within the organizational context, the term reflects the employee's reaction towards organizational change and their perspective regarding the management's or leader of the change's competence (ibid.). According to Sternberg and Horvath (1999), the process of getting the individual to change their approach towards a particular process can prove a challenging task even if the changes would lead to a positive outcome for all parties involved.

Factors that risk increasing the organizational cynicism include not clarifying the motives behind the decision to implement the change (Grama & Todericiu, 2016). Transparent communication can lead not only to employees understanding the reason behind the change, but also to understand the way the change is planned to work (ibid.). By explaining the perceived need for change, it is argued that the change-specific cynicism can be reduced (ibid.). Resistance to change is often found amongst the employees who are either doubting the motives of management who work towards implementing said change, or doubting the effectiveness of the change, and that it won't reach the objectives set up (ibid.).

Karten (2009) explains that when educating the people who are affected by the change about the process of change, they can be better equipped to handle the situation, and less prone to resist. This can be done by presenting the preferred change model, Karten (2009) elaborates, making the point that it's important you work with a model you find appealing and that suits your needs.

In order to on the other hand decrease the risk of encountering organizational cynicism the employees should be involved in the decisions taken that affects them (Grama & Todericiu, 2016). The reasoning for involving employees in the change process is twofold. It braces the

employees who will experience the change by notifying them about its approach, while also potentially stabilizing the perspective of the credibility of the management (ibid.).

CHAPTER 4. EMPIRICAL DATA

In this section we will present the empirical data gathered through interviews. We begin by briefly describe the two organizations and present our participants, this to give a better understanding of the consultants and their experience. The empirical data has been divided in five themes according to the process described in chapter 2.10. The themes include "Perspectives on change", "Change management", "User involvement", "Digital maturity", and "Cultural aspects". The interviews were conducted in Swedish, which necessitates translation of the transcript extracts before presenting them in this work.

4.1 Organizations and the respondents

Following is a brief description of the two consultant firms, as well as the participants. As mentioned in 2.8, 2.11 and 2.12, the data from the interviews has been anonymized. As seen below, the two organizations are referred to as Organization A and Organization B, while the participating consultants are referred to as P1 to P11, based on the order of the interviews.

4.1.1 Organization A

Organization A is a consultant company located all over Sweden with about 2400 employees. The organization have consultants with expertise in many different areas in order to be able to provide solutions to a variety of clients and challenges.

P1 has been working in the organization for twelve years and has a total of twenty years in the industry. The project manager helps clients with different project focusing on change and change management. P1 spends most of his time with the client in order to accomplish a better result instead of working from the offices of organization A. P1 roles include helping the client with their mission to change and increase effectivity. As seen in table 2.2, P1 have experience form working both in the private and public sectors. P1 were also able to provide insight regarding global projects involving several nations across the globe. P1 frequently mentioned the importance of change management and the importance of knowing your client's organization. As P1 describes it, he provides external expertise but is not necessarily an expert in their business, so the employee feedback is vital in order for the project to succeed.

P2 has like many others we interviewed not just a single role within their organization. P2 has been with the company for three years and in the field around thirty years. Also, P2 have been a project leader in different types of project but primarily in IT related projects. P2 works in projects that focuses on IT, as an example he's worked with big data. P2 have also been involved in both public and private sector. As a consultant P2 has a lot of experience helping the client organization with management and control in different forms.

P4 is also a consultant in organization A. P4 has been a management consultant for about nine years and consultant manager for little over a year. P4 also follows the same pattern as P1 and P2 and has also been active within both the private and public sector. P4 also have experience of multiple projects running in parallel with each other. P4 have also during his career helped the clients by taking on roles such as IT-manager and Chief Information Officer also known as CIO.

4.1.2 Organization B

Organization B is a consultant company located all over Sweden. The organization have consultants with expertise in many different areas in order to be able to provide solutions to a variety of clients and challenges.

P3 is a consultant in organization B. P3 has been with the company for about 5 years, but has at least 15 years of experience in the field. P3 has a lot of responsibility regarding client management and he also has a role as team leader for one of the organizations clients. P3 says due to the wide scope of the company he can wear many different figurative hats depending on the project. Due to all those roles and projects P3 has come in contact with both the public and the private sectors.

P5 is very new to his organization, and has only been employed by them one week. P5 have twenty years in the business as a consultant and an entrepreneur. P5 has a lot of experience as requirements analyst and business developer. Another role P5 have taken many times is project manager, in many different projects, and like the previously mentioned participants he has also been active in both private and public sectors.

P6 has been working as a consultant for two and a half years, and ten more years in a big tech company. He has held many roles, such as the roles of project leader and architect. He's worked in both public and private sector.

P7 is also newly hired at the organization, and have been there for about three weeks. He has been a consultant for almost ten years. In contrast to the rest of the participants he hasn't worked in the public sector. He has conducted work such as taking the role of Scrum master within digitalization projects.

P8 has worked as an IT-manager for thirteen years before moving to the current organization, where he has been for seven years. Together with other colleges, he has taken a course regarding digital transformation. Also, he has been involved and worked in both the public and private sectors.

P9 has been with the company for five years. She has had different roles, including but not limited to the roles of consultant and consultant manager. She has worked as a consultant for about twenty-five years in different organizations within both the private and public sectors.

P10 has been with the company for two years and works with different types of projects such as digitalization and business development. She is also the consultant manager for a branch of organization B. Before she has had many different leading positions, usually managerial. During her career she has worked with both the public and private sectors.

P11 has been working in the IT sector since 1998. She has worked both in the public and private sector. She has been involved in many projects many of which has had a business development focus.

The participants in this study (as seen in table 2.2) have many years of experience in the field to share with us. Almost all participants, ten out of eleven have experience from working both in the public and private sectors. To gather data relevant in order to be able to answer the research questions we have chosen to interview consultants as stated in section 2.7. Three of the participants were from firm A and eight of the participants were from firm B.

All our eleven participants are currently working for one of the two consultant firms. Our participants have taken on many different roles regarding digitalization and digital transformation and are thus being able to provide insight from several perspectives while figuratively wearing different hats, adapting to the different assignments and tasks. Some of the participants have or have had different management positions, both in their respective firms as well as in other organizations allowing us to gain even further information regarding hierarchy and decision-making processes in different projects.

4.2 Perspectives on change

In this subchapter we will present empirical data regarding what our participants said in order to further explain perspective of change and the importance to take it under consideration.

From the interviews we conducted it became clear that there are many different perspectives and views of the organizations. The parts of the organization hold different views of change. The importance of that fact was clearly stated by the participants.

The project manager or P1 said *"The projects I've been involved with have oftentimes led to a part of the workforce losing large parts of their work, so it's not always positive messages I come with"*. That quote clearly states that change also can have negative aspect for some within the client organizations attempting to implement a change. He continues by also pointing out the positive outcome from having different perspectives regarding changes by saying *"I believe that it's in the meeting between their organizational insight and my experience that good results are created"*. That is something all other participants from both organization A and B also echoed with their answers in later interviews. During the interview with P2, the participant gave a good example explaining how three different managers from a client organization saw a situation in three different ways. The fictive managers handled sales, market and production, and the three had significantly different ideas of what should be prioritized. Each manager has his or her own perspective of the organization, and differing senses of urgency regarding issues in their area of responsibility. If one were to attempt to gain a holistic view of the situation within the organization, the processes of prioritizing where to allocate the resources would become clearer, through assessing the overall perspective. In the example the market manager had requested resources, but due to more urgent issues in production which the market manager was not aware of the resources should be allocated towards solving the issue with production instead. The sales manager might even propose the solution of canceling all production and instead purchasing a similar product off less quality but in larger quantity, to gain profitability. As the situation in the example turned out, the product was both expensive and difficult to produce, leading to a product that was expensive to purchase and possibly not reliably available for the customer. The solution suggested where the own production would be stopped in favor of keeping only the pieces of the organization that were profitable were the arguably best suited one, even though the production manager were loudly protesting.

In general, we saw a consensus from all consultants regardless organization the importance of being aware of, at all time, which people are being affected by a change, and how. P3 from organization B also further cement that people are going to be affected by change differently and thus have a different perspective regarding it. P3 starts by explaining that society and organizations use many different labels such as Industry 4.0 and that leads to a state of panic or unrest, where an organization in the industrial sector might have machinery and software they don't know how, or where to use properly. Quite commonly, they also frequently use different buzzwords such as AI-technology, without specifying their need for an implementation of such technology. According to P3 transformation is more about helping the employees become more specialized within their particular field, in order to be able to work with new technology, gaining better precision, control, and a more flexible organization. Another factor of the transformation is to help the organization to minimize the time employees spend on administrative work. He

also clarifies that an alternative perspective also exists, that new needs and new jobs are being created because of the changes taking place within the organization, and the view of just replacing all employees with robots is not well founded or even realistic.

P11 describes how the most difficult part of a digitalization project is to engage the employees: They need to understand the usefulness of the change, rather than fear it.

P6 explains the perspective of some employees he has worked with. They approach him and are worried, since they've previously worked with automation tasks but with the inclusion of more capable technology, their tasks are changing. P6 explained to them that they are no longer necessarily responsible for the actual coding, but rather analyzing the outcome and possibly act on the analyzed data as well. But explaining the changed nature of the work is not always an easy task.

To further elaborate P6 describe how automating process can allow employees to work on more relevant task. Tasks relating to their university education. P6 gives an example of how Controllers today may spend many hours moving around data from spreadsheet to spreadsheet, but with the help of automated process they would be able to spend their time analyzing and interpreting the data instead. Which P6 notes, should be the intended assignment when studying economy at the university. According to P9 the concept of notable individuals, or even workplace heroes might perceive the impending change as threatening, and feel like their expertise and experience will lose some of its value when changed procedures might premiere other sets of skills which some of the workforce does not possess.

The ability to oversee your organization and identify what might be perceived as upcoming threats, and how to counteract those are of high importance, P9 continues. Such prevention can include sharing and communicating the objectives, the strategy and the vision and thereby helping the employees see the opportunities. The vision must incorporate the digital aspects, in order to not allow said vision from preventing the organization to adapt to a digital future. P9 also notes that to solidify the projects probability of success, some decisions of harder nature might be necessary.

4.3 Change management

In this subchapter we will present empirical data regarding what our participants said in order to further explain change management, and the importance to know how to monitor and steer opinions.

During our work and gathering of empirical data it was soon clear that change management was a vital part of any digitalization or digital transformation project. During the interviews the importance of change management came up many times. Many of the participants stated that a key factor for success in a digitalization or digital transformation project is change management. For example, P2 said *"The most important prerequisite is that change management is being conducted"*, and continues to further explain the importance by pointing out the fact that many organizations do not put enough effort into it. Change management is about making the problems clear so that everyone involved understand the challenges they are facing. P2 also focuses on that one person not being willing to change their attitude is enough to put the whole project at risk. P2 continues by presenting a concrete example on how important change

management is for an organization and how the lack of it can be harmful for the organization. This was based on the same premise as presented above: three different managers, and the production manager keeping on protesting. It's made clear that the production manager won't abide by this decision, and is convinced it's a huge mistake to go through with it. Several reasons why this should be the case is presented, such as that the production process has taken 10 years to reach the level of quality it's at right now, and that the process and quality of the product has been awarded prices and so on. But lacking the perspective on profitability the process is simply not suitable for the organization. The possibility to lower the quality to increase sales due to affordability exist, but the production manager, who has worked towards maximizing quality his whole life would never agree to a suggestion like that. By now, a new production manager might be needed, and that's where change management is introduced. Without change management, these people will continue performing their work with a few new digital tools and systems at their disposal, but without adapting their processes accordingly. Hence the need for change management.

P3 point out the importance of people, and that people are a valuable asset for the organization. That is an important aspect to remember in any change, that people are a part of an organization and may not want to change, but that is one of the challenges. P3 explains: "*Change management is highly demanded on the digital journey about to start, you have people who appreciate going to work and performing these monotonous tasks all day, who doesn't want to change, and some of these are very difficult to change.*". The consensus between all our participant is that change management is a vital component of the project success, due to the fact that the technology alone does not create any value if no one is using it. Our participants pointed out that change management is as important in both private and public sector. In the interview P1 showed an interesting aspect by elaborating about the legal system by saying *"First, a change always affects something already established, secondly, it will always be on the edge of the legal system".* Referring to the slow changes in the legal system adapting to the new digital environment. All consultants during the interview used the concept change management in the early stages of the interviews before even question regarding the specific term were asked.

P6 describes that in order to ensure a common vision of where the organization is headed, change management is a fundamental aspect. In part because everyone in the organization needs a clear view of what the work is supposed to achieve, but some are always going to feel threatened by the changes ahead. To ensure these people are not going to oppose and resist change, the purpose must be communicated properly. Thus, it is of the greatest importance to keep the people on board at all cost in order for change to succeed. To achieve such result the following messages must be communicated "*it's not about sending you home, it's about getting better together*".

P7 points out that some people are not always accepting the facts presented when facing change, especially when they feel like the change are not necessary. Another impactful factor that might increase the resistance is when an external part is delivering the message that change is needed, without the employee's involvement in the decision, he continues.

The ability to adapt to change is vital for the success of a digitalization journey P7 remarks. The challenge when embarking on such a journey includes getting the people on board. They might

be used to old routines and processes, and need to adapt to the new way in order to achieve a higher rate of efficiency. P7 puts emphasis on the latest part, and explains:

> "*this is both the fundament of it all, and also the greatest challenge. Motivating why the employees should change their conduct, and evaluate if the new way really is the best alternative.*" – P7

The importance of getting everyone on board is not to be understated, P7 continues. The system he tries to introduce can be great, but it also needs to support the users. No matter how efficient or good a system is, it won't add value unless it is actually used.

Yet another participant P9 point out the importance of change management in the unavoidable changes to come during a digital transformation, like previous participants focusing on getting the people on board. A common mistake made is having an overly technical focus, rather than focusing on the people involved.

Further P9 explains that the difficulty of conducting change management is depending on how elaborate the strategic perspective is. An important objective during such change projects is maintaining the competency in the organization.

P10 also talks about a common lack of consideration of the people involved, who are affected of the changes. Ensuring the management of an organization has an explicit vision of why the change is needed, where the organization should be headed, what the result should be, and also a clear description of how to achieve that and what the benefit of the result could be. If all of these aspects are clear, projects have a larger chance of success. Often however, projects are on a level where only the question "*what is the goal*" is answered, but the purpose, the "*why do we want to achieve this*" is not, P10 remarks. When the purpose of the project is not clear, the chance of success decreases according to P10.

4.4 User involvement

In this subchapter we will present empirical data regarding what our participants said in order to further explain importance of user involvement in digitalization and digital transformation projects.

As seen in the subchapters 4.1-4.3 above, there are many differing perspectives on change and change management is a very important component for the success of a project. Due to the fact that all projects are unique, with different clients trying to solve a new problem it is impossible for a consultant to be familiar with all the different areas where they might find themselves working. That is something P1 confirmed in his interview that he believes that a combination of his own experience and the understanding that employees have about the problems in the different processes and their tasks, leads to an improved and successful result. Which is why it is essential to involve employees of the current client organization in order to get a complete and more accurate understanding of their processes. As P3 points out employees are carrying knowledge, and the client organization do not want to lose that knowledge even if they automate a process. Specifically, P3 says it is of importance when working as a change manager to be involved in the process and be able to figure out what the employees affected by the change will be working with after the change. The employees have a lot of valuable knowledge for the

organization that would be of terrible impact if it was lost. Technology can make the process more efficient, but problems and errors may still occur, which could lead to the need to close down the machines for repairs or even routine maintenance. In a case of a catastrophic disruption, it is important for the organization to have retained the employees possessing the knowledge in order to repair any damages, and rebuild the procedure. That can also be concluded from P3 saying *"it could come a day when disruptions occur and the organization may need to rebuild, the knowledge is situated in the people, so when that happens it is important that the people are still within the organization. So, it is important to keep them around, and not lose them"*. Of course, it is possible to replace people and find others with similar expertise, but it is of importance for the organization to try to maintain their employees and allow everyone to be active and contribute to change in order to preserve a good organizational culture, P3 says. While involving people from the client organization is necessary, a critical stance must be held, because a lot of the feedback may lack usefulness, such as an employee simply stating *"I don't like it"* P1 mentions. Comments of that nature doesn't contribute to the project due to the fact it lacks constructive criticism. P1 one says he tries to talk and involve as many as possible and later go through their feedback looking for comments such as *"This would not work due to the fact that we need to operate according to legal regulations…"* and not comments in the style of *"No this won't work"*. The difference being the reason behind the statement, is it because of the knowledge of the process the feedback is given, or due to the employee's own personal preference?

In an effort to clarify what constituted important component of a successful digital transformation P6 jokingly discards technology as one of them by saying "*all I need is a whiteboard*". The important aspect he said, is a shared understanding of where we are, and where we are headed.

To ensure the system is usable in the context P7 likes to adopt an Agile mindset, where the employees gets a chance to evaluate if the change that he is trying to implement is supportive of the procedures of the organization or not. Based on their feedback the plan may undergo changes in order to better support the procedures, while also achieving the objectives at hand. This mindset is not always welcomed by the employees delivering the feedback however. He describes that they might perceive how he, as an external part, is the one who should know what to deliver, and that the employees feel like they gain unwanted responsibility when they are asked to give feedback on what to be delivered. "*I don't want to participate in this project, can't you just deliver it to me so I can continue with my own work*" he described.

Bidirectional communication is of the greatest importance according to P8. It is also necessary to welcome and embrace the feedback brought by organizational employees. P8 resembles the process with the roots of a tree, where the roots being the valuable and irreplaceable feedback from the employees.

When it comes to understanding the day to day work, the employees of the organization are a highly valuable source of information P9 agrees. Further P9 describes how ideas on improvement may come from unexpected directions, even though focus may be on the loudest ones, they are not always the ones with the best ideas. She describes how a willingness to communicate with, and highlight the ideas of employees can prove to be a great asset when looking for improvements.

4.5 Digital maturity

In this subchapter the empirical data regarding what our participants said in order to further explain the concept of digital maturity will be presented.

During the interviews, a term that was discussed at length by the participants were digital maturity. Regarding digital maturity, the consensus among the participants were that it doesn't affect them personally, it does however affect the level of impact that the consultant can have on said organization, depending on the client's digital maturity level.

Along with the term digital maturity, participants also went on to explain they believed that concepts such as digital strategy, which can often be encountered in the literature should not necessarily exist, if the digital maturity of the organization is high enough. The digital aspect should rather be part of the overall strategy or business model.

As P2 points out, it is important to have a close understanding of your organization's business plan. According to P2, digital strategy is a term that when used, is found mostly in the private sector. In the public sector he says, the concept is called 'digital agenda' and is a bit more abstract than a strategy description. Both the digital strategy and the digital agenda have strong ties to the business plan. Depending on the client's organization different approaches may be needed. P1 provides an example on how he proceeded, in a less usual way, to help a client. The example was the following: He was working on a job for a client, where he modelled the business capabilities, mapping their different skills, strengths, and weaknesses. The employees themselves were able to tell which of those skills they believed were the most vital. P1 further mapped their IT environment, and the employees were asked to express their opinion regarding the IT systems, and if they were adequate for the intended use or not. After the data was gathered, a heat-map over the organization's skills were created. The heatmap showed different areas in colors such as green, yellow and red, correlating with the perceived importance of the area. The visual aid made it easier to identify what needed to be done first and prioritize. So, this heat map visualizing their IT environment and processes become a part of the client's strategy, and also increased their digital maturity. This approach is an unusual approach P1 says. Usually the client organization believe that they have a more profound understanding of their situation than they might actually have. It is of importance for our participants to understand the level of maturity and how the client organization operates, before they look on the organization itself and the potential benefits of an implementation. P3 says, they first try to understand the client's level of digital maturity. That means identifying how much the client organization understand about IT, and what they looking to achieve. After that information is collected, they continue to investigate how much of their operations currently are digital. To be able to retrieve all the information necessary, P3 explains that questions such as *"are you comfortable with the IT- terminology we use?"* and "*what do you believe IT can do for you?"* are used.

P11 talks about the need to anchor the strategic vision of incorporating IT and the digitalization journey of the organization, so that it does not simply become a concept only realized through the documents describing it. If it's not applied in practice, it doesn't contribute or improve anything.

P6 compares the perspective he's encountered at times to that of wanting to run before even learning to walk. There is an immaturity in the lack of willingness or awareness to take it slow,

and confirm that the gathered data actually is of the perceived importance for the organizational processes. "*The required maturity entails the realization that the journey doesn't start where you believe it to start, there is quite a bit of hard work before you can start with the entertaining parts*."

During his interview P6 told us that clients commonly approach them with either ideas of an app or the perceived need for implementation of machine learning. According to P6 that's starting in the middle of the process and could be dangerous for the client organization. He emphasizes that they want to skip the data collection phase, a phase of vast importance in order to verify that an attribute actually is interpreted correctly. Due to the fact that steps were skipped, a realistic picture of how employees are working is not guaranteed. This lack of insight may lead to the false belief that all the processes and guidelines are being followed meticulously by all the employees. Due to the nature of technology it can start to drag you in a direction rapidly, and if the choices have been based on an assumption the consequences can be devastating,

P7 explains that the objective of a client is never explicitly dependent on digitalization, rather the client has their own very concrete problem that they are trying to solve. It can be shorter lead times, but how to accomplish that is not clear. The client can present their perspective of the issue at hand, with aspects such as the need to communicate more efficiently with their customer, to see something other than a single line of text showcasing the status of their order or the like, and all of a sudden the search for a solution on their project has turned into a digitalization journey. A project with digitalization at its heart. P7 further notes that the words digitalization and digital transformation are not used in practice, rather the descriptions are of concrete problems that can be solved by IT-based solutions.

"*If you work in our line of work and encounter a client that has a thought-out digital strategy, you're in luck*" P8 says, explaining there's a rare occasion finding a company with a digital strategy, or even an IT-strategy. They can include business plans and visions regarding the business model and the like, but they don't touch on the topics of IT or the digital world.

Organizations tend to look different from one another, they come in all shapes, forms and sizes. Though understanding the core elements regarding 'where we are at' and 'where we are going' are necessary for all of them in order to pursue the development of a digital strategy. P8 believes that a digital strategy must be dynamic, reworked and revisited regularly. It is not a document that can be written and then stored in an attic. To make his point P8 says "*It is not a static document you can take out in five years and see what was said. You have to incorporate it in your way of thinking in the daily processes*". Further, he explains that in order to meet the goals set for the project the top management needs to support the project, which is one of the necessary pieces to succeed. The second piece is thorough and clear communication.

P9 elaborates on telltale signs of a digitally mature organization, and included the need for a vision, a mission and a strategy with the digital aspects in mind. It also includes keeping the customer in mind, by understanding the client organization's needs. Further signs are that the client has a good IT-infrastructure in place, that they have at least started digitalizing their internal processes and so on.

The concept of reaching a high level of digital maturity in an organization, can be described as the injection of the 'digital' into the organizational DNA P10 explains.

4.6 Cultural aspects

This subchapter will present the empirical findings that relate to cultural aspects, such as the strategic perspective of digitalization, and organizational culture.

The concept of a digital strategy is not something that is commonly discussed among colleagues on a regular basis P7 says. "*The management group might be discussing it, or they might not, I've never been part of the discussions regarding the digital strategy*." The topic at hand is more commonly regarding the specific and concrete problems that they are facing in the moment. If you have a historical perspective in mind, you can see that computers have grown more and more capable. Initially, the computers were not up for some of the tasks, and humans needed to perform monotonous and straining assignments. This is something that stuck in the mentality of the employees, and somehow the perception stuck in the culture, that to perform these tasks a human is needed. "*It's always been that way, and therefore it's not going to change*." Now the conditions has changed however, and that might bring with it the need for a fundamental rebuilding of the processes and task delegation in that kind of company, but that fundament is something that is already known to the employees, meaning it's difficult to alter, P7 explains.

Depending on where you work and what the organizational culture is like at that company you can receive a variety of welcomes. In some companies you might be included in the group very quickly indeed, while in others you might be seen as an outsider. When working with larger projects some companies might want you to start working full time for them, because they want to have the knowledge and experiences of said project in house. It can get a bit blurry around the edges, it's rare you get to the client, finish the job and then just leave, because often there's several projects running in parallel, and when one of them finishes the other ones might not, or a continuation project, building on the results of the finished project could start. In that case it's useful to keep in mind the lessons learned from the first one.

The value created does not need to be of just an economical nature, but may come in many forms, P8 explained. Differences could be depending on the context of the problem, and the goals and the mission of the organization.

Having employees talking positively about the contribution of the project can be important for its probability of success. P8 says it is impactful to have a so-called influencer on your side, to highlight the usefulness of the work in less formal situations, such as the lunchroom. As a consultant you are paid by the client in order to deliver a solution, and P8 explains his personal disposition, which is to deliver a good result in order to feel at ease that the client got what they were owed. He elaborates that he takes pride in ensuring the solution supplied is optimal for the client's needs. That is a major driving force for him.

The management group are the ones setting the boundaries and expectations, the bar can be set rather high P8 says. "*The end result will be evaluated thoroughly, and we as suppliers will be closely observed as well*."

The act of evaluating where an organization is, in regard to digital maturity will in fact also affect the digital maturity of said organization P8 explains. Through highlighting these aspects, you are making the person replying to your questions aware of potentially lacking areas, influencing them to reflect on them and often improve the level of maturity, which is something to keep in mind he continues.

When you start working with an organization it should be prioritized to get the top management on board. Depending on how far the organization has come regarding strategy, vision, mission in relation to the digital aspects this might be easier or harder to accomplish. The vision and the mission are often influenced by the culture within the organization. An organization that includes in its culture the acceptance of, and embraces the potential to change is more probable to succeed in the task of adapting to new conditions on the market P9 says. The culture needs to be open to change and encouraging employees who want to try processes or methods not used before.

"*As I see it, the concept of digital transformation is meant to secure the future of the organization*", P9 explains. When working out the strategic take on digitalization, she says, it is of utmost importance to incorporate the digital aspects into the general business model, and strategic perspectives in general. The same group of individuals who are responsible for the general strategic work in an organization, are also the ones who need to be in charge of the digital strategy she says. Although depending on the organizational size and cultural relationship to change or perspectives on stability, it might prove necessary to test the implementation and adaptations in a limited part of the organization.

An expression P9 has encountered during her career is "*Culture eats strategy for breakfast*". She elaborates that never mind how well thought out the strategy might be, it's not useful unless the organizational culture is accepting of the strategy as well as the changes in operations that the strategy might lead to. Even if the individual employees are open to change, there might be a silent understanding based on the organizational culture, that you're supposed to simply do your job, rather than attempting to influence or change the way the tasks are supposed to be performed. These cultural aspects are a major issue, quite challenging for the person performing change management to deal with, she concludes.

The perspective on what to achieve when working with digitalization is often too focused on the technical aspects, P10 says. The focus on changes brought by the digitalization journey should rather be on the people involved. It is the people who will be doing their job in a different way than before, utilizing technology to do so. Hence, P10 proclaims, it is the relationship between the human and the technology that is important to keep in mind. It is in the innovative interaction between humans and technology that the usefulness is created.

CHAPTER 5. ANALYSIS

The purpose of this chapter is to discuss the relationship between the theoretical framework laid out in chapter 3 and the findings in the empirical data as presented in chapter 4. The empirical findings clearly linked to the theoretical areas, which were synthesized into three broader groups, namely Strategic perspective, Culture and Change, as presented below. An overview of the layout and relations between the headline groups and the components included in each of them can be seen in table 5.1 below.

5.1 Overview of analysis

Initial work was conducted to map out how the empirical data related to the theoretical framework this report is based on. Table 5.1 below presents an overview of the topics and theoretical concepts according to our categorization. In the group Strategic perspective, the more business related topics were covered, such as the Lean thinking philosophy, Industry 4.0 and finally the topic of Digital strategy. The second group called Culture includes the topics of Organizational culture, and External factors influencing organizational Culture, based on the empirical findings. Lastly, the group Change management consists of Models in Change management, Changes within the organization, and finally User attitude towards change regarding both the motivation aspect towards as well as the concept of resistance against change.

Table 5.1: Theoretical frameworks related to the three topics.

Topic	**Theoretical**
Strategic perspective	Lean thinking and Industry 4.0
	Digital strategy
Culture	Organizational Culture
	External factors influencing organizational Culture
Change management	Models in change management
	Change within an organization
	User attitude

5.2 Strategic perspective

As mentioned above, the topics related to the strategic perspective will be presented with the findings from the empirical data, and a discussion on how the two relate to each other.

5.2.1 Lean thinking and Industry 4.0

Rather than relying on the new technology to improve and grow more efficient, Romero et al., (2019) describes the Lean approach as focusing on optimizing processes and cultural aspects in order to achieve continuous improvement. P10 describes a distinction in what questions to ask to get a clear understanding of the status of project implementations or the like. The questions are divided into categories, including the "Why" form, the "How" form and the "What" form. Wade et al. (2017) describes the importance of having a clear strategic vision, which includes aspects such as the questions mentioned by P10 above. The first two questions are meant to formulate why the project is needed, or the purpose behind it as well as how the project is going to fulfil the goals set in front of it on a strategic level. The latter form is going in depth of how to

achieve the strategy formed, and P10 conclude that implementing specific technology is a clear answer to the "What" form. An example of the "Why" form and the "How" form could be in the lines of: The improved efficiency through less wasteful processes and the like. Many other participants, including P1, P2, P3, and P5 also mentioned efficiency and less wasteful processes when attempting to pinpoint the purpose and value gained by digitalization in practice. These go in line with the philosophy of Lean thinking as described by (Romero et.al., 2019). As described previously, Buer et al. (2018) mention that Lean thinking in the industrial context goes in line with Industry 4.0 which could arguably be considered the embodiment of digitalization of an industrial organization.

The Lean mindset as described above (3.1.1) goes in line with the description of what implementation of digitalization can bring to an organization. As highlighted by P9, the examples include a competitive advantage, new business opportunities and an increased value for the customer.

P10 describes the objectives to include adapting the business model to accommodate future business opportunities. Many participants (P9, P2, P3, P5 and P10) explicitly stated that their perspectives include increased value and usefulness for the customers as being a motivating and driving factor behind the change, while none of the participants contradicted this view.

P9 explains her thoughts on digital transformation and what it is meant to achieve. The primary focus should be to secure the organization for future businesses. The future can put demands that has not previously been expressed, such as the necessity for the business to have the sustainability aspect in mind. Meaning that the organization can experience pressure to obtain a certain level of sustainability in the future. P10 agrees with this perspective presented by P9, which is also as stated above in line with the goals for the Lean philosophy (Romero et al. 2019). We believe that due to the emergent nature of the digital landscape it can be difficult to foresee the position on the market to strive towards. As the interaction between people over national borders increase with the possibility to communicate and conduct business across geographically distanced areas, the legislation of one or both of those nations is necessary to keep in mind. The juridical aspects share the dynamic nature of the everchanging world we live in, as can be seen by the fact that proposal for new laws and the adaptation of older laws is an ever-present discussion in politics and among legislators. By extension that entails both the flexibility and agility to quickly react and adapt appropriately to changes, but simply reacting to external influences may not be quite enough. It is our impression, that exploration of the new landscape is necessary as well, to adopt novel ideas made possible by the everchanging circumstances, and create value for the customer in ways that has not been done before.

The perspectives shown above are closely going in line with the definition by Gimpel and Röglinger (2015) that's adopted in this work. To recap the definition follows: "***Managed adaptation of companies in light of progressing digitalization in order to assure sustainable value creation.***"

P10 further details the means to accomplish sustainable value creation for the customer can be in part, or entirely dependent on the usage of technology in light of introduction of new technological solutions. She puts focus on the process incorporating the newly introduced solutions rather than the technological nature of them. Falling in line with the definition (Gimpel & Röglinger, 2015) and specifically with 'sustainable value creation' P8 elaborates how digital transformation always relate to the aspect of increased effectiveness for the client.

During the interviews described above the participating consultants describe ideas and methods close in line with the theory though as P8 points out the client top management have the final say. They are the ones that sets the bar and the expectations for the final result. They are also the ones to evaluate both the consultant and the firm he or she is representing.

Achieving digitalization and digital transformation result in a state suitable for the concept Industry 4.0 or the "smart industry". It can besides utilize both robotics and automation in novel ways also introduce the concept of smart production machines by connecting virtually everything to the Internet of Things (IoT). Mohelska and Sokolova (2018) describe the introduction of and what emerges from digitalization in the industrial context. By the usage of IoT as an infrastructure, the processes can become interconnected and in line with the Lean philosophy lessen production cycles and improve efficiency (ibid.). The maintenance of machinery and equipment can be improved by the use of sensors that alert when maintenance or repair is due, leading to fewer breakdowns and smoother operations (ibid.). Likewise, the participant P4 mentions the use of such devices to ensure water pipes leading freshwater to households beneath the paved streets don't rupture unexpected, leading to floods and all sorts of disruptive situations for the citizens above ground, such as repairs needing to dig open the entire street in order to find where the leak in the pipe is, or the like.

P4 is not alone in seeing the value of machines in order to make task and process more efficient. P7 relates to the historical perspective, where computers have continually become able to execute more complex functions. In the earlier days they were not up for the task so humans had to still perform the mundane tasks, he continues. He argued that this aspect has left a residue still found in the mentality of employees, as well as in the fabric of the organizational culture itself. Today the tables have turned, and machines have become much more sophisticated as stated by P7. This could necessitate a reform regarding processes and task delegation. In order to successfully reform, the so called 'MABA-MABA list' as presented by de Winter and Dodou (2014) could be used to provide guidance regarding with processes should be delegated to humans and with process should be delegated to machines. The list if used correctly, can help better align the client expectations to the reality in which they find themselves. P3 mentions how he have had to deal with unrealistic expectations many times. He described how industrial organizations today might think they need big and advanced technological solutions such as hologram glasses and artificial intelligence. The reality is, P3 continues, that the industrial workers exclusively use CAD prints and lathes in their production.

Another mistake an organization might commit is brought up by P6, are the perceived need for the latest available technology, either their very own application or machine learning. When not ensuring that the proposed solution dangerous situations can quickly arise, when not managed properly. The use of machine learning, a technology depending on flawless data in order to make decisions better suited to the situation, can be devastating he says, if your interpretation of which data is relevant is wrong. The examples of these industrial organizations lacked the digital maturity needed in order to adopt the technological solutions at hand, and the examples could be seen as contradictory to the views of Mohelska and Sokolova (2018) described above.

On the other hand, P3 mentioned how through changes and automatization the demand is created that the employees to become more specialized and comfortable with the new technology. A direct effect of the automatization is that the employees have to spend less time

doing administrative work. Which in this case, are in line with what Mohelska and Sokolova (2018) described above.

The capabilities of future technology are hard to foresee as described by de Winter and Dodou (2014). This could go in line with the reasoning why our participants generally were reluctant to invest too much time into the technological aspects of digitalization and much rather preferred to focus on the human aspects, such as processes and culture. The changes include the altered tasks for employees to adapt to.

Two examples of this is given by P6, who mentions both the confusion expressed when applying robotic process automation replaces the need for manual coders. The new conditions brought to light the confusion through the question "*What am I supposed to do then?*". The answer to which was that the client-side employee was to analyze the data or act on what the analyze showed. The second example were of a more analytic nature. Commonly economic controllers are constructing data sets in spreadsheets, which is something possible to automate in order to allocate the resources towards analyzing the data set and come up with well-founded advice to prepare the organization on what lies ahead. This more analytical assignment is probably more in line with their education.

As seen above focus lays not on digitalization but rather on efficiency. The primary objective for the participants is never digitalization P7 explains, and his perspective on the term itself is that it is redundant. When helping a client through digitalization the assignment he actually takes on is one where a specific problem is presented, and he tries to solve it with the use of IT in conjunction with new processes. The example he gives is one of efficient communication with the customer as seen in 4.5 above.

Sustainability is another driving force for continued development and evolution of organizations, that goes in line with the concept of digitalization. Keeping sustainability in mind can actually help visualize what the digital transformation is striving towards as explained by P9.

5.2.2 Digital strategy

As mentioned above both digitalization and digital transformation lead to a number of benefits, especially when applied through the implementation of Industry 4.0. In order to get there, the organization must have a strategy to act as a roadmap. In the upcoming subchapter we will present the view of the concept Digital strategy, as presented in 3.2.1 as well as empirical findings. The perspective on the usefulness of keeping the digital strategy as a stand-alone document, the process of developing such a strategy and anchoring it to the organization, and finally the importance to have involved and passionate management on board will be discussed.

According to our empirical data digital strategies as explicit as described by Ross et al. (2017), are very rare indeed amongst organizations. P8 goes as far as to say, "I'd say if you find an organization with a digital strategy you are extremely lucky". When elaborating on this statement, he explains that in his experience only a very few organizations have included the digital aspect in their strategic work.

Despite the rarity described by P8 above, Ross et al. (2017) describes the concept of digital strategy as a very useful form of guideline or map for executives, in order to both provide them

with direction as well as a means to evaluate how well a digital initiative is progressing. Based on those traits the executive is given the perspective and understanding necessary to reallocate resources to guide the efforts in an efficient way (ibid.).

What can be seen as a confirmation of the views of Ross et al. (2017) regarding the importance of a clear vision of what to achieve is the following example as described by P10. She begins by reminding us of the important to incorporate the employee's experiences regarding the transformation. She boils down the strategic perspective into a well thought out concept to keep in mind, that it is always people involved in all organizations, and they are the ones with a connection to the technology, and hence based on their experiences and insight the one vital requirement on the transformative work, can be extracted.

The strategic work needs to be able to end up answering different forms of questions, P10 explains, as covered in section 4.5 as well as touched upon in section 5.2.1 above, these forms includes answering why the change is important, and what it is doing to fulfil its purpose rather than exactly how it is going to achieve it.

In order to adapt to be able to secure the future of their organizations, the introduction of a management role tasked with leading the digitalization effort has been described by Dyche (2015) who writes about the role in 3.2.1.2 above. However, the management positions might not always be populated by people with the appropriate expertise such as in the example described by P6. He mentions a colleague who met with a client and got to sit down and discuss with the client organizations newly appointed CDO. The issue in this story, is that the CDO was appointed because the organization believed that it is expected to have someone in charge, but it quickly became apparent that this person was not aware of the meaning and potential consequences of digitalizing in practice.

According to P8 the moral of the story is that digital strategy is not a new and unique concept, but rather it is like all the other strategies already existing within the organization. He continues, Digital strategy as much as any other type of strategy needs to be a core part of the organizational mindset, both operational and strategic. The strategy needs to be dynamic and adaptive to its surroundings, he continues, it can't be just another static document. It is only useful as long as it is kept up to date with the ever-changing digital landscape.

As P7 mentions above, he finds that the concept of digital strategy is not commonly referred to in the non-management layers of the organization. Even though the management group is keeping it on their agenda and discussing it frequently, the perspective of those he has encountered has been more in line with the current situation. They have concrete problems to solve, rather than spending time and effort on something abstract and vague such as a digital strategy. This is something several other participants also bring up, that to gain value from the strategy it needs to be connected to the daily work, and the organizational visualization of its objectives. Gobble (2018) also mentions that the value gained is maximized when it is supported and integrated into the business's operations.

Both P10 and P8 stresses the importance of understanding the current situation of the organization in the strategic perspective. The management group must have a shared view of where the organization is positioned, and also be able to communicate clearly regarding any potential issues that might arise.

Some participants also mention the requirement for a high level of digital maturity throughout the organization in order to extract the maximum value from incorporating the digital aspects. P10 expressed it in a vivid way, comparing it to an organization acquiring a semblance of "*digital DNA"*.

A way to express the concept of digital maturity on an organizational level that goes in line with the definition of organizational culture presented by Armstrong (2006), could be the concept of digital culture, which perhaps could be a suitable expression for a digitally mature organization rather than digital DNA.

When helping a client prepare for a project with digitalization in mind, P6 focuses on the importance to make the transition to the digital as easy and painless as possible for the client. In order to achieve that, he would personally prefer to adapt their existing business strategy by including digital elements instead of creating a new separate digital strategy. He explains that unless necessary you don't introduce foreign strategies and models to the client. With our backgrounds, as presented in 2.1, this was a positive message which supported our perspective. One could argue that P6 describes his work according to user centric principles, which we are both favorable of, due to the increased probability of success. The client should not have to adapt to external changes when not necessary but rather gain support in their way of conducting business or performing their tasks.

Participant P2 pointed out that a distinction between the public and private sectors are that in the private sector we talk about digital strategy while more often in the public sector we will talk about digital agendas. The digital agenda is described as a very high-level document, which is tedious and complicated to operationalize. We had expected a wider gap between the descriptions of working with the public and the private sector. The perspectives voiced focused mainly on the pace of adaption, where private organizations could be more agile, but the public organizations could be encountering sharper turns with decisions from a higher level, out of their control, and a brief period to prepare for the change. This could be directives to abide by, or a change on the political map, leading to for example a changed budget.

P9 describes that when formulating the strategic approach for the organization, it is necessary to involve the same people who make other strategic level decisions. In order to reach the set objective, the management must be involved. This perspective is shared by P10. A clear strategy includes an objective, and a vision that takes the digital aspect into consideration, visualizing how to achieve that P9 explains. The vision needs to be formed to both support the organizational goals as well as to align with the connected and digital future she concludes.

P10 describes her perspective on the digital strategy, going as far as to say that the digital strategy should not be necessary, but when adopting a more pragmatic view she describes the digital strategy as being useful during a limited time when transitioning towards a more digitally mature organization. After achieving that, she concurs with the other participants who claim the digital should be incorporated into the business strategy in the long run.

Both researchers such as Ross, Sebastian and Beath (2017) and the participants points out the importance of guidance and planning during a digital transformations but have different opinions regarding how it should be expressed, either as a separate and new strategy or embedded as a part of the already existing business plan as mentioned above.

5.3 Culture

In culture, the topic of organizational culture, as well as the empirical descriptions of cultural differences and management of those, related to the work of the participants.

5.3.1 Organizational culture

Armstrong (2006) brings up what defines an organizational culture. He says that organizational culture is a pattern of values and norms among other things. During our interviews the participants emphasizes on the importance of people and the value they bring, as individuals (bringing knowledge and experience) but also a part of the organizational culture.

The aspect of digital maturity was not unanimously defined by the participants in this work. Some mentioned primarily the individual employees competence and digital literacy, but the majority of the participants mentioned their perspective including both the individual and his or her own knowledge and understanding of the digital world, as well as the digital maturity of the organization as a whole, naturally consisting of both the individual competencies, but also the internal procedures, communication lines and overall ability to take the digital aspects to heart, or as P10 mentions above: inject the digital into the organizational DNA.

By incorporating the digital aspects close to the business model and internal processes in the organizational structure, the digital becomes a phenomenon shared by the whole organization and thus follows in line with the definition of organizational culture presented by Schein (2004). Illustrating the tight connection between theoretical definitions and practical perspectives.

The perspective of digital maturity in an organization is often found to involve the digital aspects in its vision, mission and strategy as expressed by both P9 and P10. It also includes a good IT-infrastructure and the more or less digitalized internal processes she continues. P10 also mentions the digitalized internal processes a bit more in depth, with inclusion of examples such as gathering and analysis of data to make well informed decisions, but also the format of communication both within the organization as well as the meeting with the customers.

The organizational culture and the relations within the client organization may also affect the motivation or resistance towards change were also brought up by the participants.

When working with some form of change P8 explains, the communication taking place between the individuals of the client organization can make or break the project. If you manage to get an informal representative on your side, he says, who can act as a spokesperson at the coffee break, lobbying the advantages of the project, you'll have a much easier task in front of you.

Participants generally agree upon the necessity of understanding the context of the organization they will be working with. P1 even says that it is in the meeting with the employees and his prior experience and external knowledge that value is created.

The list of tools necessary in order to create value according to P6 is rather short. A whiteboard by itself can be infinitely more useful, he says, than the technological solutions in the hands of someone without the right mentality towards change. A major factor when striving to change is the ability to identify where you are as an organization, and where you aim to be, he concludes.

Meanwhile, P7 talks about his experience working with different clients, and how depending on their culture, their values and history he's received differing welcomes. Sometimes he's been seen as an outsider, tasked by some far distant management to cause a disruption to the people doing hard work, while other times he's been seen more as a member of the group and where the client organization would have liked to hire him as a full time project manager instead of consulting project manager. Kane et al. (2017) describes the implementations as that of a sprint based nature, where momentum can be kept through continuing to improve. P7 explains that the gathered experience from previous projects working with that specific client has given him insight in their organizational culture and thereby an understanding of how to achieve project goals in their specific context. This goes in line with the description of Kane et al. (2017) above.

An important aspect when discussing the cultural aspect is pointed out by P4: In order for innovative ideas to come to life, the organizational culture needs to accommodate and welcome brave ideas he explains. Kane et al. (2017) mentions criteria for achieving digital maturity within the organization, where the inclusion of digital aspects into its core is a necessity, as well as cultivating an environment where development and growth of digital maturity is favored, and also attracts employees with talent and expertise. Further, the implementation could favorably build on previous experiments within that domain (ibid.) which P4 support, mentioning accommodating and welcoming ideas.

P9 elaborates about the need to keep the context of each individual company in mind regarding the culture and the strategic work, meaning that if the strategy should be adapted until it is suitable for the culture found in the client organization. The concept of culture as defined by Osborne and Brown (2005) includes habitual behavior characteristic to the specific organization. P9 mentions the painting expression that "*Culture eats strategy for breakfast*", so if a strategic decision were not properly adapted to the existing situation the standardized and habitual behavior will persevere. In addition, you need to make sure to maintain the competence accumulated by the employees, both by retaining the employees, and also by providing opportunities for personal development P9 says.

5.3.2 External factors influencing organizational culture

As mentioned above by Schein (2004) organizational culture is assumptions and beliefs shared by the whole company. As brought up by some of the participants the organizational culture can come to change or react to new cultural elements. Those new cultural elements can be brought forward, for example by beginning a new project with a team from a nation that has different cultural values than you may be used to, participant P1 says. Further when dealing with a situation where the differences are tangible, P1 describes that when having a form of cultural interpreter in the form of a native citizen knowledgeable of the cultural specifics. This was done by P1 when not able to be on site personally but perceived the need of having eyes and ears locally to adapt to the unfolding situation.

As is made apparent by the definitions of organizational culture presented in 3.1.3 above, different groups of behaviors are affected, depending on the set of values the organization follows. P8 describes how different organizations have different objectives or goals depending on contextual factors, including organizational culture. "*The primary value an organization strives*

for doesn't necessarily involve a monetary value" he says, which goes in line with the theoretical definitions.

According to Osborne and Brown (2005), organizational culture consists of shared ideas and behavior. Further they describe that it is also comprised of the complex and institutionalized and habitual behavior (ibid.). When combined with concepts such as organizational cynicism as described by Grama and Todericiu (2016) it is vital to communicate clearly to ensure everyone understands the purpose of, and what part they are playing in the project at hand. If for example the expectation on an operative employee to contribute with procedural knowledge is not made clear to that employee, the entire project might seem wasteful to that person, making it difficult to collaborate efficiently together. P7 describes this form of misunderstanding as a roadblock he has had to handle in previous projects. The common misconception that P7 has experienced involves the client believing they are sufficiently clear when describing what they want supplied. He compares it to the client ordering a house, and simply not going into more detail but still expecting the architect to supply them with the specific house they have in mind. Meanwhile he is attempting to engage in dialogue to understand what the resulting house should look like, what it could cost, number of floors and rooms, and so on in order to supply the client with the best suited result. The desire to be not only useful but also borderline irreplaceable creating valuable solutions for the client is something that is not unique to P7. The same fundamental perspective is shared by P8.

When trying to be helpful towards an organization, part of the responsibility can also include keeping the clients connected to the ground. When they lack the insight in their own digital maturity P6 describes how he has handled situations where clients were wanting to change in a too high pace, before the necessary fundamental work was done.

Due to the unexpected difficulties faced when performing transformative work, and sometimes unrealistic dreams from a client without proper self-awareness and lacking insight, it is important that any change is carefully evaluated and fully planned in order to achieve the goals set for that project, that consultant and organizations have an important ally, namely change management described further in 5.4 below.

5.4 Change management

Change is a complex concept with many different factors contributing. In this subchapter, both models to help with change and change within a specific organization are beginning covered. Lastly, the users or in this case client employees' attitude towards change, such as resistance will also be discussed

5.4.1 Models in change management

To ensure nobody is attempting to run before they can walk, models can be used. As mentioned in chapter 3.2.2.2 a plethora of models exist, such as ADKAR (Prosci, [n.d.]) or the Satir change model (Karten, 2009). The empirical data shows that the participants don't work according to specific change management models, but rather use them as support. P4 brought up and referred to the ADKAR model, more as an inspiration, rather than a step by step map he follows. From the empirical data gathered we could see that the knowledge and understanding of different models were high but in a day to day operation an explicit connection to a model was not made, though not because of lack of awareness of the model's existence.

Depending on the individual relationship to change, the effort to implement change can require more or less effort P7 declares. The effort includes guiding those working in the old way to adopt the new process P7 continues. This goes in line with what the purpose of a change model such as the Satir model is (Karten, 2009). As mentioned in 3.2.2.2 they are often equipped to help all parties involved cope with the change (ibid.).

The change you are working to implement needs to be well thought out and optimized when presented to the employees who are on the recipient side, he explains, because motivating the employees to adapt to the new ways is the most difficult as well as the most fundamental piece of the puzzle, and if the person in charge of said change is not able to answer their questions in a satisfying manner they won't adapt. When the change is being presented questions will certainly arise whether the new way is better and why the change is needed. "*Why should we change the way we work*?" and "*Is this really the best way*?" are questions frequently asked in relation to these kinds of changes P7 elaborates.

The difference between a change and a transformation can be the scale and the visibility of the goal state, P10 says. She explains that individuals must change their attitude and work with a new process. The focus must be on the relations between the human employees and the technology used, to continuously create value.

P10 gives an example comparing the concepts of digitalization and digital maturity as vectors representing the axles. With one axle being your stance towards technology, or 'tech intensity' as described by P10, and the second being your managerial capabilities related to change. Using this example, she elaborated on how one could more easily gain an overview of one's position in the digital landscape. If an organization has a disproportionate amount on either axle the process of change will face difficulties of varying natures. If the client has a high value on the managerial axle, they might have the capability to introduce new processes and ways to utilize technological advances efficiently but might be a bit conservative regarding which technologies to introduce. On the other hand, if the maturity axle is disproportionately high, the opposite problem may occur. This could be the abundant inclusion of new technological solutions, without a specific purpose or supervised development of processes using them. Without proper control as a result of high maturity but low managerial levels, the efficiency of the solutions would be lackluster as P10 describes.

A useful aspect of a change model, as described by P11, would be to ensure that the strategic vision does not simply become a conceptual description, existing only in documents not applied. Instead, she explains, the model needs to help anchor the IT aspects as well as the digitalization journey in the organization. By adapting change model theories in the implementation of your strategic vision. The organization more effectively navigate through different stages described in the Satir model (Karten, 2009) including the specific phase handling chaos. This could lead the organization to be better prepared to face certain problems or even avoid them completely.

5.4.2 Change within an organization

"*The most important prerequisite needed in order for a digital transformation to succeed is that change management is conducted*" says P2 when asked about how to accomplish this objective. The organization needs to stay attractive to the employees, in part by offering diverse and stimulating tasks says P3.

Sternberg and Horvath (1999) describe the difficulty of teaching a new employee, and mentions the need for the employee to gain tacit knowledge given time. The lack of involvement of users have led to many systems with similar functionality uses very different terminology for the same task. That is something that can cause major problems and even halt productions due to the frequent miscommunications. By keeping the competence in the organization, the knowledge about the processes is kept safe in the case a disruption occurs, P3 mentions. As Cöster and Westelius (2016) explain, a change affects different employees in different ways. Hagberg and Jonsson (2016) mention that in the wake of digitalizing, new needs arise within the transformed organization. These new requirements include other competences than previous due to the changed circumstances of the processes performed (ibid.).

This goes in line with P9's description about the so-called workplace heroes and their worries about change. He says it is important to clearly communicate that the changes are not intended to cut jobs but rather to improve the organization as a whole.

Sternberg and Horvath (1999) explain that even though the change might be of value for both the organization as a whole as well as the individual employee, if said employee holds an amount of tacit knowledge regarding the process that is subject to change he or she might attempt to resist and counteract the change.

P3 reinforced P9 sayings by providing the following example. The same people who were worried about losing their jobs assembling vehicles due to the introduction of robots and automation, were in large the same people who later on programmed and controlled the robots who now stood for the heavy lifting. It was a redistribution of assignments, but the production line employee's competency was still necessary, he concludes.

A phenomenon brought up by P7 was the lack of awareness and knowledge regarding the involvement of the client organizations in the process of change. Words that also can be found describing key components in the ADKAR model (Prosci, [n.d.]). P7 continued to elaborate by describing that clients would tell him an idea and then expected to get a solution tailored for them delivered without further involvement or clarifications. To make his point he painted a picture using an example of someone ordering a house and expecting the construction company to realize his dreams without even providing basic information such as a number of floors or rooms.

Like P9 explained that to be useful a strategy regarding change needs to be culturally accepted, else it won't be followed as described in chapter 4.6 above. This goes in line with what P7 says about user involvement, as well as the perspective presented on the lack of usefulness of a system that is not being utilized as well. Involving the employees of the client organization is important, and valuable insights can be found where least expected as showcased below:

Change is not something brought forward by just one individual. It's a team effort involving individuals from the whole organization. Thus, it is important to not only listen and talk to the people that are vocal about their opinions, but also try to include people who usually are of a quieter nature and be ready to receive their feedback as well P9 said. Change is not something to take lighthearted, it is a vital part of the machinery that allows digital transformation to be successful, P9 declared. Without proper knowledge and expertise, a change can be a hard, almost impossible mountain to climb she concluded. In order to gather the feedback from those who might be reluctant to share, the cultural aspects should be kept in mind, since they affect the state of mind of the individual. Naturally different organizations have different cultures as

mentioned above in 5.3.1. Hence their perspectives on change and willingness to let go of the more stable state influence the work as described by P9. This is related to the vector illustration as mentioned by P10 above in 5.4.1. In this case, the managerial axle is disproportionately high in comparison with the maturity axle. That could lead to an unwillingness to let go of the stable state, to not be willing to simply attempt to implement the change. Karten (2009) describes the reaction to a foreign element as a disruption of the stable state, which upsets the status quo. In order to enable a shift towards the more innovative and tolerating state of mind, one idea mentioned by P9 and P4 was to provide a smaller scale sandbox for experimenting, in order to test the implementation and adaptations in a limited part of the organization. Thereby limiting the potential exposure to the risks that come with the destabilized state as a consequence of change, also known as the chaos phase, presented in the Satir change model (Karten. 2009).

5.4.3 User attitude

As mentioned by participants and by Sefyrin (2010) change often leads to some jobs being removed due to the new solutions. The knowledge and fear of potentially losing their job make resistance towards change a common problem while applying change management. The Status Quo Bias theory as mentioned in 3.2.2.3 above by Kim and Kankanhalli (2009). The essence of the theory was further cemented by the empirical findings where the participants brought forwards both the importance but also the challenges in order to get the employees to stop resisting change. In previous research regarding user involvement and attitude toward change, the involved individual's motivation was found as critical (Bovey & Hede, 2001; Kotter & Schlesinger, 2008). Motivation was also frequently mentioned in the empirical data. Several participants mentioned that they believed it is of big importance to both identify the essence of what drives the organization to change, but also how the consultant can act to show the employees the urgency of said change. Hence giving the employees the motivation to act upon it and embrace the change. P5 explains that motivation can be categorized into two separate driving forces. One is the visualizing of the objective, which is slow but useful in the longer run. The opposite driving force is useful in the shorter time span. It is compared to an immediate danger which one must evade, but the result of this latter might be unpredictable and chaotic in nature. Karten (2009) describes that a common mistake is not giving employees affected by a change a reasonable time to adjust. Further the state of chaos as featured in the Satir model, is highly influenced by the nature of communication (ibid.). Either by reducing both the intensity of the state, and shortening the duration, or it could do just the opposite to both factors (ibid.).

When delivering a system or a solution it is important to get a holistic understanding of what it is expected to achieve and in which context it's going to do so. P7 explained that if you don't understand how the solution you're tasked to deliver is going to be used, then there is a tangible risk that the resulting support the implementation is intended to give, is going to remain absent. He continued by explaining how his strategy involves an Agile mindset. He preferred to keep an open dialogue throughout the process. This resulted, he explained, in a more accurate and useful final product, which he claimed could be attributed to the frequency of feedback from the intended users. When they speak their mind, it is much easier to continue together, he said. All participants mentioned the vital role of clear communication. P8 went as far as to compare it to the growth of a tree, that the feedback has the same function as the tree's roots, both stabilizing and supporting the organization.

P7 and P9 both talked about the negative consequences of change, and the risks it may entail for the client's employees. P7 mentioned the decreased cooperative mindset of the employees when he came as an outsider proclaiming the need for change, while in their perspective lacking insight about their situation. P9, on the other hand, mention the perspective of the respected individuals who are well adjusted and accustomed to the current state of operations. These people might be seen as role models in the organization, but might lack the competence that will be premiered with upcoming changes. It is getting these people aboard, and planning a future where their expertise can be maintained and utilized within the organization that is the greatest challenge P9 concluded.

P11 also discussed on how the perspective and mentality surrounding change could affect her work. She explained that the most difficult aspect of a digitalization project is to engage the employees, and audit their views of the upcoming change. If they fear it, they won't support it, she continued, and therefore it is vital that they understand the usefulness of the change.

5.5 Summary

The sections above starts off by connecting the concepts of Lean thinking and how it relates to Industry 4.0, and how the empirical findings relate to these. The result of these include altered nature of the work for many involved, and how the objective of the organization is to secure their future. The focus must be on how to achieve their objectives rather than introducing new technology. To ensure the objectives of the organization are aligned in a way which is both sustainable and realistic top management must be involved and actively engaged in strategic work related to digitalization. Different perspectives on the concept of digital strategy, and how an organization should handle development and maintenance of such a strategy is also discussed. The importance of treating the digital strategy as a dynamic and changing vision rather than a static document is highlighted. Further, the digital strategy needs to be derived from the general strategic vision of the organization in question, describing that organization's journey towards digitalization.

An explanation on topics such as organizational culture and its neighboring areas are also discussed in the above sections. As shown in figure 5.1 below, our understanding of the relationship is that there are aspects of willingness to change, that are not affected by the organizational culture, nor part of traditional change management. This could be the individual mindset. Likewise, not all parts of change management are involved when attempting to influence the attitude of a person when related to change. Parts of change management includes planning the change on a higher level, such as the managerial perspective rather than only focusing on the operational level. Finally, not all parts of organizational culture are related to the organizational members individual willingness to change, nor are all parts affected by change management. It could relate to for example as P6 mentions, the differences in the welcome he receives when first starting a project for a new organization.

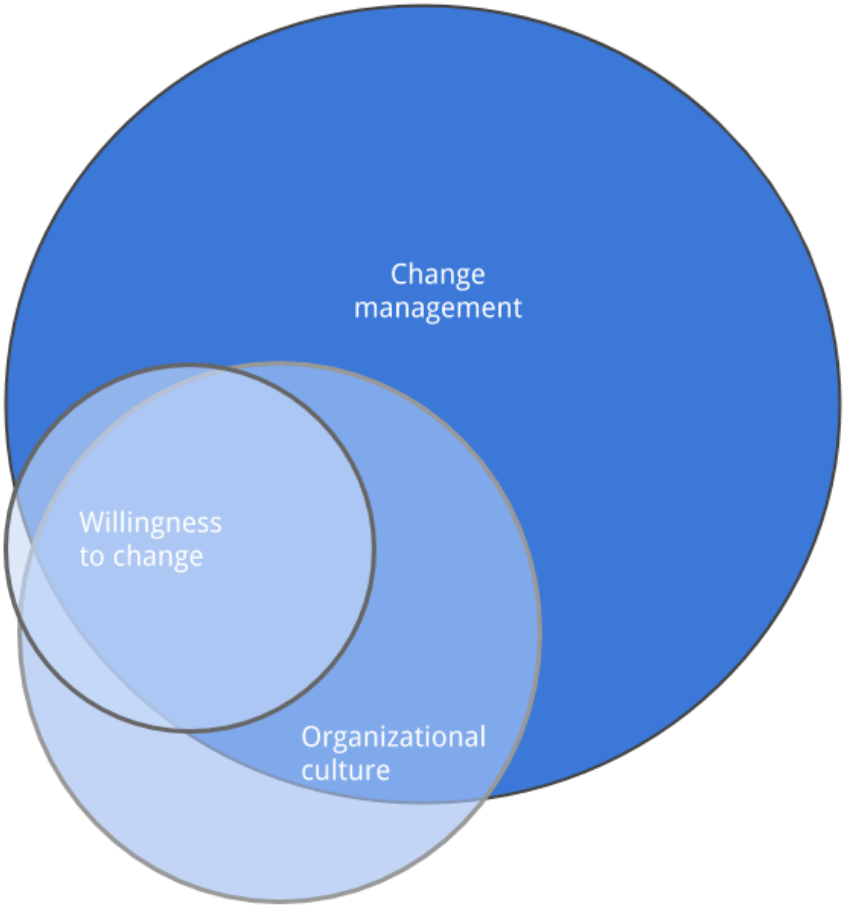

Figure 5.1: Showing our interpretation of the relationship between the concepts change management, organizational culture, and willingness to change in the context presented in this report.

The definition of organizational culture is mentioned and discussed in the light of the empirical data. The vivid quote "Culture eats strategy for breakfast" is mentioned. Meaning that unless one can influence the behavior and by extension the culture of individuals in an organization, so that they take the changes to heart and follows the new procedure, uses the new piece of technology or any other form of changed circumstance, the change will in practice not reach the expected result. Further how the concept affects the work with developing and maintaining a digital strategy, strategic work generally as well as the perspective of digital maturity in the context of organizational culture is also discussed.

Organizational culture also affects work specifically related to digitalization. How geographically distributed companies has enabled projects on a global scale, and what effect this has on the cultural views is briefly discussed, as well as differences in perspectives as a result of different organizational cultures. The differences are naturally not limited to culture, but also laws, which provides a further dimension of potential issues, when working in international projects due to different legal rules applying to different team members based on their geographical location.

The importance of theoretical frameworks was discussed. Even though they are not followed meticulously by the participants the models still hold great importance as the backbone of each consultant's personal approach. They can hold value when explaining the process of, or the phases of change. Furthermore, the importance of change within the organization is discussed, as

well as potential consequences if the right steps are not taken. Change management and successful change within an organization are based on several factors. One factor of extreme importance which is discussed in length, is the user attitude. Both the theoretical perspectives and all the participants agree that having the support of the client employees are vital in order to implement a successful change.

CHAPTER 6. CONCLUSIONS

In this chapter, the answers to the two research questions as well as our contribution will be presented. To answer the research questions, we base our conclusions on the sum of the theory, the empirical data, and the analysis chapters.

6.1 Repetition of purpose and research questions

The purpose of this work has been to explore the perspectives of consultants who have been tasked with leading projects that are related to either digitalization or digital transformation, as stated in 1.3 above. The exploration has been intended to contribute with a deeper understanding of the consultant's perspective on the possibilities and the potential problems that leaders of these kinds of projects can encounter.

Two research questions have been formulated to guide the work.

Q1: What are the major elements of influence in projects regarding digitalization or digital transformation from a consultant perspective?

Q2: What forms the greatest obstacles for an organization to overcome in order to successfully complete a project related to digitalization?

6.2 What are the major elements of influence in projects regarding digitalization or digital transformation from a consultant perspective?

During this study, we have found that major element to achieve a successful digital transformation is change. Due to the width of the term, we have chosen to focus on three different aspects related to change. This leads us to the following three headlines: 'change management', 'organizational culture', and 'willingness to change'. Change management focuses on actions taken by the organization as advised by the consultant, in order to ensure a smooth as possible transition for the client. Organizational culture refers to the invisible patterns and traditions in the organization that influence the transformative work. Lastly, the willingness to change refers to factors that directly influence the individual's attitude towards change. As mentioned above, change is affecting everyone within an organization differently. In order to provide as much clarity as possible, we will discuss the previously mentioned topics, and what the consultant needs to keep in mind related to these, out of a managerial perspective as well as the operative perspective.

6.2.1 Change management

Change management is a concept found in books and articles elaborating on how to optimally go from point A to point B. In order to elaborate on the process of change, and how to achieve a changed state, several models have been constructed. These are often intended to provide a helping hand, either through explaining the phases which are commonplace in all change, or by providing a more concrete checklist of factors that needs to be completed for a change to fulfill its intended goals. These can help both management and operative employees whose situation is changing. Change models should have a positive impact on all the parties involved, if applied correctly, used either as a guideline or step-by-step manual. Change management will also be easier for the consultant to implement if the organization has had prior experience regarding change and is already familiarized with the process.

For the implementation to have the power to achieve the objectives that are visualized, it needs support. To successfully reach the goal, the consultant requires expressed and explicit support from management in the client organization. They need to see the purpose of the

implementation, and how it aligns with the strategic vision of their organization. This could arguably be seen as a springboard to also influence the operative employees. That the enthusiasm for the intended reform might 'trickle down' and make way for the implementation. Thus, enabling the intended change to achieve the goals it strives towards.

Through extension, the management understanding of the organizational objectives is highly important. If the management themselves display a disconnect with the organization their expressed support will be of less or even no use to the consultant. Further, a realistic and cohesive vision of the current position of the organization is necessary in order to formulate its future objectives. In order to succeed it is important that people in charge of realizing the newly formulated organizational vision have a good understanding of the concept change management.

6.2.2 Organizational culture

In 6.2.3 below, we cover willingness to change specifically. As illustrated in figure 6.1 above, the concept of organizational culture directly affects this attitude towards change. The client's organizational culture can also include some aspects which hold influence over how the consultant can approach his or her assignment.

Culture is a core part of an organization and is extremely difficult to challenge. Depending on the culture in an organization a consultant can be welcomed more or less warmly. To initially gain the trust of the employees of a client organization is described as vital by several of the participants. If they doubt the consultant's competence or motives the resistance as described by Grama and Todericiu (2016) will undoubtedly occur.

To manage different situations where the cultural aspects of a client organization can become troublesome, communication were named as primary tool. When properly communicating, such as describing the motives and explaining the bigger picture, it enables the ones doubting the change to see how it would be an improvement of their current situation. Understanding the organization, and being knowledgeable of its culture can be helpful when attempting to persuade the resisting parties to see things in a different way. It also lays the ground for future projects, where the employees might recognize the consultant as a professional and helpful individual, rather than acknowledging him as a potential threat. The same principle applies for all employees regardless of position.

6.2.3 Willingness to change

This is a central concept when exploring the concept of change. For a change to contribute towards the organizational vision, it is important that all parts are willing to accept the differences that may affect their situations as a result. To increase the probability of acceptance amongst those affected, several aspects have been highlighted. These include motivating the people to embrace the upcoming changes and find their footing in the new landscape.

First, the intention to change must be based on the organizational vision and objectives. If it is lacking the clear connection to the organizational culture it will be incredibly difficult to extract the expected results.

This affects the client's employees throughout the hierarchy, from top management to the operational level. On the operational level, the employees might be hesitant due to fear and

expecting the worst as a result of the changes. Either losing their jobs altogether, or a decrease in the value of the competence they've accumulated in the old way of doing things. On the management level it might also touch on topics such as being reluctant if the change leads to jobs disappearing and looking out for their employees, however it can also be the willingness to allocate the necessary resources in the scale that will prove the concept useful. If they are not convinced it is going to give a valuable return, they might refuse to invest the necessary resources, be it monetary, their own time, or even general manhours. It could boil down to a lack of resources to allocate, or the deemed value of the investment not being worth it.

It is necessary to inspire the employees to adapt to new processes. If this is not done there is a risk they will either not commit fully to the new way of work and as a result be inefficient, or they will simply not conform to directives and not only be inefficient but may also be a blocking element in the future development and operations of the organization.

6.3 What forms the greatest obstacles for an organization to overcome in order to successfully complete a project related to digitalization?

Gaining efficiency and other competitive advantages are mentioned as the objective of several digitalization projects, and the entire concept of the smart industry, Industry 4.0 goes very well in line with the positive effects an organization can enjoy if implemented correctly. This section will detail our conclusions regarding which obstacles that might stand in the way of succeeding in the completion of a digitalization project.

A common yet very important problem that many organizations and as a result the consultants face is the lack of communication between the involved parties. Resulting in a consultant lacking enough insight and information about the organization, and an organization without a clear visualized goal, and employees not knowing what the future will hold. The very human aspect of communication and the lack thereof, can be partly related to the differences in perspectives amongst different parties. This can entail lack of insight in the current situation for those involved in other areas, or even a misunderstanding of one's own ability to deem whether or not an idea is feasible. When working with the strategic visions and organizational objectives, a holistic understanding is vital. These strategic levels can describe the way the organization should approach new technological solutions and the rapidly changing processes the inclusion of them can bring, and touch upon the topic of a digital strategy as mentioned in section 3.2.1. However as made clear in the analysis, the empirical data points towards the work with a dedicated digital strategy it is not a unanimous description of how an organization should work with these questions. However, when lacking the insight in the organizational capabilities to adapt, its shared digital maturity as well as its unique cultural aspects, the strategic vision will likely lead the organization astray rather than guide it to a more successful state.

One aspect worthy of vigilant observation is the insight into the digital maturity within the organization. The concept includes the individual employee, the internal processes of the organization, what prerequisites of a technical nature might be necessary, and finally the structure of its information. The individual perspective focuses on his or her digital literacy, which can be compared to their experience using technology in general, the effort needed for them to utilize new information and communication technology (ICT) tools efficiently and similar aspects.

The organizational perspective focuses more on how the employees utilize their ICT tools, how internal processes are performed, and could also include agile mentality and organization. To mention a few technical aspects without lingering too long, due to them being outside or at the very edge of the scope of this work, a well-functioning infrastructure, supporting the digital workplace is necessary to strive after.

The final aspect of the digital maturity of the organization is the structure of data, ranging from a properly structured database architecture and design, to an understanding of what the gathered data actually means, and the efficient usage of that data. "*What if we knew what we knew*" P4 quoted a client, in order to emphasize the importance of understanding the data, and not collecting it without a clear purpose.

These aspects are all important to keep in mind, and if insight about any one of them is lacking, it could lead to severe consequences for the organization when implementing a new solution.

Sometimes despite both organizations and consultants having the best intentions, the projects can come to a premature end. External aspects such as a new legal bill may pass or a piece of legislation affecting critical parts of the project may be added to current law. Projects involving parties that passes national borders could also be affected by the difference in legislation between countries as well as political relations between countries. The project may also come to a halt either temporarily or permanently due to force majeure clauses in different contracts.

6.4 Overview

In the table 6.1 below, the relation between the empirical data and the theoretical concepts being the foundation of this work is shown. Many topics were found to support the theoretically based concepts, however, a few statements found in the empirical data contradicted the theory on a few points. This happened only in the strategic perspective group, and in our view, this could possibly be explained by the participants in this study not being privy to the strategic foundation of the organizations they had as clients. We believe another explanation could be that the consultants were not part of the decision making at a strategic level, leading to them not seeing the components as relevant in their work.

Table 6.1: Overview regarding the stance of the empirical data towards the theoretical frameworks as well as the three topics.

Topic	Theoretical	Empirical data support
Strategic perspective	Lean thinking and Industry 4.0	**Conflicted**.
	Digital strategy	**Contradictory**
Culture	Organizational Culture	**Supportive**.
	External factors influencing organizational culture	**Supportive**.
Change	Change within an organization	**Supportive**.

management	Models in change management	**Supportive**.
	User attitude	**Supportive**.

Lean thinking and Industry 4.0 have a conflicted relationship. It is partly supportive and partly contradictory as described in 5.2.1. Examples of where it is contradicted include the clients expressing the perceived need for technology which would bring them closer to the concept of the smart industry, but lacking the awareness that their organization and their practice is lacking the suitability for those technologies, such as the mechanical industrial production as mentioned by P3. It was described as limited to using CAD and lathes but desiring the introduction of new technology such as augmented reality glasses or machine learning. Another example is where the organization expresses the need to use the data they have available, but not fathoming the implications it could entail due to the data not being as spotless as they imagine due to data gathering issues in house, as the example given by P6. P7, however, describes a situation when he has had developed similar systems for organizations, and the description of gaining increased efficiency and competitive advantages through digitalization is described by several of the participants, and goes in line with the concepts of Lean thinking and Industry 4.0.

The concept of digital strategy is found to be contradicted, when the empirical data were examined, something discussed in length in 5.2.2. Participants mentioned that the digital strategy is not suitable as a separate document but should be incorporated in the essence of the business model of said organization. In the public sector, the document *digital agenda* might fit the description of a digital strategy, says P2.

6.5 Our contributions

As mentioned in section 1.2 above, the need for both IT consultants and strategy consultants to keep new aspects in mind. For strategy consultants, the novel area can entail the technological solutions their clients make use of to act according to the consultant's advice, and for IT consultants the new required area is the social aspects and how the technological solution they might provide is going to fit in with the client. Further, Krüger and Teuteberg (2016) explain that the IS field is lacking in relevant literature regarding the theoretical concepts of digital transformation, and they argue the possibly necessary skill set of a consultant acting as a change agent for the client without certainty (ibid.).

The purpose of this work was to dive deeper into the perspectives of consultant leading projects related to digitalization or digital transformations. Hence acting as the form of change agents described above.

The contribution of this work is expected to contain a measure of understanding of what steps an organization could be asked to take in order to accomplish the objectives of a digital transformation. Further, practitioners of similar roles acting as change agents may gain insight through this work, how others with similar tasks previously have achieved their goals.

As presented in 6.2 above, those major elements we've found playing a key role in the success of digitalization or digital transformation project have been presented. These elements are in large related to change in some form, due to the transformative and changing nature of digitalization

this is not very surprising. We have connected the urgency expressed by the participants of relating the culture of the client organization to change management. When discussing the digital strategy with the participants it was found that the view of the role these strategic documents presented in the theoretical foundations of this work were not shared by the participants. The need for a formalized approach to the digital and the client's adaption to the new landscape, were rated as rather low. In some cases, the empirical data pointed towards such a formalized description could be useful in the very beginning steps, but should quickly be adopted into the business strategy and the fabrics of organizational culture itself.

Finally, it could be argued that the consultant perspective on what is usually seen as an organizational topic, could provide a breath of fresh air and new perspectives in the descriptions of how to approach such a digitalization journey.

It is our belief that the knowledge contribution as presented in this work, briefly summarized in this section, is in line with the expected contribution based on the purpose and research questions.

CHAPTER 7. REFLECTION AND FUTURE RESEARCH

In this chapter, we will start by giving our own thoughts and reflections on our work, both the process and the result, and then proceed to suggest further research. Specifically, this chapter will include a critical review of the method, and of the plausibility of our conclusions.

7.1 Reflection

The work with this report has gone through different phases, as the authors of this work believe are commonplace given the nature and timeframe of the study. While starting in a largely broad and unspecified scope, progress has been steadily made to increase the focus and narrow the scope down to the final shape it currently holds.

The usage of methods based on the philosophical approaches and our thoughts on the most suitable way to fulfill the purpose and answer the research questions formulated has followed a similar pattern, going from the uncertain towards a more convergent and cohesive structure and form.

When looking back at this study, we believe that the number of respondents has been sufficient, to say the least. Due to the need to perform the majority of the interviews through computer mediated means, rather than face to face we were concerned about the lack of nonverbal communication affecting our results. Bell et al. (2019) describes that such concerns are fairly common, however that due to the evermore present computer mediated communication tools the argument of such communication being non-naturalistic is losing its importance and relevance. Our experience with performing the interviews by such tools is that it overall went smoother than expected.

The interview guide could, however, have been revisited with an attempt to focus down on the specific areas we wanted to investigate. The newfound area to focus upon was however not identified until the analysis process was underway, hence making it hard or even impossible to predict what we could have focused more intently on beforehand. Due to the schedule of this work, and the intensity of the period of the data collection phase, the analysis of the gathered empirical data was performed after the collection phase was concluded.

As goes with an abductive approach, the iterative form of work has offered the opportunity to revisit the chapter detailing the theoretical foundations of this work, leading to a possibility to in a deeper level of detail explaining the findings from the empirical data based on or in relation with newly included theoretical means and models of explanation. One example of this is the inclusion of change management models, when they were brought up in the interviews.

Regarding our conclusions, they are aiming to provide information about specific aspects, that meaning that they are some of the major aspects and not all major elements that influence a digitalization or digital transformation project. With this said, it is not necessarily an exhaustive list of influencing aspects, but rather a reflection of that which has been raised by the participants during the data collection phase of this specific study.

It could be argued that the findings in this study can be generalized according to the cross-population aspect of Tsang and Williams (2012) framework described in 2.5. The possible generalizability is constricted to members of different populations in similar contexts, or to elaborate, constricted to other consultants tasked with digitalization projects when working with different clients. The necessities of such generalization include the shared cultural aspects or nationality, their shared mission and their shared contexts (Tsang & Williams, 2012).

A key concept in our work has been the specific organizational culture of each client. Organizational culture is a core influential aspect of all organizations, in any field, of any size or

with any legacy from the organization's history. The culture is described to be unique to each organization, and is therefore an aspect necessary to respect when performing such tasks as described in this work. This could be seen as a strengthening factor in regard to the generalizability of our results.

7.2 Future research

There have been findings in the empirical data that could have been interesting to follow up on and explore deeper, however due to the scope of this work we decided to not elaborate on their implications. Interesting factors possibly suitable for future research could include perspectives such as those mentioned in section 1.6 above, which are excluded from this particular work. They include exploration of the concept of innovation made possible by digitalization, or how to accommodate a culture allowing innovative ideas to develop and be realized. Other aspects consciously left out of this work include a description of how the consultant plans their work when acting as a change agent for a client. Possibly starting from the initial search for understanding of the organizational practices and culture, and evaluating its susceptibility to the introduction of suitable technologies or profoundly different processes utilizing current solutions.

One of the participants mentioned the tools utilized when evaluating the digital maturity of a company, and continued explaining how performing the self-evaluation could increase the general digital maturity situated in an individual. This is explained as the process of highlighting areas lacking digital capabilities, and the reflection on those areas. That process resulting in the realization that the area is not understood, and as a consequence it creates a heightened awareness of the individual's own abilities.

The empirical data also showed the conscious effort to secure the future of a client through digitalization, not only through the possible efficiency increase as mentioned in this work, but other aspects such as working towards a sustainable future as well, keeping both the individual social situation, and his or her physical welfare aspects in mind, while also pointing out the environmental aspects as possibly reaping the benefits of a digitalized future.

Examples of future research questions could include:

- What is the connection between digital maturity in an organization and innovation?
- How can digital maturity be measured, and how would that value be utilized?
- How could digitalization be utilized to reach the set sustainability goals?

REFERENCES

AGUIAR, T., GOMES, S. B. , DA CUNHA, P. R. , DA SILVA , M. M. 2019. Digital Transformation Capability Maturity Model Framework. *IEEE 23rd International Enterprise Distributed Object Computing Conference (EDOC).*

ARMSTRONG, M. 2006. *A handbook of human resource management practice* London, Philadelphia, Kogan Page.

BELL, E., BRYMAN, A., AND HARLEY, B. 2019. *Business research methods,* Oxford.

BOVEY, W. H., HEDE, A. 2001. Resistance to Organizational Change: The Role of Defence Mechanism. *Journal of Managerial Psychology,* 16**,** 534-548.

BRETTEL, M., N. FRIEDERICHSEN, M. KELLER, AND M. ROSENBERG 2014. How Virtualization, Decentralization and Network Building Change the Manufacturing Landscape: An Industry 4.0 Perspective. *International Journal of Mechanical, Aerospace, Industrial, Mechatronic and Manufacturing Engineering,* 8**,** 37-44.

BUER, S.-V., STRANDHAGEN, J.O., CHAN, F.T 2018. The link between Industry 4.0 and lean manufacturing: mapping current research and establishing a research agenda. *International Journal of Production Research,* 56**,** 2924-2940.

BUSERT, T., FAY, A. 2019. Extended Value Stream Mapping Method for Information Based Improvement of Production Logistics Processes. *IEEE ENGINEERING MANAGEMENT REVIEW,,* 47.

CÖSTER, M., WESTELIUS, A. 2016. *Digitalisering,* Stockholm, Liber.

DE WINTER, J. C. F., DODOU, D. 2014. Why the Fitts list has persisted throughout the history of function allocation. *Cogn Tech Work* 16**,** 1-11.

DIGG. 2020a. *about us* [Online]. Available: https://www.digg.se/about-us [Accessed 05/05 2020].

DIGG. 2020b. *development-and-innovation* [Online]. Available: https://www.digg.se/about-us/development-and-innovation [Accessed 05/05 2020].

DOUVEN, I. 2017. Abduction. *In:* ZALTA, N. E. (ed.) *The Stanford Encyclopedia of Philosophy.*

DRATH, R., AND A. HORCH 2014. Industrie 4.0: Hit or Hype? *IEEE Industrial Electronics Magazine,* 8**,** 56-58.

DYCHE´, J. 2015. 6 Responsibilities of the Chief Digital Officer. *CIO magazine*.

E-ESTONIA. 2019. *e-estonia* [Online]. Available: https://e-estonia.com/ [Accessed 05/05 2020].

ETIKAN, I., MUSA , S. A. , ALKASSIM , R. S. 2016. Comparison of Convenience Sampling and Purposive Sampling American Journal of Theoretical and Applied Statistics, 5, 1-4.

FELDMAN, T. 1997. *An Introduction to Digital Media,* Abingdon, Routledge.

G. C. KANE, D. P., A. N. PHILLIPS, D. KIRON, N. BUCKLEY, 2017. Achieving Digital Maturity. *MIT Sloan Management Review and Deloitte University Press*.

GIMPEL, H. A. R., M 2015. Digital Transformation: Changes and Chances – Insights based on an Empirical Study. *FRAUNHOFER INSTITUTE FOR APPLIED INFORMATION TECHNOLOGY FIT*.

GOBBLE, M. M. 2018. Digital Strategy and Digital Transformation. *Research-Technology Management***,** 66-68.

GRAMA, B., TODERICIU, R, 2016. Change, resistance to change and organizational cynicism. . *Studies in business and economics,* 11**,** 47-54.

HAGBERG, J., JONSSON, A. 2016. *Handelns digitalisering: undran inför framtidens affärer.,* Lund, Studentlitteratur.

HERMANN, M., T. PENTEK, AND B. OTTO 2016. Design Principles for Industrie 4.0 Scenarios. *Paper Presented at the 49th Hawaii International Conference on System Sciences, HICSS* Koloa, Hawaii, .

HO, Y. C. 1994. Abduction? Deduction? Induction? Is There a Logic of Exploratory

Data Analysis?. *University of Oklahoma*.

HOFMANN, E. A. R., MARCO 2017. Industry 4.0 and the current status as well as future prospects on logistics. *Computers in Industry,* 89**,** 23-24.

HOWITT, D. 2013. *Introduction to Qualitative methods in Psychology. ,* UK, Pearson.

JANSSEN, M., JOHA, A. 2006. Motives for Establishing Shared Service Centers in Public Administrations. *International Journal of Information Management,* 26**,** 102-115.

JÄGARE, V., KARIM,R., SÖDERHOLM,P. , LARSSON-KRÅIK, P-O., JUNTTI, U. 2019. Change management in digitalised operation and maintenance of railway. *International Heavy Haul STS Conference*

KAGERMANN, H., J. HELBIG, A. HELLINGER, AND W. WAHLSTER. 2013. Recommendations for Implementing the Strategic Initiative INDUSTRIE 4.0: Securing the Future of German Manufacturing Industry;. *Acatech.*

KANE, G. 2019. The Technology Fallacy. *Research-Technology Management,* 62**,** 44-49.

KARTEN, N. 2009. Changing How You Manage and Communicate Change. 1 ed.: IT Governance Ltd.

KIM, H., KANKANHALLI, A 2009. Investigating User Resistance to Information Systems Implementation: A Status Quo Bias Perspective. *MIS Quarterly,* 33**,** 567-582.

KOTTER, J. P., SCHLESINGER, L. 2008. Choosing strategies for change. *Harvard Business Review,* juli–augusti

KRÜGER, N., TEUTEBERG, F. 2016. IT consultants as change agents in digital transformation initiatives. *Proceedings of Multikonferenz Wirtschaftsinformatik*

LEE , A. S., BASKERVILLE, R.L. 2003. Generalizing generalizability in information systems research. *Information Systems Research,* 14**,** 221-243.

MANYIKA, J., RAMASWAMY, S., KHANNA, S., SARRAZIN, H., PINKUS, G., SETHUPATHY, G., & YAFFE, A. 2015. Digital America: A Tale of the Haves and Have-Mores. *McKinsey Global Institute***,** 1-120.

MOHELSKA, H., & SOKOLOVA, M. 2018. MANAGEMENT APPROACHES FOR INDUSTRY 4.0 – THE ORGANIZATIONAL CULTURE PERSPECTIVE. *Technological and Economic Development of Economy,* 24**,** 2225-2240.

MYERS, M., D. 2013. Qualitative Research in Business & Management, SAGE Publication.

MYERS, M., D. 1997. Qualitative research in information systems. *Management Information Systems Quarterly,* 21**,** 241-242.

OECD, D. 2018. Digital Government Review of Sweden Towards a Data-driven Public Sector . . *OECD***,** 1-24.

OSBORNE, S. P., BROWN, K 2005. *Managing change and innovation in public service organizations,* London, Routledge.

PETTERSEN, J. 2009. Defining Lean Production: Some Conceptual and Practical Issues. *The TQM Journal,* 21**,** 127-142.

PROSCI n.d. PROSCI ADKAR MODEL A GOAL- ORIENTED CHANGE MANAGEMENT MODEL TO GUIDE INDIVIDUAL AND ORGANIZATIONAL CHANGE. Prosci Inc.

RIKSBANKEN. 2018. *Betalningsvanor* [Online]. Available: https://www.riksbank.se/sv/statistik/betalningar-sedlar-och-mynt/betalningsvanor/ [Accessed 05/12 2020].

ROMERO, D., FLORES, M., RESENDEZ, M.H.H. 2019. Five Management Pillars for Digital Transformation. *IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC).*

ROSS, J. W., SEBASTIAN, I. M., & BEATH, C. M. 2017. How to Develop a Great Digital Strategy. *MIT SLOAN MANAGEMENT REVIEW***,** 7-9.

RÜTTIMANN, B. G., AND M. T. STÖCKLI. 2016. Lean and Industry 4.0 – Twins, Partners, or Contenders? A Due Clarification regarding the Supposed Clash of Two Production Systems. *Journal of Service Science and Management* 9**,** 485-500.

SCHEIN, E. H. 2004. *Organizational culture and leadership* San Francisco, Jossey-Bass.

SEFYRIN, J. 2010. 'Det talar vi inte om' - Problematiska tystnader inom e-förvaltning. *In:* LINDBLAD-GIDLUND, K., EKELIN, A. , ERIKSEN , S. , RANERUP, A. (ed.) *Förvaltning och medborgarskap i förändring -etablerad praxis och kritiska perspektiv* Lund: Studentlitteratur.

STERNBERG, R. J., HORVATH, J. A 1999. *Tacit knowledge in professional practice, researcher and practitioner perspectives,* New Jersey, Lawrence Erlbaum Associates, Inc., Publishers.

SWEDEN, P. H. A. O. 2020. *Protect yourself and others from spread of infection* [Online]. Public Health Authority of Sweden Available: "https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/protect-yourself-and-others-from-spread-of-infection/" [Accessed 04/20 2020].

TERRY, G., HAYFIELD,N., CLARKE, V. , BRAUN , V. 2017. Thematic Analysis. *The SAGE Handbook of Qualitative Research in Psychology.* 55 City Road: SAGE Publications Ltd.

TILLVÄXTANALYS 2016. *Digital mognad i svenskt näringsliv - Ett förslag på ny indikator,* Östersund, Myndigheten för tillväxtpolitiska utvärderingar och analyser.

TSANG, E., W.K., WILLIAMS, J., N. 2012. Generalization and induction: Misconceptions, clarification, and a classification of induction. *MIS Quarterly,* 36**,** 729-748.

TUMBAS, S., BERENTE, N., & BROCKE, J. VOM. 2018. Digital Innovation and Institutional Entrepreneurship: Chief Digital Officer Perspectives of their Emerging Role. *Journal of Information Technology,* 33**,** 188-202.

WADE, M., NORONHA , A., MACAULAY, J., BARBIER, J. 2017. ORCHESTRATING DIGITAL BUSINESS TRANSFORMATION Working in Concert to Achieve Digital Excellence. *International Institute for Management Development.*

WALLACH, E. J. 1983. Individuals and organizations: The cultural match. *Training and Development Journal,* 12**,** 28-36.

APPENDIX

Appendix 1: Interview guide - Consultants and Digitalization

Ethics and participation

It's voluntary to take part in this interview. You have the right to cancel your participation whenever you feel like it without any obligation to announce why.

We will record the audio and later on transcribe the interview material. These audio files will be deleted when transcribed. The material will be anonymized, ensuring that your answers will not be traced back to you.

The purpose of the interview will be to gather insight into the consultant perspective on projects related to digitalization and the transformative work it can entail.

The result of the interview will be summarized and published as a part of a Master thesis at Linköping University.

Do you have any questions before we begin?

Introductory questions:

- What is your role in the company?
- How long have you been with the company?
- How long have you been a consultant?
- Which roles have you held in projects related to digitalization or digital transformation?
- Are you currently involved in a project related to digitalization or digital transformation?
- What is an (IT-Management) consultant according to you?
- How would you define the term "digitalization"?
- How would you define the concept of "digital transformation"?
- What is the role most suitable for an external IT consultant in a project related to digitalization/digital transformation according to you?

Digital strategy and performing digital transformative work

1. Can you describe how to help formulate, and later on maintain a digital strategy for a given organization requesting help with DT?
    a. Who is included (from the client organization and external parts, such as consultants)? Who takes the decisions/has the final say (of the stakeholders mentioned previously)?
    b. How do you (either as an external consultant or as part of the client organization) evaluate that this strategy aligns with the business strategy/bigger picture?
2. Can you mention the most important prerequisites for a digital transformation or a digitalization project to succeed?

3. What are the main aspects of digital maturity in an organization according to you, (What does the concept entail?) Can you give an example that showcases this?
4. What do you experience as the biggest challenges in a digitalization project?
5. What do you believe are the key benefits of digitalization? and Why?
    a. Do these benefits change depending on the context, and can you give an example of this?
6. How is change management related to digitalization projects or digital transformation? Are there any specifics to keep in mind in this context?
7. How does a digital strategy affect decision making regarding change management?

Organizational culture and standards

8. Have you been part of a project for both the public and private sectors?
    a. What are the biggest differences to work on a project for the public sector instead of the private sector and vice versa?
9. How does different circumstances affect your personal working style? (Could be different clients, assignments, teams, etc.)
10. What kind of company do you as a consultant prefer to have as a client? Startup, new or old company? How does the size of the client organization affect your experience working with them? Other factors that matter?

Innovation by digitalization or digitalization by innovation?

11. Can you provide examples where your(or your teams) work with digitalization or digital transformation led to some form of innovation?
12. Can you describe your perspective on how digitalization and innovation relate to each other?

Concluding

13. *"Digitalization"*. What are the first 3 words you think of?
14. Is it anything regarding your work and digitalization you would like to point out? Anything we've missed?
15. Would it be alright if we contact you again if further questions arise?

Appendix 2: Description of the steps taken related to the interviews

Phase	ID	Description	
Before	1	Conceptualization	Idea generation and forming the objective of the research
	2	Interview guide creation	An outline of questions is written as a support to ensure all topics are covered during the interview
	3	Suitability of in-depth interviewing	Ensuring the intended group of respondents are suitable for giving the in-depth answers needed to answer the research question
	4	Pilot interview	An initial trial to identify possible problems with the approach or the need to modify the material beforehand can be done by obtaining comments from a supervisor
	5	Inter-Interview comparison	The researcher needs to have a holistic view of the interviews already performed, this could entail the inclusion of important themes or details discovered in previous interviews
	6	Sample recruitment and selection	An explicit strategy for respondent recruitment needs to be adopted, snowball sampling, advertisements in a newspaper or even handing out flyers in relevant contexts are all examples of strategies
	7	Participant management	Prior to the interview taking place, a courteous reminder to the participant may be in place, as well as informing about the purpose of the research in order to decrease the risk of the respondent either forgetting the interview or otherwise backs out of the appointment altogether
	8	Interview location	Logistical issues include but are not limited to finding a place where interruptions won't happen, as well as some regulations on where recordings are allowed to be made, or noisy surroundings making such recordings difficult

During	9	Audio recording	Ensuring the capture device is producing a sufficiently clear recording, in order to increase transcript quality. Other factors at hand include background noise as mentioned previously
	10	Orientation	Introductions of the researchers, indicating time consumption of the interview, giving the respondent the chance to ask questions and taking further measures in order to ensure the interview can proceed as planned
	11	What (not) to do	The list of things to avoid mentions avoiding detailed note-taking, interrupting the respondent, not allowing silences, and not wanting to depart from the interview guide by asking questions to follow up
	12	Concluding	A short review of the topics discussed might shine light on specifics to return to in the interview guide, the respondent should be given the chance to discuss something they consider relevant but that has not yet emerged, as well as asking any questions that might have come up, and so on
After	13	Data protection and management	It is of importance to have a plan for how the storage and anonymization of the audio files and transcripts produced, and following disposal of materials should be handled
	14	Transcription	The form of a transcription of the gathered data is dependent on the kind of analysis chosen for the current work

This description of the three phases, with 14 steps as seen above are summarized and adapted from Howitt (2013).