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Digital Business Transformation in Incumbent Firms

A multi-case study investigating key strategic aspects for a successful transformation during different digital maturity stages

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Abstract

Digitalization has come to the forefront in society, changing customer expectations, disrupting current business ecosystems, and opening for new business opportunities. In order to benefit from this, digital business transformation is urged. Digital business transformation goes beyond just digitally transforming single processes or information, altering the whole business and its strategy by adopting a more customer-driven service approach. Incumbent firms, defined as already established, large organizations, offering a core product or service, particularly face challenges in performing the transformation due to their strong organizational legacy.

Earlier literature within the field of digital business transformation of incumbent firms is scarce and fails to take on a holistic approach and address the contextual factor of digital maturity, calling for additional research. The purpose of this study is to investigate key strategic factors for incumbent firms in order to achieve a successful digital business transformation and to overcome barriers connected with the transformation of an already established business. Moreover, this study aims to shed light on the strategic focus shift depending on how far the incumbent firm has proceeded with their digital business transformation, i.e., depending on their digital maturity.

This study takes a holistic view, rather capturing a wide perspective of important strategic factors than detailed explanations of specific strategic factors. The study is a qualitative, multi-case study which takes on an abductive approach. Based on a literature study of earlier research within the field of digital transformation, as well as change management literature, an initial model of analysis is developed. This model is thereafter refined to a final model of analysis during a focus group study, becoming the final model of analysis, acting as a base for case company interviews. A total of eleven representatives from six incumbent firms currently undergoing a digital business transformation are interviewed to attain their perception of the most important strategic factors. The outcome of the interviews is presented in the report and summarized into a final framework consisting of two dimensions.

The first dimension of the final framework covers the following strategic factors: *Clear and Coherent Strategy, Agile and Dynamic Strategy, Business Model, Governance, Operating Model, Partnership, Leadership, Value Proposition Transformation Approach, Knowledge and Skills Enhancement,* and *Technology Enhancement*. Within each strategic factor, a range of strategic elements are identified and discussed to provide details to the implications of each area. The second dimension of the framework outlines the strategic focus shift given three maturity stages: *Early in Transition, Digitally Advancing,* and *Digitally Mature*. The final framework can be used by incumbent firms as guidance and support in the complex process of navigating towards a successful digital business transformation.

It is identified that especially three areas are connected with extraordinary challenges for incumbent firms which require additional research. The areas are: (1) how to secure the required broad knowledge base, (2) how to industrialize digital initiatives, and (3) how to adjust existing control systems in favor of the digital business transformation.

Keywords: *Digital Business Transformation, Incumbent Firms, Corporate Legacy, Strategic Success Factors, Business Model Innovation, Digital Maturity*

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1 Introduction

This master thesis is carried out in collaboration with a management consultant firm based in Gothenburg, Sweden – hereafter referred to as the client. From the client's perspective, this research is of interest due to the increased focus on digitalization and digital business transformation in the prevailing business sector. This section provides insights on the current digital landscape and reviews its influence on businesses, along with challenges and opportunities that lay within the frame of this phenomenon. More precisely, the introduction subsequently encloses the challenges that incumbent firms meet due to the rapid digital coursing, especially calling attention to the legacy of incumbent firms and the need for strategic guidance in the digital transformation process. The section includes a review of other authors work on the subject and outlines a noted knowledge gap that the research aims to fill. Lastly, the purpose of this master thesis is presented, which is to develop a framework that can guide the strategic focus of incumbent firms at different transformation stages to succeed with their digital transformation.

1.1 Digital Business Transformation

Globalization, deregulation, and technological change are immensely modifying the competitive landscape that surround businesses (Casadesus-Masanell & Ricart, 2010). Over the years, academicians and practitioners have tried to understand the dynamics of this landscape in order to provide firms with successful strategic directions, guiding firms on how to compete differently from equals by taking advantage of these competitive landscape changes (Casadesus-Masanell & Ricart, 2010). Technological development has historically led to *creative destruction* – the process in which a new industry or new methods destroy previous prevailing ones (Schumpeter, 1942) – as novel factors leading to greater benefits have outmoded old practices (Andersson, et al., 2018). Digitalization is such phenomenon that has proven to lead to increased benefit for both buyer and seller (Andersson, et al., 2018; Hess, et al., 2016; Warner & Wäger, 2019), thus challenging the prevailing way of doing business (Andersson, et al., 2018).

According to Brand Arena ABB (2019), the digital development will influence the business world in four ways: (1) customers will expect more flexible and customer tailored solutions, (2) product development, maintenance and sales will change with a greater focus on data, analysis, and intelligence, (3) innovation will at a greater extent be driven through new cross-boundary collaboration, and (4) organizations need to find novel ways of organizing themselves to meet the new challenges. Digitalization has reached and challenges all industries and sectors of society at a rapid pace (Andersson, et al., 2018; Schwertner, 2017; Westerman, et al., 2012). In the digital era, the competition has not only become more fast-paced, but also more volatile (Teece & Linden, 2017). However, it is still difficult to predict how any creative destruction, as a result of digitalization, will fully play out across different industries in the future (Andersson, et al., 2018).

Looking in the rearview mirror instead, digitalization and digital strategies have evolved dramatically. It has gone from being more operational-centric just using Information and Communication Technology (ICT) in order to automize, optimize and increase efficiency, to become more user-centric and gain an even broader and deeper scope reaching both cross-functional and beyond firms' borders, as well as having an impact on both the way business is conducted and how value is created (Andersson, et al., 2018; Matt, et al., 2015). Today, it is not just about increasing the efficiency of single processes, but about taking advantage of the power that integration of technologies into other business strategies gives, as it enables a transformation of the whole business model (i.e., the business logic) (Matt, et al., 2015). This gives the organization an opportunity to re-position both the business and the operations, thus, seeking new business opportunities (Andersson, et al., 2018) and ways to compete differently (McGrath, 2010). The integration of digital technologies often has far-reaching influence as it affects larger parts of the firm and so even its associated supply chain, giving multiple potential benefits (Matt, et al., 2015). Firms that successfully integrate digital technology can expect to take advantage of at least one of the following: better customer experiences and engagement, streamlined operations, and new lines of businesses or business models (Fitzgerald, et al., 2014; Schwertner, 2017).

As digitalization and the exposure of it has evolved over the years, so has the confusion of different notations on the phenomenon (Bloomberg, 2018). This raises the need of an enlightenment on different notations to avert misunderstanding. Verhoef, et al. (2019) argue that the phenomenon could be divided into three phases: digitization, digitalization, and digital transformation. Likewise, Bloomberg (2018) argue that the same three notations should be distinguished.

Digitization is the most straight forward term, referring to the process of transferring information from an analog format to a digital format (Bloomberg, 2018; Verhoef, et al., 2019). As digitization refers to the transformance of information, *digitalization* rather refers to the transformance of processes, for example moving from analog technologies to digital technologies (Bloomberg, 2018). Digitalization is about using technological artifacts to optimize current processes and coordination between processes such as communication, distribution, or business relationship management (Verhoef, et al., 2019). *Digital transformation* goes beyond digitalization as it is a customer-driven strategic business transformation that rearranges and changes the organization and processes that profoundly change the business logic of a firm as a result of digital technology implementation (Bloomberg, 2018; Verhoef, et al., 2019). Bloomberg (2018) summarizes the notations as following:

> *"We digitize information, we digitalize processes and roles that make up the operations of a business, and we digitally transform the business and its strategy."*

Given those notations, it is evident that businesses are searching for greater advantages of digital technology than just the use of its functions in the current business set up. It is no longer about digitize or digitalization, but about digital transformation and organizational evolvement to be able to reap the most of all the benefits that available digital technology provides. In this process, success stories have told that the strategies of the organizational leaders are far more important than the technology adaption itself in order to bring about competitive advantages (Ismail, et al., 2017; Schwertner, 2017). The same is argued by Westerman, et al. (2012) stating that the transformation management is far more important than the digital incentive itself. Indeed, digital transformation is a complex phenomenon (Hess, et al., 2016). Additionally, it is even more difficult to achieve than traditional organizational transformation due to the fact that even if organizations can be said to successfully transform, the transformation process itself actually never reach an end due to the continuously changing environment (Kane, et al., 2017). Despite the complexity, the market of worldwide digital transformation is expected to grow by 20% annually in the search for customer experience benefits, time-to-market benefits and increases in product quality and operational reliability (Sailer, et al., 2019). However, the fact remains that the failure rate of digital transformation initiatives lie between 60 and 85% (Morakanyane, et al., 2020; Sailer, et al., 2019). Thus, successful navigation of digital transformation is both an interesting and motivated topic to study.

1.2 Incumbent Firms and Strategic Challenges

Incumbent firms are in this study defined as established and large corporations with some sort of corporate legacy, offering a core product or service. Digital innovation provides valuable opportunities for incumbent firms to broaden their product and service portfolios (Nylén & Holmström, 2015). It also opens for opportunities to reshape the value proposition by extending, enhancing, and redefining the customer experience (Sundaram, et al., 2020). But, compared to younger firms, incumbent firms typically face extraordinary challenges and barriers in managing change and business model innovation in general (Massa & Tucci, 2014).

The legacy of incumbent firms is a challenging aspect that complicates both the searching and implementing of digital technologies in order to compass digital transformation (Verhoef, et al., 2019). As of 2017, Sebastian, et al. (2017) found that a majority of 25 studied incumbent firms

that had actively initiated a digital transformation journey, encountered issues with the execution of their articulated digital strategy and thus were stuck at an early stage in their digital transformation. For these firms, the larger parts of revenues were still derived from traditional products and services (Sebastian, et al., 2017). Moreover, Bughin, et al. (2019) as a result of recent surveys, found that companies are making little business model digitalization progress since respondents showed a similar degree of digitalization the two last years in a row. Sebastian, et al. (2017) point out that managers of incumbent firms often believe that they can keep their leading positions by both utilizing existing strengths and novel digital technology capabilities, but that they still do not fully understand the strategic challenges digital transformation bring about.

Challenges and barriers connected to incumbent firms' ability to innovate are described by numerous authors to stem from these companies' proud history and path dependence, which creates a preference towards already established business models (e.g., Massa & Tucci, 2014; Nylén & Holmström, 2015; Svahn, et al., 2017; Tushman, et al., 1986; Waldner, et al., 2015). Tushman, et al. (1986, p. 36) describe some of the disadvantages of incumbent firms that have had long periods of success as:

> *"[…] heightened organizational complacency, decreased organizational flexibility, and a stunted ability to learn."*

What is paradoxical is that the core competencies of incumbent firms often stand in the way of digital innovation, but at the same time these competencies are important to leverage production of quality products (Nylén & Holmström, 2015). Therefore, digital transformation in incumbent firms require novel skills, but without sacrificing existing skills (Nylén & Holmström, 2015). Chesbrough (2010) describes two types of barriers idiosyncratic to established firms: structural barriers and cognitive barriers. Structural barriers derive from the complexity to re-configure existing assets and business models, and cognitive barriers derive from the inability of managers to understand the value of novel technologies or ideas that is not in line with the current business model (Chesbrough, 2010).

Waldner, et al. (2015) argue that prior research claims that business model innovation is most important in later industry life cycle stages, but when markets become commoditized, this is not what is mirrored in practice (Waldner, et al., 2015). The authors found that most business model innovations occur in the emergent life cycle stage, and not in the maturity or decline stages. Potential explanations are that incumbent firms are hesitant to innovate their business model due to risks such as losing existing customers, and due to organizational inertia as well as conflicts within existing business models (Waldner, et al., 2015). However, the absence of change and business model innovation in incumbent firms does not exclusively lead to disadvantages. For corporations with strategies that fit environmental conditions, organizational momentum (i.e., inertia) results in increasing effectiveness (Tushman, et al., 1986). The problem first arises when incumbent firms are subjected to environmental threat (Tushman, et al., 1986), such as increased technology development. When environments change and challenges incumbent firms, cognitive maps of these firms pose a risk as emerging threats might not be registered. In their study on firms in various industries, Westerman, et al. (2012) found that a common myth shared among executives is that digital development is yet not widely spread "in our industry", toning down the urgency of digital transformation. However, peers lagging in their industry are outperformed by digital leaders no matter what industry they belong to (Westerman, et al., 2012).

Another problem connected to strong cognitive maps is that even if threats are registered, the response is often increased conformity to current sets of ideas, beliefs, and values, also referred to as status quo commitment (Greenwood & Hinings, 1988; Tushman, et al., 1986). This complicates the seizing of new digital opportunities. Younger firms catch digital disruption opportunities to a greater extent than incumbent firms (Weill & Woerner, 2015). Weill & Woerner (2015) state that smaller, younger firms have fewer legacy systems, are less global and are more positive towards taking business model risks. Additionally, incumbent firms are according to the authors inferior at using the data required to get to know the end consumer, because of their numerous silos, global operations, and politics. Chesbrough (2010) explains that since incumbent firms tend to allocate money to the most profitable alternatives, new technologies are seldom favored because of its lower gross margins as compared to established technologies.

Taking Lei & Slocum (2005) conceptual framework of industry ecosystem and business strategy into consideration, incumbent firms have historically been active in a mature industry in which the technological development is low, an industry ecosystem referred to as *steady evolution* by the authors. The authors argue that in this ecosystem, firms build strengths from the increased fit in the organization and cost leadership. However, as digital transformation and technology development is more widely adopted, some incumbent firms could rather be considered being at the transition from the *steady evolution* to *creative destruction,* an industry ecosystem characterized by a mature industry with a high level of technological development (Lei & Slocum, 2005). This calls for a completely different business strategy, rather building strengths from flexibility than increased fit (Lei & Slocum, 2005). This shift puts pressure on incumbent firms to adapt to the new circumstances and the changed competitive landscape, which also implies that they need to overcome the many challenges associated with managing change and business model innovation.

Looking for answers on how incumbent firms shall manage this technological change in established business research can be confusing. This since prevailing research has differing perspectives on how incumbent firms should best deal with overcoming and managing dramatic environmental changes such as the fast progress of digital technology. For example, Lei & Slocum (2005) argue that incumbent firms should expand cautiously to avoid cannibalizing on existing revenue streams. At the same time, Weick & Quinn (1999) and Tushman, et al. (1986) argue that the change should be of the disruptive nature to be able to overcome organizational inertia. It can be concluded that it exists a somewhat contradicting view on how big changes such as digital transformation shall be managed according to the literature, whereof some suggest a quite dramatic approach, and others a quite more careful approach. Hence, the managing of digital transformation is a relevant subject to study, particularly the aspects of a *successful* managing of a digital transformation.

The area of successful digital transformation strategies in incumbent firms has historically gained limited scholarly attention. But during the past years, more and more researchers have started to shed light on the subject. Warner & Wäger (2019) recognize the need for conceptual or empirical research that examines *how* organizations are digitally transformed and the authors perform a multi-case study to contribute to empirical insights on what types of digital dynamic capabilities might be required for digital transformation in incumbent firms. Similarly, Sebastian, et al. (2017) performed a multi-case study to reveal the most essential elements for a successful digital transformation in incumbent firms. Moreover, Svahn, et al. (2017) performed a single case study

whose focus was on identification of competing concerns of digital innovation in incumbent firms, resulting in suggestions on the management of these. Despite these earlier contributions to the field of successful digital transformation, the understanding of how organizations implement digital transformation initiatives remains limited and fragmented (Hess, et al., 2016; Loonam, et al., 2018), and the field of study is still tenuous as compared to other research areas. A wider range of research in the field is called for to increase and deepen the understanding further (Warner & Wäger, 2019).

It is important for incumbent firms to fully understand the unique properties of the digital innovation process in order to increase the probability of a successful outcome (Nylén & Holmström, 2015). Therefore, to make the findings more grounded and descriptive, it is of value to discover contextual factors to the applicability of digital transformation recommendations. None of the above stated prior research in the field has viewed the topic in relation to specific contextual factors such as different maturity stages of the digital transformation process nor taking a wide holistic strategic approach on the topic. This study is intended to fill this gap by contributing to research on successful digital transformation in incumbent firms, with a theoretical lens that distinguish between maturity stages in the transformation journey taking the wholesome of strategic aspects into consideration.

1.3 Purpose and Research Questions

The purpose of this study is to investigate key strategic factors for incumbent firms to achieve a successful digital business transformation, and to overcome the barriers that arise when transforming an already established business. As a result, the key strategic factors will be organized into a framework intended for incumbent firms to use as guidance and support when attempting to navigate towards a successful digital business transformation.

The study is carried out to contribute to the somewhat deficient amount of literature in the field of successful digital transformation of incumbent firms, and to deliver a novel perspective on the subject. It also intends to contribute to a more unified view of the most appropriate strategic actions for incumbent firms to manage digital transformation successfully.

Based on the above discussion, the first research question of this study is formed as follows:

> RQ1. What are the most crucial strategic aspects enabling successful digital business transformation in incumbent firms?

The importance and characteristics of different strategic factors and elements can however shift depending on within which maturity stage of the digital business transformation the incumbent firm is in. Therefore, with the result of research question 1 as a base, the effect of different maturity stages on the importance of the identified strategic aspects is investigated within the frame of the second research question:

> RQ2. How does the identified important strategic factors and constituent elements shift in characteristics depending on different maturity stages of the digital business transformation process?

1.4 Disposition

The disposition of the report is as follows. First, an introduction to this study has been given, outlining the research background, current research within this field, as well as the purpose and research questions of this study. Next, the methodology of this study is presented, including research approach, design, and procedure, as well as research quality and ethics. This section is followed by a more in-depth background of the digital business transformation phenomenon in relation to strategy and business model concepts.

Thereafter, the theoretical frame of reference is presented in two different sections: *Important Strategic Aspects*, and *Digital Maturity Level.* The first section, *Important Strategic Aspects*, results in the first dimension of the initial model of analysis, whereas the second section, *Digital Maturity Level*, results in the second dimension of the initial model of analysis. Next, the results from a focus group study aiming at refining the first dimension of the analysis model is outlined, subsequently followed by the presentation of the final model of analysis, acting as a base for the empirical collection.

Thereupon, the empirical findings are presented in three different segments: *Challenges*, *Crucial Strategic Aspects*, and *Focus Shift During Digital Maturing*. The resulting framework, consisting of a first and second dimension, are presented at the end of the last two segments.

Lastly, conformity, contradictions, and extension to previous research, as well as practical usage of the two-dimensional framework is presented in the discussion and recommendations segment, subsequently followed by the conclusion for this research summarizing the research findings and outlining future research recommendations.

2 Methodology

This section presents the research approach, design, and procedure of this research. Both the research approach and research design chosen for this study are described, critically assessed, and motivated for the purpose and nature of this research. The research procedure outlines the in-detail methods used in different stages of the study, including formulation of problem statement, forming of research question, literature study, analysis model validation, choices of case sites, the case study, empirical coding and processing, as well as interpretation of results and analysis. Moreover, best practices for high research quality and research ethics are outlined and the research procedures used in this research evaluated in accordance with those.

2.1 Research Approach and Design

In this segment both the research approach and research design chosen for this study are presented, described, and motivated. Moreover, common risks and criticisms associated with both the approach and design chosen are discussed, as well as the management of these challenging aspects.

2.1.1 *Qualitative Interpretivist Research*

Speaking in broad terms, this study takes on a *qualitative* approach with the epistemological perspective position *interpretivist*. Bryman & Bell (2007) describe the lucid difference between quantitative and qualitative research as the former associates with numbers and theory testing, and the latter with words and theory generation. To elaborate, a qualitative research often builds on interviews and observations, with the goal to increase understanding of a phenomenon, and the findings tend to be rather comprehensive and richly descriptive instead of statistically precise as in the case of a quantitative research (Merriam & Tisdell, 2016). The purpose and objectives of a study clearly indicate on what approach that is appropriate in order to create valuable research results (Bryman & Bell, 2007; Merriam & Tisdell, 2016). A qualitative approach is particularly preferable when the aim is to contribute to the knowledge base within a field (Merriam & Tisdell, 2016), as of this, a qualitative approach is considered suitable for this research. Expanding the term interpretivist, Merriam & Tisdell (2016) describe the perspective as a process of understanding and interpreting collected data in order to describe some relationships of a context-bound reality, most truly consisting of multiple realities. This research aims to take on a novel grasp on the subject to explore these realities even further.

Qualitative research often faces the criticism of being too subjective, difficult to replicate and generalize, as well as lacking transparency (Bryman & Bell, 2007). This research is therefore performed by more than one researcher to increase the objectivity, and it also aims to describe the research procedure in detail to increase the transparency and replicability, and additionally a cross-case analysis of multiple incumbent firms is performed in order to bring about increased generalizability.

2.1.2 *Abductive Approach*

Eisenhardt & Graebner (2007) describe two different research logics, *inductive* and *deductive*. They explain that the logics are mirrors of one another, together completing a research cycle as one generates theory and the other validates (tests) it. The aim with an inductive approach is to gather data to build concepts, theories or hypotheses (Merriam & Tisdell, 2016), an approach that creates new generalizable theory that could later be tested through a deductive approach (Bryman & Bell, 2007; Eisenhardt & Graebner, 2007). Comparing those contrasting approaches, this research is closer to the *inductive* view on the relationship between theory and research, an approach that is commonly associated with qualitative research (Bryman & Bell, 2007). However, this research is not considered purely inductive since it does not intend to build theory from a clean base, but are instead considered to follow the systematic combining – an *abductive* approach – proposed by Dubois & Gade (2002). The abductive approach has a stronger reliance on current theory than true induction and uses existing theory as a base when identifying new relationships and insights from empirical fieldwork, in the end leading to development of theory or theoretical models (Dubois & Gade, 2002). In this research, an analysis model is acting as theory base, which evolves as new insights and variable relationships are identified during the empirical fieldwork.

2.1.3 *Multi-case Study*

The research design of a study reflects a framework for both the collection and the analysis of data, why the choice of the research design and associated research processes should correspond to the aim of the research (Bryman & Bell, 2007). Since the aim of this study is to create new insights on a relatively unexplored topic, a *theory-building* proceeding is considered most contributory to the field. Eisenhardt (1989) states that the research design *case study* is particularly preferable when aiming at building theory, as the likelihood of generating novel theory is one of the strengths with the case study approach. Moreover, Eisenhardt & Graebner (2007) state that theory-building from cases most likely produce theory that is accurate, interesting, and testable because of its empirical richness.

The case study approach is one of the most commonly used when performing a qualitative research (Merriam & Tisdell, 2016). The case study approach consists of an in-depth analysis of a bounded system (Merriam & Tisdell, 2016), and to be more precise, this study seeks to find cross-case relationships throughout a *multi-case study* research approach, an extension of the regular case study approach (Bryman & Bell, 2007). As Eisenhardt & Graebner (2007) argue, the theory-building approach is generally considered justified or can be motivated if no existing theory can suggest viable answers to the research questions provided or if existing research do not address the research question at all. Regarding the studied subject, the existing research is considered too shallow in order to generate viable answers to provided research questions, thus, this research and associated generation of novel theory is motivated.

Collecting empirical data from cases typically gives an overwhelming volume of rich data (Eisenhardt, 1989). One risk is that it is tempting to build theory that tries to capture everything found in this data, giving weak complex theory that says very little or even nothing about very much, thus lacks the overall perspective (Dubois & Gade, 2002; Eisenhardt, 1989). Dubois & Gade (2002) announce that this could be avoided by being selective and leaving out parts, data and analysis that do not necessary contribute to strong theory-building. Both Dubois & Gade (2002) and Eisenhardt (1989) state that this process is important to build parsimonious theory. Moreover, when collecting empirics from cases, there is also a risk that theory may be to narrow and case site specific due to the bottom-up approach, and therefore difficult to generalize (Eisenhardt, 1989). To ensure building parsimonious and generalizable theory the researchers have therefore been selective on data and analysis material to avoid complex volume of data, and also take into account the different contingencies on different case companies in order to exclude deviating case specific results. Building theory from multiple cases will enable to build more generalizable theory, but it also implicates increased volumes of data and analysis work, thus, pose a challenge to build parsimonious theory.

2.2 Research Procedure

In this segment, the research procedure is described. At the outset, the overarching procedure is presented, followed by in-dept descriptions of the different procedure steps. The research procedure builds on processes presented by Bryman & Bell (2007) in their book on the topic of business research methods and are further supported by other authors. The procedures in each step are motivated. Associated risks and criticism are presented, as well as how they are encountered for to bring about a vigorous research quality. Further, the research quality is evaluated in Segment 2.3.

2.2.1 *Procedure Over-look*

In this segment, the overall research procedure will be described. The procedure steps are visualized in Figure 1 below.

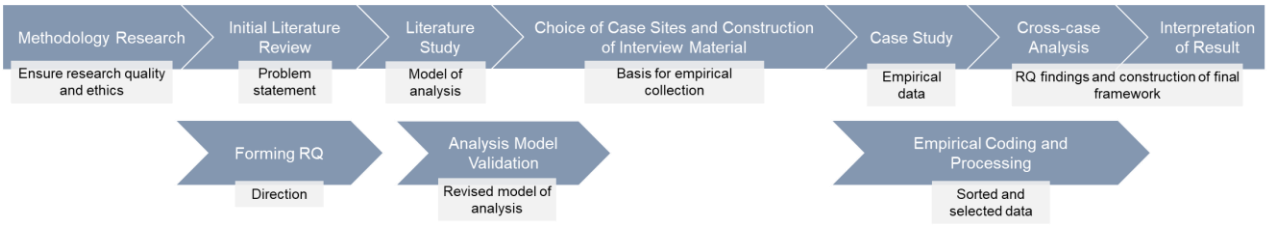

Figure 1. Visualization of the overall procedure. Activities are presented in the blue boxes, and results of activities presented in the overlapping light grey boxes. Parallel blue boxes represent activities performed simultaneously.

To explore the methods dominantly congruous with the research aim, and to ensure the quality of this research, this study took its starting point in a research methodology review. This was done to gain insight on both how to perform business research in a proper manner, and what risks and challenges that exists in this process in order to avert or manage those. What followed was an initial literature review on the subject to increase the understanding of the current situation both in the business and the research world. The result of this was an outline on the research subject and a motivation of the research need. To direct the study, preliminary research questions was set out. Doing this at an early stage is considered important in multi-case studies to avoid focus confusion and overwhelming volumes of data (Bryman & Bell, 2007; Eisenhardt, 1989). As the research preceded, the research questions were further refined to correspond to the research outcome.

With the initial literature review and research questions as a base, a desktop study was performed. In this process, business literature on the subject was reviewed and business field findings were compiled to an initial analysis model acting as the theoretical lens of this research. According to Eisenhardt (1989), such theoretically built analysis model can act as a guiding construct, leading to emerging theory building instead of theory building from a clean slate, supporting the abductive approach proposed by Dubois & Gade (2002). This gives the researcher a firmer grounding for the built theory emerging from the collected empirics (Eisenhardt, 1989). To ensure the analysis model relevance and to identify any significant gaps, the model was validated by the client – a management consultant firm with rich insight on digital transformation challenges in the current business landscape. Thereafter relevant case companies were chosen, and personal contact initiated. Moreover, with the revised analysis model as a base, case interview material was compiled.

Subsequently the data collection and analysis proceeded. Interviews were the dominating method for data collection, a very efficient procedure to gather rich empirical data (Eisenhardt & Graebner, 2007). As previously stated by Merriam & Tisdell (2016), a qualitative research is not a perfectly linear procedure as data collection and analysis can occur simultaneously. However, they state, the data collection is normally being more intense at the beginning of the research, and the analysis more intense at the end. During the data collection, empirical coding and processing was performed, mostly within-case analysis. When all data was collected, cross-case analysis was feasible. Interpretation of the results and cross-case analysis laid the basis for the resulting framework answering the research questions.

To ease the understanding and reading of this report, specific literature terms, terms formed in this report, or significant statements such as research questions or quotes, are italicized. Moreover, direct quotes are also put within citation marks.

In the following segments, the different steps of the research procedure will be outlined more in detail.

2.2.2 *Methodology Research*

To ensure that the research was performed in a proper manner, business research methodology literature was reviewed. This review brought insight to research approaches, design, and procedures appropriate for the research aim, requirements and prevailing circumstances. Moreover, insights on risks and challenges associated with such approaches, design and procedures were gained, guiding the research out of pitfalls increasing the research quality and increasing the likelihood of receiving at robust research results.

2.2.3 *Forming the Problem Statement*

The initial literature review was initially held at a holistic level with regards to the research subject to avoid any unaware neglection due to pre-limitations. The result of the initial literature review is the problem statement which includes three important components presented by Merriam & Tisdell (2016). The first one being the context of the study, that is, putting the research topic in relation to surrounding factors and describing the current state of the problem. In this process multiple documents and literature were reviewed to gain a broad knowledge on the subject and associated problems. The second component is to identify the gap in the knowledge base that the research aims to fill. In this process, related research was searched and reviewed. Moreover, the researchers explained how their research will take a novel grasp of the subject, thus contributing to the knowledge base of the field. The third and last component is the significance of the problem, that is explaining why this subject is important to study. In this matter, the researchers searched for data that could quantitatively confirm the significance of problems related to digital business transformation.

2.2.4 *Forming the Research Question*

The purpose of a research and formulated research questions are important elements to a study as they set out the direction for the research. As previously stated, the research approach and design should be chosen based on these elements (Bryman & Bell, 2007; Merriam & Tisdell, 2016). Research questions will also guide the literature search, what data to collect and from whom, analysis of data, writing-up of findings, and will also stop the researcher from losing focus and direction (Bryman & Bell, 2007). Moreover, the research questions should be clear and not too broad or too narrow, researchable, relate to established theory and research, and have the potential to create novel knowledge (Bryman & Bell, 2007).

Regarding ensuring the research question quality, the initial literature review as well as client and supervisor discussions on both the research topic and research question formulation were key in this matter. The client could confirm the broader need of this knowledge from a practitioner business perspective, and the supervisor could confirm both the need and current research base of this subject from a research field perspective. This together with the initial literature review, which

gave the researchers an initial sense of the research starting point and current problems connected to this subject, laid out the direction for this study.

2.2.5 *Literature Study*

The frame of reference of this research, also referred to as the initial model of analysis, compose the theoretical lens that guides the collecting and interpretation of collected data. As previously stated, the model of analysis can act as a guiding tool, where researchers' theory building rather emerges from previous research than being created from scratch. This gives the researchers the benefits of using combined previous research results given from various relevant research fields, as well as it guides the empirical collection, reaching relevant results faster. When forming the model of analysis, the researchers gained support from related studies, organizational change management field, business strategy field, entrepreneur, and innovation field, as well as the general digitalization research field. The key words used for searching relevant literature were the following in different combinations: digital, transformation, success factors, business model, innovation, strategy, leadership, challenges, and management. Moreover, sources of reviewed literature were also discovered, as well as other sources citing the relevant literature work. The literature was discovered trough three literature data bases: Google Scholar, Scopus, and the library at Linköping University.

The initial model of analysis revealed largely proven important strategic aspects when managing digital business transformation. At this stage, the study was not limited to any selection or delimitations on theory, not either were any relationships between theoretical variables to be investigated in this study explored. These are important actions to avoid biased and limited findings in a research (Eisenhardt, 1989). Dubois & Gade (2002) further support this view, and state that the framework should be allowed to evolve during the process, thus, not be too tightly structured in the beginning.

Literature review and sorting between theories gave the researchers two dimensions relevant to study. One of them being strategic aspect of importance regarding business transformation, and the other one a linear maturity stage scale. These two dimensions formed the initial model of analysis. Since the first dimension of both the analysis model and the framework act as the foundation of this research, the first research question is given a greater part of the attention of this study. To increase the validity of the initial model of analysis, well cited sources have been prioritized. Moreover, theory was filtered and sorted in regard to the number of authors stating similar findings. Strategic aspects that were widely proven important were prioritized.

In Section 4 of this report, the first dimension of the analysis model – different strategic aspects important to digital business transformation – is presented. The strategic aspects have been collected from literature, coded, and sorted into three divisions: *Strategic Levels*, *Strategic Factors* and *Strategic Elements*. The strategic level constitutes of three levels of aspects, namely *The Vision and Strategy*, *The Set-up* and *The Transformation Process*. All these levels are considered important in the digital transformation process and are also considered to pave the way for one another in falling order. This means that the organization first needs a digital vision and strategy to build a proper set-up, that in turn gives the organization the circumstances to act on more transformative aspects in the transformation process. Under each strategic level, different strategic factors are outlined representing different strategic areas of each strategic level, and lastly also

strategic elements which represent different key areas frequently discussed by authors in the different strategic factors. The strategic aspect division structure is visualized in Figure 2 below.

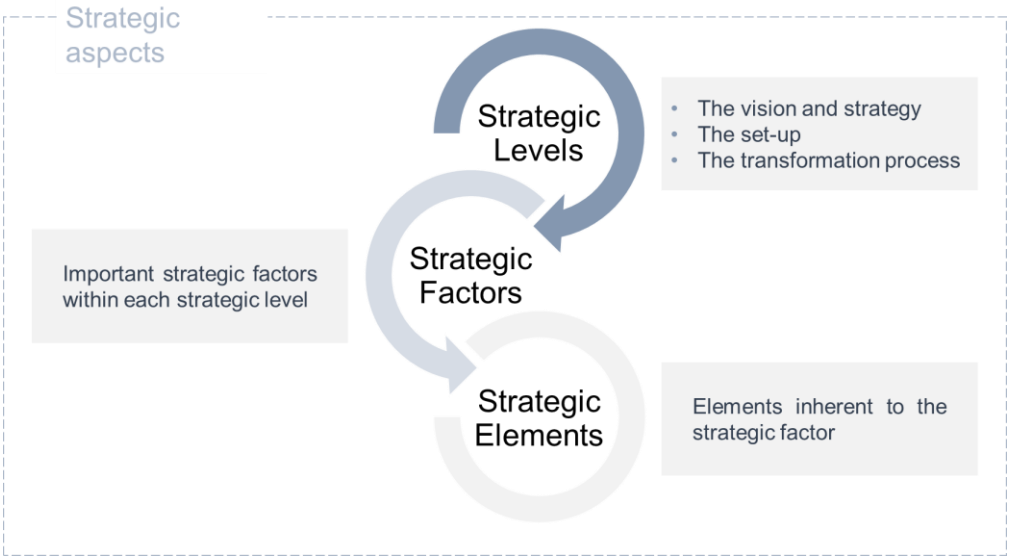

Figure 2. Different theoretical strategic aspects sorted into three different divisions. The strategic aspects are according to literature important to achieve a successful digital business transformation.

It is by this top-down structure, presented in Figure 2, that the literature findings will be presented in Section 4, even if literature findings were initially collected through a more bottom-up approach. In the concluding figures for each strategic level in Section 4 (i.e., Figure 9, Figure 10, and Figure 11), the color coding for strategic level, strategic factors and strategic elements seen in Figure 2 are reoccurring to simplify the reading and understanding of the different analysis model parts. Note that this color coding only is applicable to figures related to the first dimension of the model of analysis and first dimension of the framework.

Figure 3 below summarizes the theory collection and sorting procedure, initially gathering strategic important aspects through a bottom-up approach, later forming a more top-down presentation structure after filtering and sorting the findings.

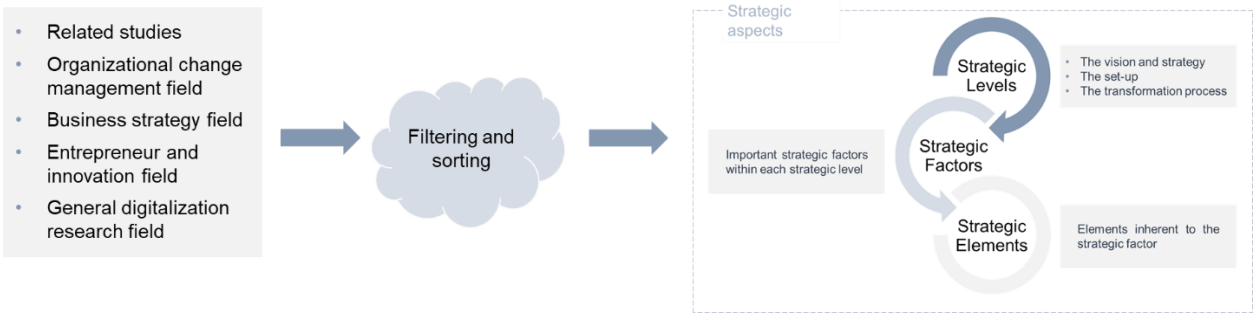

Figure 3. The procedure of the literature study and sorting.

Lastly, in Section 5, the second dimension was applied – the maturity stage scale – which together with the comprehensive base of the strategic important aspects acts as the initial model of analysis for this report.

2.2.6 *Analysis Model Validation*

To validate the relevance of the initial model of analysis and opening for opportunity of improvement, a focus group study with the client was held.

The focus group study duration was one hour, with a total of four consultants from the client participating. All four consultants are extensively experienced within the field of business strategies in incumbent firms and have wide knowledge in how to logically build a work with different types of frameworks. Moreover, one consultant is specifically competent within the area of digital transformation, and another of the consultants also have experience with master's degree study within the field of digital transformation. Their knowledge and experience are therefore considered of great value as input to this study.

First, an introduction and background of the study area was provided to the participants. Thereafter, the participants were guided through the initial model of analysis at the same time as feedback was collected on potential improvements of the model. The feedback on the analysis model was discussed together with the participants, and notes were taken to not miss out on important information.

After the focus group study, the feedback was summarized and analyzed after which the initial model of analysis was updated with some of the suggested improvements that was considered valuable, forming the final model of analysis. To note is that the improvements of the analysis model where mostly connected to re-structuring to build a better logic, not so much connected to the actual content of the model.

2.2.7 *Choice of Case Companies and Construction of Interview Material*

With the final analysis model as a base, case companies were selected upon the likelihood of providing theoretical insight. This goes in line with recommendations given by multiple research methodology authors (e.g., Bryman & Bell, 2007; Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Merriam & Tisdell, 2016) refering to this as theorectical sampling, or purposeful sampling. This method deviates a bit from random sampling in hypothesis testing, and is further motivated because the goal is to develop theory, not to test it (Eisenhardt, 1989). In the case company choice, representative cases (Bryman & Bell, 2007) were selected in order to collect data that would exemplify the digital business transformation situation of incumbent organizations. Six case companies were selected, using the recommended benchmark of four to ten cases given by Eisenhardt (1989) to avoid unconvincing results, as well as an overload of data volume.

Together with the research questions, the final analysis model also acted as a base for the constuction of interview material. In order to collect good rich data from interviews, asking well-chosen open-ended questions is key (Merriam & Tisdell, 2016). In this matter, the interview gudie consist of lesser and more open ended questions or discussion points building on the elements given by the final model of analysis. Moreover, during the constuction of the interview guide (as well as during the interviews), multiple question in one, leading questions, as well as yes-or-no questions were avioded as far as possible in order to evade misunderstanding, conducted answers or insignificant answers. The interview guide can be found in Appendix A.

2.2.8 *Multi-case Study*

Empirical data from case companies were collected through semi-structured interviews in order to collect rich cross-case comparable data. The interviews were conducted during a five-week period and each interview lasted for about one hour. As far as possible, two individuals working close with the topic at each case company were interviewed to gain insights from different perspectives, see Table 1 below. At one of the case companies, a second contact was not possible to initiate, why only one interview was held at this site. Both researchers were present at all interview sessions, with one of the researchers leading the interview, and the other one taking notes. Due to the COVID-19 crisis and the on-going distance mode in many companies, the interviews were held online via real time video meetings in Microsoft Teams. According to Merriam & Tisdell (2016) one advantage of using Computer Mediated Communication tools (CMC tools) such as Teams for case interviews is that the research is no longer limited to geographic constrains. This was considered valuable since the research got limited resources both timewise and financially.

Table 1. Overview of number of case companies and interviewees together with description of role, industry, and digitally transforming of value proposition.

Case Company	Role description	Industry	Description of the digital transformation of value proposition
Company A	I1: Responsible for technology division I2: Responsible for digital products and services	Active in the machinery industry. Serving customers within the mining, infrastructure, and natural resources industry.	Offering digital products, software, and digital services compatible with products.
Company B	I1: Responsible for innovation and research function I2: Responsible for digital business transformation	Active in the machinery industry. Serving customers within the forest, lawn, and garden markets as well as the construction and stone industries.	Offering digital products, services compatible with products as well as stand-alone digital services.
Company C	I1: Responsible for strategy and business development connected to digitalization I2: Responsible for strategy and transformation (partly covering digital transformation)	Active in the retail industry, niche banking industry and pharmaceutical industry. Serving consuming customers with these segments.	Mainly e-commerce and digital service offerings connected to products.
Company D	I1: Responsible for area focusing on customer value within digital function I2: Responsible for IT within digital transformation	Active within the automotive industry. Serving customers within the commercial vehicle industry.	Offering connected products as well as digital services compatible with products.
Company E	I1: Responsible for digital transformation I2: Responsible for strategy related to IT	Active within the automotive industry. Serving customers within the commercial vehicle industry.	Offering connected products as well as digital services compatible with products.
Company F	I1: Responsible for business area IT-strategy and digitalization	Active within the machinery industry. Serving customers within the mining, metal cutting and materials technology industry.	Offering digital products, software, and digital services compatible with products.

*I1 refers to the first interviewee of the case company and I2 to the second interviewee of the case company.

All interviews were audio recorded and semi-transcribed. That is, the interview data was compiled into a text document. However, word by word was not transcribed. This method was preferred due to research time limitation and increased simplicity of reviewing data. To avoid misunderstandings, the compiled interview findings were sent to the interviewee for approval. If misinterpretation had occurred, these were corrected.

At the initial contact or prior interview, all interviewees were clearly informed under which circumstances this research was conducted, the aim and contribution of the research, why they as interviewees were selected, who the researchers are, and how data was to be collected, compiled, and reviewed. Moreover, the interviewees were informed that data was to be anonymous, and that the participation was voluntary (so also the providing of answers to specific questions), see Appendix B. The information was provided in a form including participant consent that all interviewees were offered to sign, see template in Appendix 0.

2.2.9 *Empirical Coding, Processing and Analysis*

As previously stated, coding and analyzing data occurred simultaneously as data collection. In the coding process, both data elimination and sorting data into categories were key activities when performing within-case analysis of each stand-alone entity. The elimination and sorting decreased both the volume and complexity of data, as well as it eased the subsequent cross-case analysis in a later stage. Cross-case analysis is particularly effective when aiming at producing accurate and reliable theory as it forces researchers to go beyond initial impressions (Eisenhardt, 1989), thus, weak indications from one case can be rejected if not further supported by other cases. See the overall process of the empirical coding, processing, and analysis in Figure 4 below.

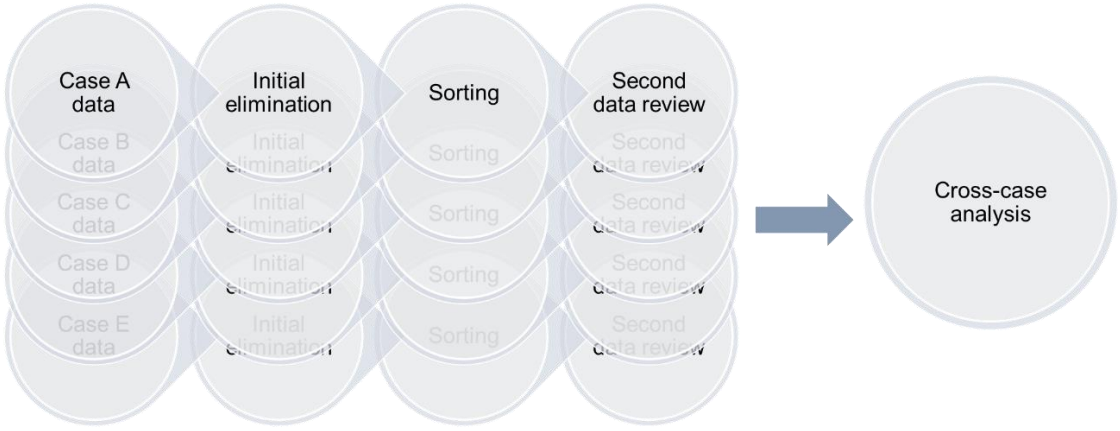

Figure 4. The process of data coding, including data elimination, sorting, second review and cross-case analysis.

To provide a more detailed explanation of the four first steps in Figure 4, each interviewees' answers and comments were, as previously mentioned, semi-transcribed into written form and sent out for approval by the interviewee. The interview outcome was then carefully read through several times before extractions were made into an excel file. Statements and insights brought up by each

interviewee, that were within the scope of the study, was transferred to the excel sheet and divided into two columns: challenges or solutions.

Each challenge and solution were provided an ID label, depending on the details of the challenge and solution. If several interviewees mentioned similar challenges and solutions, these were provided the same ID label. Moreover, in each row, containing challenges and solutions, the name of the interviewee who phrased the challenge and/or solution was stated. Each row containing a challenge and solution, together with the ID labels and the interviewee name, was then categorized depending on if its content was within the scope of any of the strategic factors already identified in literature, or if it required a new additional category not already brought up in literature. One row could be assigned several categories. See Figure 5 below for a visualization of the described columns in the excel file.

Figure 5. The columns used in the excel file to categorize and sort the outcomes of the interviews.

In total, 216 connections between different challenges and solutions mentioned by the interviewees were identified in the excel file.

A similar excel sheet was also created for the maturity stage discussion, where interviewees comments on the relative importance of strategic factors given different maturity stages was summarized and categorized into both more detailed ID labels, but also into which of the three maturity stages the answer was concerning.

When all relevant data was transferred to the excel file and categorized as described above, the researchers went through the semi-transcribed material again to make sure no relevant information was missed out. Some data initially marked as unimportant was taken back into account. The researchers also went through the complete excel file, to recognize any data previously marked as important that should be discarded, if it showed to be irrelevant when studying the wholesome.

2.2.10 *Interpretation of Results*

Based on the summarized challenges and solutions in the excel file, the results could be interpreted in a logical and manageable way. Thanks to the ID labels provided to each challenge and solution, the document could be sorted based on ID labels to overview interview responses that were of similar essence. Furthermore, the column with the interviewee name assisted in grasping the relative importance of different interview responses, since it enabled an overview of how many interviewees mentioned and agreed to different aspects. Lastly, by sorting on the different categories, researchers were able to get a clear overview of all interviewee responses within each strategic factor. By sorting on a strategic factor, challenges and solutions belonging to this strategic factor could be compared across the interviewees. The cross-case analysis with the sorted data was performed to find patterns and answers to research questions. Thanks to the sorting into strategic factors, insights within each strategic factor could easier be transferred over to the final framework.

Based on the excel file, structuring all the interview findings in a logical and manageable way, results from interviews could be interpreted and inserted into the report. A summarizing framework could be comprised and a discussion concerning the final framework in regard to the maturity levels could be completed.

To not compromise the anonymity of the interviewees, the excel file has not been shared with the client, nor with the research peers or the supervisor, but only used internally for result analysis.

2.3 Research Quality

Research risks and challenges and the management of those, have been mentioned throughout both the research approach and design, and the research procedure. In this segment, the research quality will be encapsulated by evaluating the research's validity and reliability according to four criteria's presented and described by multiple authors, namely Bryman & Bell (2007), Gibbert, et al. (2008), and Merriam & Tisdell (2016). In Table 2 below, both descriptions of the criteria and actions taken to ensure a high research quality with regards to these criteria are outlined.

Table 2. Criteria, description of criteria, and measures taken to ensure a high research quality. Criteria and description of criteria are retrieved from Bryman & Bell (2007), Gibbert, et al. (2008), and Merriam & Tisdell (2016).

Criteria	Description	Measures taken
Credibility or internal validity	Represent how believable the findings are with regards to the use of good methodology practices and that real world practices are interpreted and transferred to new theory correctly. Credibility can be achieved by applying respondent validation, and triangulation.	Validation of interview statements by interviewees. Peer review of the whole process. Using multiple investigators in the research. Using multiple sources of data. Both literature from different fields of research to form the initial model of analysis, and multiple cases and interviewees at each case company as a base for building novel theory.
Transferability or external validity	Represents how well the findings are applicable to other contexts or social settings, to what extent results are not context unique and can be generalized. Transferability can be achieved by providing rich and thick description of the studied settings to clarify for which settings these findings are transferable to. Moreover, studying a greater range of cases can increase the generalizability.	Studying multiple case companies and provide descriptions of each case. Provide information about the role of each interviewee data was collected from.
Dependability or external reliability	Represents to what degree a research can be replicated by others. Dependability can be achieved by clearly outlining all phases of the research procedure, and by providing relevant document or appendices.	The researcher has been transparent about the research procedure and clearly described how the research progressed throughout the whole research process. Relevant information such as the interview guide and study information sheet were attached as appendices.
Confirmability	Represents the objectivity of the research, that is, not letting personal values intrigue with the research findings. Confirmability can be achieved by being critical to assumptions, world view, biases, theoretical orientation, and research context that might affect the research outcome.	Using multiple investigators in the research helped to ensure an objective interpretation of results. No previous personal connection to the subject was present, leaving both researchers with no cognitive barriers affecting or twisting results.

2.4 Ethics

According to Bryman & Bell (2007) ethical issues can emerge during a variety of stages in business and management research, whereof the treatment of people and research activities are at the center of ethical emergence concern. Regarding ethical principles in business research, there are particularly four issues that researchers need to manage: harm to participants, lack of informed consent, invasion of privacy, and deception involvement (Bryman & Bell, 2007). The authors describe the four issue areas as following:

- *Harm to participants* could, among other, include physical harm, stress, or harm of forthcoming career or employment. One approach to deal with this is to alter data source anonymization. However, as qualitative research often provides rich descriptions, there is always a risk of identification despite anonymization.
- *Lack of informed consent* means that the participant is not given enough information needed to make an informed decision about the participance in the research. This could be managed by handing out a form including research agenda and data suage, as well as a participant consent segment to sign.
- *Invasion of privacy* could for instance include intruding on respondent's privacy or not respecting individual values. Participant's informed consent is not equal to having the right to answers. Participants should be free to pass questions on whatever ground they perceive justified.
- *Deception involvement* refers to the situation where researchers distort research results or misinterpret, lead, or search for information in a way that the research take a predetermined direction. Merriam & Tisdell (2016) state that this issue could particularly occur in the analysis phase since collected data is to be filtered through the researcher's theoretical position and biases, creating opportunities of data exclusion if data is contradicting to the researcher's view. Moreover, increased risk of bias or research influence is recognized if the research is funded (Bell & Bryman, 2007).

To manage the ethical risks occurring in business research, the researchers have carefully provided all participants with details about the research context, purpose, and research procedure in order for them to provide an appropriate informed consent (see Segment 2.2.8). Data compilation was also inspected and approved respectively by participants to decrease the risk of misinterpretation or misapprehension possibly leading to any harm, invasion of privacy or deception. Moreover, as the research was performed by two researchers equally involved in processing and analyzing of data the risk of personal bias influencing the results are decreased. Note that the management of these ethical issues is somewhat over-lapping with the research quality measures taken outlined above.

3 Business Transformation

In this section, the business model concept, business model innovation opportunities, and business transformation challenges are further described to increase the understanding of the underlying opportunities and challenges with the digital business transformation phenomenon. Not only are different ways of innovating the business logic discussed, but also how attempts of transformation can outplay, and what aspects that affects the transformation process and success. By doing this, this section intends to increase the understanding of the connection between strategy, business transformation and management.

3.1 Business Logic and Transformation Opportunities

The business model concept has gained a lot of attention during the last decades and has been illustrated and described in various ways by different authors (e.g., Massa & Tucci, 2014; Massa, et al., 2017). In management literature, the meaning of a business model has been interpreted as attributes of a real firm, as cognitive schemas, and as a formal conceptual representation of how businesses functions (Massa, et al., 2017). As described by Teece (2010), the business model is a concept that articulates how a business creates and delivers value to customers, which represents the architecture of revenues, costs, and profits in a firm. A more graphic representation of the business model, the business model canvas, is provided by Osterwalder & Pigneur (2010). The business model canvas consists of nine building blocks – key partners, key activities, key resources, value proposition, customer relationships, channels, customer segments, cost structure, and revenue streams – and describes the business logic of a firm (Osterwalder & Pigneur, 2010), see Figure 6 below. Despite several different definitions of a business model, a majority of authors agree that the business model is a system level concept, emphasizing a holistic understanding of organizational orchestration of an activity system to create value, i.e., the business logic (Massa & Tucci, 2014). According to Casadesus-Masanell & Ricart (2010), the business model is the representation of a chosen strategy, setting up the frames for tactical future moves.

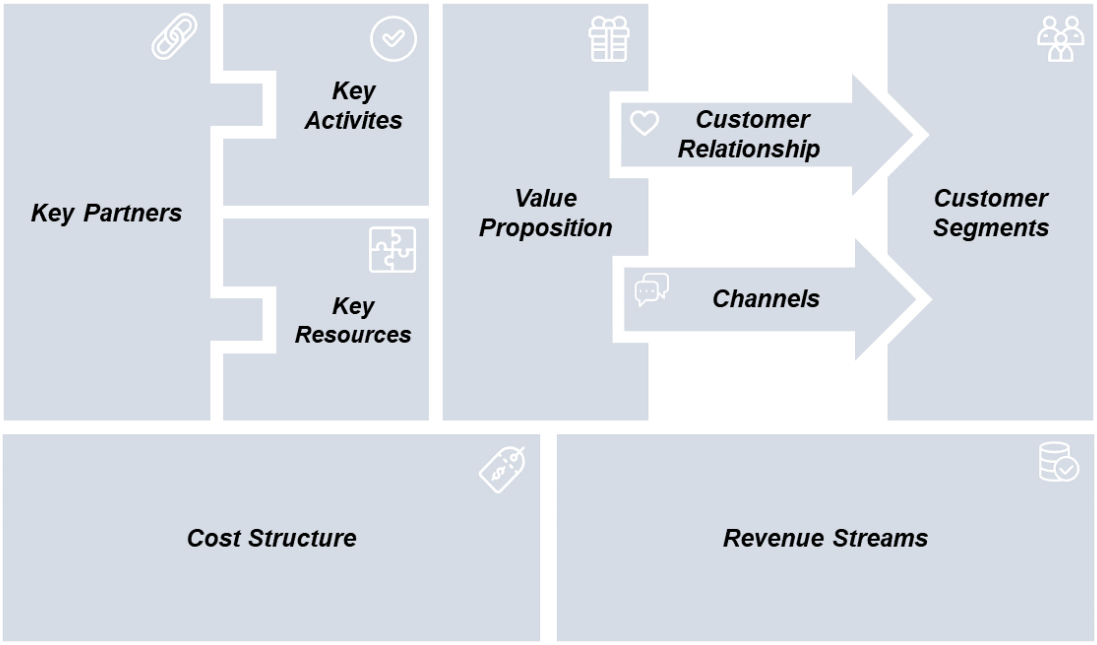

Figure 6. The business model canvas and its nine building blocks. Recreated from Osterwalder & Pigneur (2010).

Massa & Tucci (2014) explain that the business model (BM) can be seen as a promoter of innovation in two ways – either as a vehicle for commercializing new services or products on the market, or as a source of innovation in itself, by setting up business logic in a novel way. Additionally, according to Chesbrough (2007, p. 12):

"A better business model often will beat a better idea or technology."

In fact, in many sectors, digital transformation goes beyond improving products, services, or production processes, to include a bigger part of the business model (Prem, 2015). Bucherer, et al. (2012) follow the same logic by stating that business model innovation (BMI) is critical in the business landscape today since differentiation can no longer solely rely on just product or process innovation. But to put competitors in a disadvantageous position, BMI must be used to profoundly change the market rules (Bucherer, et al., 2012).

BMI represents a big potential for growth and increased profitability (Massa & Tucci, 2014). Different authors try to describe how BMI can be compassed and how it appears in firms. According to Massa & Tucci (2014), BMI can support businesses in exploiting new opportunities in three ways: (1) by developing a new value proposition, targeting existing customer base, (2) by developing the business model with the aim to target a new customer base, or (3) by entering previously foreign industries or terrains. According to the authors, this could be done by innovating the BM in three ways: add new activities (new content), link activities differently (structure), or change which parties carry out the activities (governance). With support from other authors, Li (2020) particularly claims that digital transformation changes the business model of a firm in three ways or degrees as digital technology are implemented and used, also referred to as AET: (1) *Automation* – enhance existing activities and processes, (2) *Extension* – conduct business in new ways, which complements existing activities and processes, or (3) *Transformation* – enable new ways of conducting business to replace traditional ones. By examining the five typical archetypes of digital transformation-driven business model reinventions, presented by Westerman, et al. (2014), Loonam, et al. (2018) found that three of them were evident in more traditional business organizations: (1) creating new digital businesses – creating new, or transforming current value proposition generating additional revenues, (2) reconfiguring value delivery models – the value proposition and data are recombined to change the role the firm has in the value chain, and (3) rethinking value propositions – deploying digital technologies to target unmet customer needs.

As digital transformation can be the base for creation of completely new revenue streams affecting the whole business model (development of value proposition), digital transformation also enables new ways of pricing, occasionally leaving traditional costing-based principles outmoded (Iveroth, et al., 2013; Petri, 2014). Digital technology has increased the access of information and opportunities of networking and sharing of activities with business partners, giving rise to opportunities of new ways of collaborating and pricing (Iveroth, et al., 2013; Schallmo, et al., 2017). Today, companies can differentiate by pricing along five dimensions, enabling a totally different revenue stream (Petri, 2014). These dimensions – scope, base, influence, formula, and temporal rights – are firstly suggested by Iveroth, et al. (2013) in the SBIFT-model. *Scope* refers to how the customer buys the value propositions: as a package or in smaller parts such as several attributes. *Base* describes what type of information base that dominates at pricing: cost, competitor price or customer value. *Influence* alludes to the power of either the buyer or the seller to influence the price. *Formula* describes how the prices varies or not varies with different volume measures. Lastly, the *temporal rights* describe how long the customer can utilize the value proposition. Deciding on these dimensions could be of particular interest when re-framing how different degrees of transformation, as previously mentioned as AET by Li (2020), is to bring about extended value capturing.

The SBIFT-model was used as a theoretical lens by Petri (2014) when studying the new price model of Taxi Kurir, enabled by a digital platform between the travelers (customers) and the

drivers (suppliers). When analyzing Taxi Kurir's old and new price model, Petri (2014) found that the new pricing strategy extended Taxi Kurir's value proposition as a result of a minor change in the formula dimension of the price strategy. This since the shift from a variable price, based on circumstances that the customer could not affect such as weather and traffic, to a fixed price, moved risk from the customer to the supplier. This resulted in better route choices by Taxi drivers, better balanced prices, and a shift to customers as the prime focus, leaving their business model highly attractive to customers (Petri, 2014). As evident, digital solutions does not only act as a key driver for new value propositions, but also influence cross-company boarders by impacting business processes, sales channels, and supply chains (Matt, et al., 2015), inescapably affecting the whole *business ecology* – a network of actors enabling economic activity (Westelius, 2020).

Teece & Linden (2017) describe that in the current business landscape, managers must think more systematically as BMI does not exist in isolation, meaning that changes in one business model element requires changes in others. In his investigation on business model impact of digital transformation, Prem (2015) found several causal connections between different business elements and developed the digitization business model framework visualized in Figure 7 below. To exemplify, he argues that digital technology that enables novel ways of performing business activities creates new products and services affecting the value proposition. The new value proposition is communicated through new channels, enabled by digital technology, profoundly changing the customer relation, as well as it creates conditions for reaching new customer segments. Moreover, the new customer relationship and channels is feeding data back to the business activities, enabling a new level of co-creation. Thus, a holistic business model coherence is needed when performing a digital transformation (Teece & Linden, 2017). This could be particularly challenging in large organizations with complex systems as every change can have a system-wide impact (Teece & Linden, 2017).

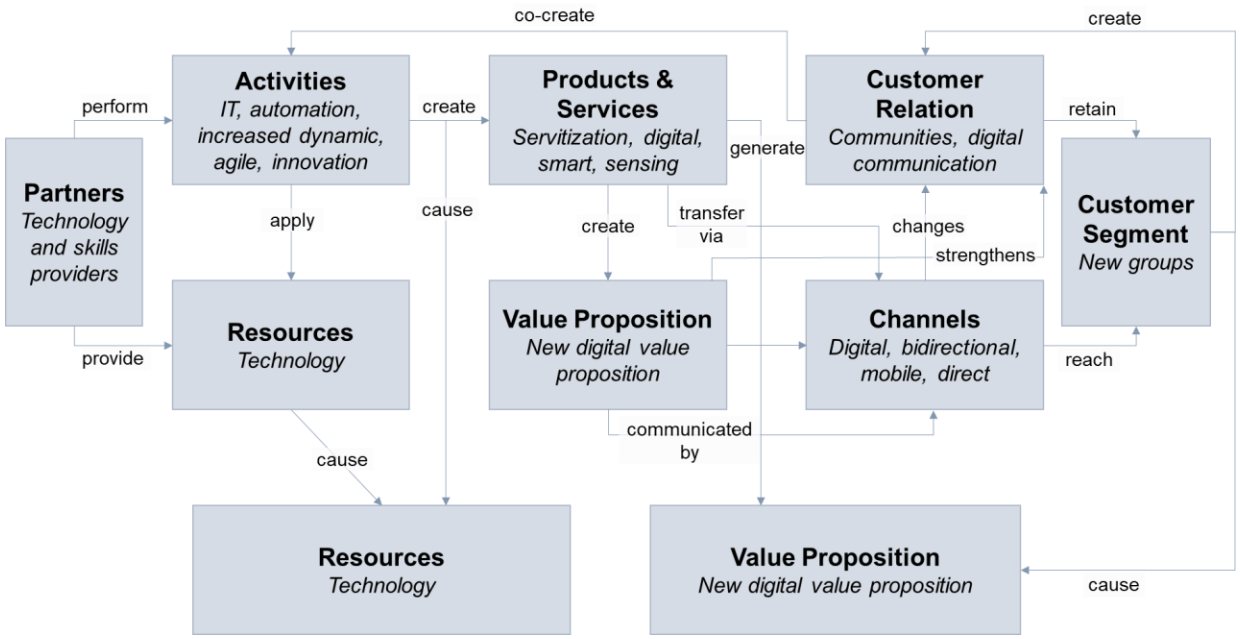

Figure 7. Graphical visualization of the digitization business model framework by Prem (2015), recreated with some adjustments from Prem (2015).

To conclude, digital opportunities does not only open doors for new ways of creating value, but also for new ways of capturing value. However, innovating the business model and transforming the business logic is a complex task posing challenges to this process. The following segment will elaborate on different transformation paths and what might influence them and the progress of transforming.

3.2 Transformation Dynamics and Paths

Greenwood & Hinings (1988) describe that organizations commonly operate in what they call a design archetype, which consists of two parts – the structural design, and a set of ideas, beliefs, and values – together forming a stable organizational coherence. The authors describe that when an organization is limited by its own design archetype, typically creating big organizational challenges and problems, the organization is in need of bigger changes or transformations to another design archetype. To successfully transform, they describe that an organization needs to de-couple from the old design archetype, and re-couple to another. However, not all organizations succeed with a transformation even if change is needed, and the authors describe that a transformation process can follow different tracks, not always leading to a successful reorientation or transformation. The most common track, they say, is inertia. Inertia is the perception of believing that solutions to emerging problems are found within the current design archetype, not even sensing the need for a transformation (Greenwood & Hinings, 1988). Such perception could either be truly justified, or it could be a result of a proud history, path dependencies, structural and cognitive barriers, and perceptions of risk, described as common challenges for incumbent firms in Segment 1.2. The failure of transformation can also follow the tracks where transformation is initiated, but later aborted due to a decreased perception of the need of transformation, or the transformation attempt can result in two conflicting archetypes, none of them being fully returned to or implemented (Greenwood & Hinings, 1988).

When transformation succeeds, the authors also claim that the tracks can differ, where some transformation paths are more linear and faster, whereas others could be more unstable and slower. The authors argue that these transformation tracks or paths towards this transformation are profoundly affected by three potential dynamic changers: contingencies, power dependencies and organizational members commitment. For reorientation or transformation to come around, there must be contradictions between the contingencies (such as company size, technology, or the environment) and the current design archetype (Greenwood & Hinings, 1988). The authors further state that commitment amongst both executives and organizational members are fundamental in order for a transformation to succeed, arguing for both an appropriate strategy and culture within the organization.

It has already been concluded that incumbent firms encounter disruption of digital technology at an increasing pace. But it is yet unclear in what way incumbent firms should transform their business model and how they should manage the transformation successfully. This certainly demonstrates an increased need for understanding the drivers of transformation and how strategic aspects are to be managed, in order to affect the dynamic in the right way, creating a smooth path towards digital business transformation and a new organizational coherence and business logic. Not only is the vision of becoming a digital business important, but also aiming for changing the course taking on a new direction towards the goal with the right strategic measures. This leads towards the next section of this research, outlining the theoretically important strategic aspects in

business transformation and digital business transformation. This by first taking the lead towards a new business logic (*The Vision and Strategy*), and then creating both the right structural needs (*The Set-up*) and a culture (*The Transformation Process*) committed to this new business logic.

4 Important Strategic Aspects

This section presents theory processed in the literature study for the first dimension in the analysis model – important strategic aspects in business transformation. The strategic aspects are sorted into three different divisions: *Strategic Levels*, *Strategic Factors* and *Strategic Elements*. Particularly three strategic levels of strategic aspects are identified: *The Vision and Strategy*, *The Set-up*, and *The Transformation Process.* These are further broken down into more precise strategic factors and subsequently also broken down into detailed strategic elements. The summary of the findings in this section provides a basis for the first dimension of the initial model of analysis.

4.1 The Vision and Strategy

Incumbent firms must start the journey of digital transformation sooner rather than later. When environmental circumstances are altered due to changes in technology, customer demand or competitive landscape, a business model reconfiguration is needed (Teece & Linden, 2017). To wait and see market proof of faltering traditional business models before taking on digital transformation will not provide incumbent firms with enough time for the transformation, because indeed, becoming mature in digital business is not a quick fix (Kane, et al., 2017). To transform duly, Teece & Linden (2017) argue that the dynamic capability of sensing the need for change have to be cultivated and built in the structure of an organization. Lei & Slocum (2005) have also recognized the need for more rapid action, and state that incumbent firms in many cases have not managed to adjust their strategies and organizational designs quick enough to recover from changes successfully. The authors also note the importance of dealing with this issue since the technological change in the environment will keep affecting more and more firms.

Creating an effective strategy which is linked to corporate objectives is one of the main challenges for companies that wish to increase their digital maturity, and it is not only about implementing technologies for the sake of becoming more digital, rather it is about identifying the opportunity for greatest business impact as technologies reshape the market (Kane, et al., 2017). Tabrizi, et al. (2019) agree by stating that business leaders often have a specific tool in mind (e.g., machine learning) when striving for digital transformation, but that instead, digital transformation should be guided by the business strategy. According to Westerman, et al. (2012), digital maturity depends on two aspects; *digital intensity* – the investment level of technology-enabled initiatives, and *transformation management intensity* – the investment level in leadership capabilities to lead organizations in digital transformation. These two dimensions form a framework for digital maturity constituting of four levels of maturity, see Figure 8.

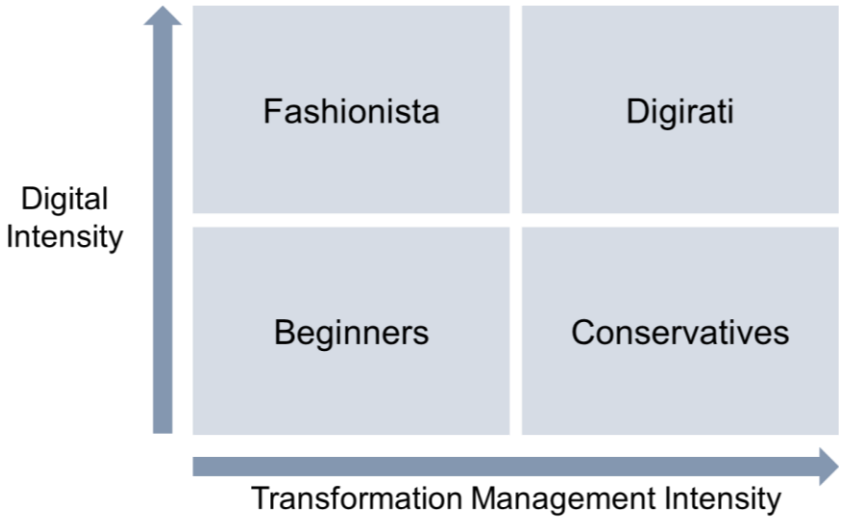

Figure 8. Four types of digital maturity. Recreated from (Westerman, et al., 2012).

Westerman, et al. (2012) describe that an organization can either have high or low digital and transformational management intensity, or a mix of the two. According to their study, manufacturers are often found in the quadrant *Beginners*, with low digital intensity and low

transformation management intensity. Even if companies can be in this position by choice, more often they are there by accident due to unawareness of digital opportunities or lack of effective transformation management (Westerman, et al., 2012). Being a *Fashionista*, they say, several digital applications are either explored or implemented. However, synergy gaining, vision of maximized business benefits and a coherent enterprise is deficient. The *Conservatives* are more cautious and prioritize, over the investment itself, a strong unified vision, governance, and culture to ensure well management of the investment (Westerman, et al., 2014). However, the prudence and careful approach can induce loss of opportunity or lagging behind peers (Westerman, et al., 2012). The *Digirati* companies truly recognize how value can be driven by digital transformation and do so by combining a transformative vision, digital governance, and vision engagement with adequate investments in emerging opportunities. Westerman, et al. (2012) found in their analysis of 184 publicly traded firms, that companies that are mature in both dimenions (digiratis) outperformed less mature firms on multiple financial measures. Revenue generation were nine percent above average, profitability 26 percent above average, and market valuation[1] 12 percent above average. Typically retailers or banking companies are found in the quadrant Digirati (Westerman, et al., 2012).

Accordingly, Kane, et al. (2017) found that the most distinguishing factor of digitally maturing companies is the existence of a clear and coherent digital strategy, and state that digitally mature companies are more than four times as likely to have the described strategy in place as compared to early-stage development companies. The authors further point out that digitally mature companies are twice as likely as early-stage companies to take on a longer, five years or more, view on their digital strategy (Kane, et al., 2017). Collis & Rukstad (2008) support the idea of a clear and coherent strategy and further elaborate that without a simple and clear strategy statement, organizations risk failing in the execution of the strategy since employees work towards what they assume is the right strategic direction, which can end up with confusion and contradictory efforts. Hambrick & Fredrickson (2001) add to the importance of a clearly defined strategy, arguing that without it in place, time and resources are easily wasted on isolated and contradictory activities. This is particularly important since digital transformation often both induces over-arching strategic challenges, such as business model modification, but also operational challenges such as the need of a new technical platform (Andersson, et al., 2018). The strategy needs to guide both big and small decisions and prioritizations (Kaplan & Norton, 1996).

Not only is a clear and coherent digital strategy identified to be of importance in digital transformation efforts. Many authors also highlight the need of a dynamic, more agile strategy (e.g., Bughin, et al., 2018; Massa & Tucci, 2014; Sailer, et al., 2019; Teece, 2007; Warner & Wäger, 2019). Westerman, et al. (2012) propose that executives should seek for opportunities to iterate and improve the digital transformation as it proceeds, since no transformation can be perfectly planned in advance. This is further supported by Andersson, et al. (2018), stressing the importance of continuous development instead of long-term planning when it comes to digital transformation. Bughin, et al. (2018) state that many organizations are still locked into annual cycle strategy development processes, and that very few organizations think their current business model would remain economically viable in an industry that keeps digitizing rapidly. Successful

[1] Measured by Tobin's Q Ration – The ratio between a physical asset's market value and its replacement value, and Price/ Book Ratio – Calculated by dividing the market price per share by book value per share.

digital transformation involves increased agility of digital strategy practices, such as continuous modification of the digital strategy and a "fail fast mentality" (Bughin, et al., 2019), as well as a greater flexibility of resources (Massa & Tucci, 2014), to name a few.

Dynamic capabilities are widely mentioned in academic literature as playing an important role in organizational change processes and dynamic strategies. Eisenhardt & Martin (2000, p. 21) define dynamic capabilities as:

> *"The firm's processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die."*

Teece (2007) explain that dynamic capabilities are to be utilized in efforts of continuously upgrading and keeping the organization's asset base relevant, and divides the capabilities into three categories. The first category is about sensing opportunities and threats, the second about seizing these opportunities and the third about maintaining competitiveness by reconfiguring and enhancing the organization's assets. Traditional capabilities, such as tangibles, cost and quality control and maintenance of incentive alignment is however highlighted as still being necessary, but not sufficient for sustainable businesses where changing customer needs must be met (Teece, 2007).

4.1.1 *Vision and Strategy – Contribution to Analysis Model*

To summarize, the strategic factors recognized as important in earlier literature within the strategic level *The Vision and Strategy*, are *Clear and Coherent Strategy*, and *Agile and Dynamic Strategy* and *Dynamic Capabilities*. The elements predominately discussed within those areas are summarized are visualized in Figure 9 below.

The Vision and Strategy		
Clear and Coherent Strategy	**Agile and Dynamic Strategy**	**Dynamic Capabilities**
• Focusing activities and resources • Guiding big and small decisions	• Iterative improvements	• Sensing, seizing and enhancing resources

Figure 9. Elements predominately discussed within the strategic factors Dynamic Capabilities, Clear and Coherent Strategy, and Agile and Dynamic Strategy.

It can be concluded that existing literature emphasizes the importance of strategic clarity and coherence in organizations digital transformation efforts, as well as strategic agility, which to a large extent is facilitated by dynamic capabilities. Overall, it is clear that established firms, who usually possess rather rigid strategies (Massa & Tucci, 2014), have to commit to the establishment of a new dynamic digital strategy and the implications that it brings to the organization. Digital transformation strategies must seek to coordinate and prioritize many independent aspects of digital transformation and should also be aligned with other business strategies (Matt, et al., 2015). According to Andersson, et al. (2018), different organizational challenges during digital transformation is leadership; new skills, resources, and internal capabilities; customer orientation

and customer-oriented work practices; internal organizational structure and responsibilities; internal processes for continuous experimentation and user orientation; internal cultural challenges; and change management challenges.

In the following segments, additional strategic factors significantly important to digital business transformation are outlined and further elaborated. It should be noted that in each and one of these factors, a common vision or strategy is described as an over-arching important aspect. Thus, the digital vision or strategy could be considered as an important connector or umbrella to all of the following strategic aspects discussed.

4.2 The Set-up

For the vision and the strategy to be realized, the organization needs a set-up that supports the way towards the future visualized state. Within this strategic level, three factors were particularly identified in literature: *Transformation Approach*, *Organizational Structure*, and *Partnership*.

4.2.1 *Transformation Approach*

As discussed in Section 3, the business model can be innovated to different degrees following different paths. Whatever path or degree of BMI that is chosen or emerging in a firm, there is always risk connected to it. This because transformation of a value proposition, and how value is delivered and captured, requires investments in multiple business functions without knowing the future outcome of the change (Sundaram, et al., 2020). Moreover, BMI often require system-wide business architecture modification, putting the whole business system at stake (Massa & Tucci, 2014). Consequently, knowing when to adopt a new business model or reconfigure the old one, as well as to what degree, is both a great and crucial challenge for executives (Massa & Tucci, 2014). In this sense, the financial aspect of digital transformation could be considered both a driver and an obstacle. On the one hand, enhanced competitive advantage due to higher efficiency and reduced cost, as well as increased value creation and revenues are drivers for digital transformation (Matt, et al., 2015; Schwertner, 2017; Warner & Wäger, 2019). On the other hand, financing ability and difficulties in capturing value for new digital value propositions as customers' expectations and demand for free product and services could act as a holdback (Matt, et al., 2015; Warner & Wäger, 2019). A careful construction of a new business model clearly describing how and why the business network interacts with the company and how the company captures value in this process is vital to increase the chances of a new business model or a business model reconfiguration to be and remain profitable (Teece & Linden, 2017). Investment in the right areas in accordance with existing capabilities and strategic assets is central to realize a digital vision (Westerman, et al., 2012).

Bughin, et al. (2018) found that very few of the companies they had surveyed thought that their business models will remain economically viable if their industry keeps digitizing in the same speed as it does today. The authors partly connect the finding with the disruptive technological development in the environment and its incompatibility with traditional economic models. Schallmo, et al. (2017) propose a digital roadmap – a five-phase approach on how to successfully realize a digital transformation of a business model, thus, avoiding risks associated with BMI. The first phase in the roadmap is to understand the *Digital Reality* of the current business model together with digital requirements of stakeholders and customers. Based on this the second phase,

the *Digital Ambition*, can be defined specifying objectives related to time, finances, space, and quality specific business model dimension. In the third phase, best practices, enablers, and options for fulfilling the digital ambition are established, called the *Digital Potential* phase. Next, in the fourth *Digital Fit* phase, the design of the new business model is evaluated in regard to the existing business model, customer requirements and business objectives. Lastly, the *Digital Implementation* is fulfilled in the fifth phase. In this phase the digital business model is finalized and implemented, including finalizing the design of a digital customer experience, value-network, and integration of partners. In the digital roadmap provided by Schallmo, et al. (2017) it is evident that a great emphasis is put on the connection between business strategic objectives and the business model as well as the alignment between those two, as stressed by Casadesus-Masanell & Ricart (2010).

A business model needs to have the right balance between customer value creation, value delivery and capturing of value (Teece & Linden, 2017). This means that if a new digital value proposition idea is to endure, it needs to be both financially self-sustained, directly or indirectly, as well as it needs to be supported by the overall value capturing strategy of the company (Teece & Linden, 2017). However, as previously mentioned, transformation should happen rather sooner than later, questioning this meticulous and time-consuming evaluation and management of a new idea such as proposed in the careful management of digital initiatives by Westerman, et al. (2012) or the digital roadmap by Schallmo, et al. (2017). Moreover, as stated, it may not be possible to figure out the possible final value creating and capturing of a reconfiguration due the complex linking and causal relationships between different business aspects. Indeed, it is a challenge for organizations to meet the need of quick progress in a rapidly changing environment, which, in addition, lacks clarity (Sailer, et al., 2019).

As previously mentioned, digital transformations are unlike traditional transformations constantly subject to change since the target state is continuously evolving when technology, processes, and roles changes (Sailer, et al., 2019). These circumstances call for a different mind-set in the organization, often called "fail fast, fail often" mentality, which is quite the opposite to the 100% quality approach of traditional organizations (Sailer, et al., 2019). A more agile strategy and mind-set enables for organizations to grasp first-mover opportunities (Bughin, et al., 2019). This new mentality encourages risk taking, fast decisions, and experimentation (Kane, et al., 2017). The approach aligns well with the *Digital Fashionista* mentioned by Westerman, et al. (2012), prioritizing digital initiatives as a way of grasping multiple opportunities emerging.

Massa & Tucci (2014, p. 428) describe experimentation as:

> *"A process of discovery aimed at gaining cumulative learning from (perhaps) a series of failures before discovering a viable alternative to the business model."*

The authors further describe experimentation in itself and assigning authority for experimentation in the organization as crucial for overcoming barriers of inertia in incumbent firms. Bughin, et al. (2018) agree, by stating that incumbent firms have to overcome the risk-avert mind-sets of operational silos, and instead move towards becoming more adaptive by trying initial ideas in pilots and utilizing minimum viable products (MVPs) instead of too polished, theoretical business cases. Sailer, et al. (2019) further add to the importance of learning from experimenting and point out that pilot tests should be carried out as early as possible. To gain the most knowledge and build

momentum, organizations should carry out short but intense experiments, lasting eight to ten weeks (Kane, et al., 2017).

However, it is not only about experimenting with technology, even though it is important. What distinguishes successful digital organizations is their ability to ramp up the digital experiments (Kane, et al., 2017). It is indeed crucial to have a "fail fast" mentality, but when experiments turn out successful, deciding what to do with them is the biggest challenge (Kane, et al., 2017). Kane, et al. (2017) separate experimental efforts with enterprise-wide efforts and conclude that in the most digitally mature companies, more experimental efforts lead to enterprise-wide efforts than in early-stage companies, which emphasize the importance of the ramping up ability.

MVPs are used for learning purposes together with customers, partners, or regulators and are widely used to validate or invalidate assumptions (Blank & Euchner, 2018). It is utilized to develop the core product and to reduce non-value-adding development and to get the product out to a target group as quickly as possible, as well as to get an increased knowledge of customers and their needs (Blank & Dorf, 2020).

Dreischmeier, et al. (2020) point out some valuable insights for incumbent firms when launching MVPs. First, before releasing the MVP, incumbent firms should communicate with customers and validate their desirability for the concept. When the MVP is released, it is important to observe how the customers behave and react to it, and not only ask what they think, e.g., through focus groups and quantitative surveys. The authors state that asking customers what they think is not a reliable or fast enough way to validate the customer appeal of the offering. The first MVP can according to Dreischmeier, et al. (2020) be very simple, for example a presentation, social-media ad, or mock-up, and should address important aspects for the customer. In fact, it is recognized by the authors that a common pitfall is to focus too much on technical feasibility rather than emotional connection with customers, why a minimum lovable product might be a better term to use. Lastly, the authors find that it is advantageous for incumbent firms to not wait until market launch to drive excitement and interest from the product, but to utilize databases of people involved in early testing to create waiting lists or customer beta programs for rollout before the MVP launch.

To not constrain agile teams working on MVPs, planning cycles should be accelerated so that resources can be reallocated more quickly (Comella-Dorda, et al., 2019). Without this, the teams may have to wait until the next annual cycle before funding can be provided, which creates a risk of launching too late and letting competitors run ahead (Comella-Dorda, et al., 2019).

To conclude, investments in new business models and business model reconfigurations must align with current capabilities and strategic assets to ensure viability. This is because investments of this scale affect large parts of organizations and pose great risks if not successful. However, business model experimentation is still crucial in the competitive game as changes occur rapidly. Thus, taking it all together, businesses might need to search for the perfectly balanced equilibrium between business model viability and business model experimentation, in order to achieve a successful digital transformation.

4.2.2 *Organizational Structure*

A suiting organizational structure is pointed out by several authors as a key enabler of business model innovation and change efforts, as well as more specifically of digital transformation (e.g.,

Bucherer, et al., 2012; Hess, et al., 2016; Tavares Sousa-Zomer & Neely, 2020; Tushman, et al., 1986; Warner & Wäger, 2019). The organizational structure provides the context for interactions within an organization, which can either enable or hinder individual and collective action (Tavares Sousa-Zomer & Neely, 2020). Because digital transformation is often related to business model innovation, which is not a one-time project, it should be well anchored in the organizational structure (Bucherer, et al., 2012). As strategy changes, so too should the organizational structure to ensure that reallocation of efforts takes place as well as to overcome business-as-usual behavior (Tushman, et al., 1986).

Organizational structures characterized by traditional control systems, command-and-control working environments and clear management hierarchies can increase efficiency in organizations, but they can also hamper rapid responses to customer demands, collaborative work, and agility (Kane, et al., 2017; Tavares Sousa-Zomer & Neely, 2020). An agile structure is what organizations undergoing digital transformation need in order to succeed with and sustain the transformation in a fast-changing environment (Kane, et al., 2017).

A crucial factor for companies that are successful in digital environments is the replacement of functional silos with cross-functional teams and collaboration, since today, processes are becoming more and more integrated which makes it hard to consider functions in isolation (Kane, et al., 2017). Moreover, as a business tends to reach cross boundary, external organizational integration becomes vital (Andersson, et al., 2018). Changes in internal and external cooperation might require development of digital platforms to increase the connectivity between actors (Andersson, et al., 2018). What is also necessary is implementation of a wider set of roles, such as several different digital product owners and agile implementation guidelines (Bughin, et al., 2018).

Decentralization is another widely brought up enabler of dynamic strategies. It is important in sustaining dynamic capabilities, decreasing commitment to the status quo and decreasing the risk of becoming surprised by market and technological development (Teece, 2007). With a hierarchical structure the problem of information decay and slow decision making occurs, which happens when information must move up and down the hierarchical levels for approvals before decisions can be made (Teece, 2007). Decentralization instead brings management closer to the market, customers and new technologies and enables more agile decision making (Teece, 2007). Sailer, et al. (2019) agree with the advantages of decentralization and suggests organizing teams in flat hierarchies to facilitate more rapid decision making, as well as ensuring that employees closest to the information have the authority to make decisions. On the contrary, Andersson, et al. (2018) found that decentralization could pose challenges to digital transformation as it entails larger investment cost across spread business segments and complex knowledge sharing regarding both customer behavior and digital solutions to bring about new successful customer offerings.

A common way to decentralize is to divide the organization into separate business units. As Teece (2007) emphasizes, the old and the new inside the enterprise must complement, and if it does not, some sort of separate structure must be deployed to not risk losing efficiency and give rise to conflicts. Business units are widely recognized in literature as appropriate when dealing with dual business models (Andersson, et al., 2018; Bucherer, et al., 2012; Lei & Slocum, 2005; Markides, 2013; Teece, 2007). Incumbent firms that take on digital transformation stand before the dual business model challenge to deal with the traditional, existing strategy which often is more rigid, at the same time as adopting a new, more flexible digital strategy. As Markides (2013) puts it,

there are often many incompatibilities between old and new business models, and if trying to compete in both positions at the same time, the organization risks destroying existing business, confusing customers as well as stakeholders and own managers. To separate the business models into physically separate organizations (i.e., *spatial separation*) is a solution that helps established firms gain foothold in, and exploit organizational flexibility and entrepreneurial opportunities in more rapid-changing and technological markets, at the same time as exploiting existing businesses (Markides, 2013).

Lei & Slocum (2005) highlight the need for organizations belonging to the industry ecosystem *Creative Destruction* to create a new business unit responsible for learning and experimenting with emerging technologies. Managers in these units are recommended to report directly to the CEO instead of to existing lines of businesses, since it allows them to develop their own innovative culture (Lei & Slocum, 2005). Otherwise, it will according to the authors be harder to break loose from the core rigidities imposed on them by managers who are busy with thinking about the established offerings. This is particularly true for incumbent firms that have history of competing in more traditional ways (Teece & Linden, 2017). As of this, such a re-organization and separation between business models could be required in order to manage the digital transformation and explore new digital opportunities (Andersson, et al., 2018).

What however is important when exploring new digital opportunities while still promoting the existing business and operations, is to exploit synergies between the business models (Andersson, et al., 2018; Markides, 2013). According to Markides (2013), this creates a need for several integrating mechanisms between the two physically distant business units, which creates a so-called ambidextrous organization. Examples of such mechanisms are having a common supervising manager or creating incentives that encourages cooperation. The key to a good balance of business models is to create enough distance between them to not destroy each other, at the same time as keeping them close enough to transfer synergies (Markides, 2013). The organization must create the best context for this balance to take place.

To summarize, based on the above insights, it is of great importance for organizations undergoing digital transformation to make sure that the organizational structure aligns with and supports the transformational efforts. Abandoning the traditional hierarchical structure in favor of a more flexible, cross-functional structure with decentralization as a core, seems to be a success factor. However, organizations also have to consider the best context for their own specific situation and make sure that important synergies are not hampered.

4.2.3 *Partnership*

As industry boundaries are becoming more and more vague, organizational strategies need to take on a wider lens to not miss out on important opportunities (Bughin, et al., 2018). What has historically been referred to as a competitor might today be a partner, or even both (Bughin, et al., 2018). Teece (2007) advocates that "open innovation" is crucial for success, where companies look for integration with customers, suppliers and complementors in a more broad and external way than historically. Today it is more about the strongest business ecosystem rather than the strongest company, meaning that customer value driven form a firm's products or services in most cases increases when combined with products or services of other firms (Teece & Linden, 2017).

The results of exploration are also proved to be best when spanning organizational boundaries (Teece, 2007).

Companies can utilize different types of partnership strategies depending on the goal and the synergies wished for (Dyer & Kale, 2004). Four different kinds of partnership strategies are described by BIDC (2017) which is mergers, acquisitions, joint ventures, and strategic alliances. Mergers and acquisitions (M&A's) are two common partnership strategies. According to the authors, two firms can merge in the sense that they decide to go forward as a single new company, without being separately owned and operated. Instead, the authors state that when one company purchases and takes over another company, it is referred to as an acquisition. Joint Ventures (JV's) is another strategy described, which is attractive for companies possessing complementary activities or skills, to open up for new markets or improve existing. A JV is legally binding, and the partnered companies make up a new entity with a board, officer, and an executive team (BIDC, 2017). Lastly, companies can engage in strategic alliances, which is a non-legal but contractual partnership strategy, where companies can share their core strengths (BIDC, 2017).

According to Massa & Tucci (2014), in established firms as compared to younger firms, business model innovation relying on external collaboration or partnerships is especially effective. Sometimes, as start-ups quickly create strong market positions, incumbent firms might even have no choice but to collaborate (Andersson, et al., 2018). Dyer & Kale (2004) highlight that advantageous synergies can be achieved when teaming up with external parties by alliances or acquisitions, because firms can share both human resources (e.g., skills), intangibles (e.g., brand names), technological resources (e.g., patents), physical resources (e.g., plants) and financial resources. However, the authors also make it clear that it is of importance to carefully consider what partnership strategy is the most suitable before making any rushed decisions.

For *concept learners* (organizations active in a mature industry characterized by a high degree of technological change), joint ventures and strategic alliances especially focused on the possession of related technologies are important (Lei & Slocum, 2005). Lei & Slocum (2005) describe how these kinds of collaborations reduces risks by sharing it with other parties, but also gives valuable insights into potential competitors strategic direction. Additionally, Tavares Sousa-Zomer & Neely (2020) highlight that the acquisition of complementary knowledge makes strategic transformations more likely to succeed, and propose that investments and technology-based acquisitions can improve an organization's digital intensity, which in turn helps sustaining digital transformation initiatives.

Bughin, et al. (2019) find that what differentiates the most successful companies from others is that they spend more on digital mergers and acquisitions, and that they do not only invest in acquiring digital businesses but also in new capabilities. Another success factor is found to be the creation of joint digital ecosystems which enables collaboration and co-creation with new partners (Warner & Wäger, 2019), where digital collaboration platforms which are described further below are of special help. Organizations must get rid of any preconceptions against externally gained technologies, and instead work on becoming better at absorbing new capacity through learning activities (Teece, 2007). To be able to keep learning and upgrading, Teece (2007) means that alliances could be a necessity.

To conclude, many authors emphasize the importance of collaboration and partnering with external entities, in efforts of gaining new valuable skills and resources to enable digital transformation. The partnership strategies can differ depending on the organization and its specific context, but what seems as a common denominator for successful digital transformation is to consider partnering as a strategic action.

4.2.4 *The Set-up – Contribution to Analysis Model*

To summarize, the strategic factors recognized as important in earlier literature within the strategic level *The set-up*, are *Transformation Approach*, *Organizational Structure*, and *Partnership*. The elements predominately discussed within those areas are summarized in Figure 10 below.

Earlier literature emphasized the importance of carefully evaluating and considering the transformation of the business model, to avoid the risk of investing in changes affecting a range of business functions that in the end does not lead to wanted outcomes. At the same time, other literature suggests a more risk-taking approach to succeed with the digital transformation efforts, where experimentation, pilots and MVP's are in the center. It can be concluded that organizations need to keep both approaches in mind when transforming their traditional business model. Altogether, the *transformation approach* seems to be a key strategic factor for organizations to consider in their digital business transformation efforts.

The literature study also outlined *organizational structure* as a key strategic factor to consider when digitally transforming. The emphasis was mainly on the decentralization of the organization, to enable a more agile strategy and get closer to the customer and market. However, to not loose important synergies when decentralizing the organization, the literature suggested an ambidextrous organization. Lastly, the literature emphasized cross-functionality and collaboration as key enablers of a successful digital transformation. This is to encourage learning and knowledge sharing, which is both crucial aspects of a digital transformation.

The third strategic factor widely mentioned in the digital transformation literature is *partnership*. Partnership was discussed in several forms, such as M&A, JV, and strategic alliances. The preferable form of partnering differs depending on the specific organization and its context, but what was clear from the literature was that partnering, in any form, is an integral aspect to succeed with the digital transformation efforts. Today, it is about creating a joint digital ecosystem where co-creation and collaboration between parties are encouraged. Partnering, according to earlier literature, helps organizations to reduce risks and acquire necessary new skills and technology for the digital transformation.

The Set-up		
Transformation Approach	**Organizational Structure**	**Partnership**
• BM viability • BM experimentation	• Agile, decentralized structure • Cross-functionality and collaboration • Ambidextrous organization (BM synergies)	• M&A, JV and alliances • Joint digital ecosystems (Co-creation and collaboration) • Risk reduction • Acquiring skills and technology

Figure 10. Elements predominately discussed within the strategic factors Transformation Approach, Organizational structure, and Partnership.

4.3 The Transformation Process

An appropriate organizational culture where digitalization is accepted is an enabler of digital transformation (Sailer, et al., 2019). The culture should promote continuous improvement, information sharing (Sailer, et al., 2019) and collaboration (Kane, et al., 2017), and consist of a "fail-fast mentality" (Bughin, et al., 2018; Sailer, et al., 2019) as well as a risk-taking attitude (Kane, et al., 2017). A culture consisting of these cornerstones will help facilitate the necessary agility in the organization. As people, and not machines, build up the business (Sailer, et al., 2019), cultivating a suitable culture are of utmost importance in the digital transformation journey for an actual transformation to eventuate. As Warner & Wäger (2019) find, digital transformation begins with renewal of the business model, which in turn leads to wider changes in the organizational collaborative approach. Only when these changes are accurately executed, the organizational culture will change (Warner & Wäger, 2019). To achieve this deeper cultural change which enables a sustainable digital transformation, the strategic factors of this segment must first be addressed properly (Kane, et al., 2017; Morakanyane, et al., 2020; Vey, et al., 2017; Pappas, et al., 2018; Westerman, et al., 2012).

To succeed with the digital transformation and facilitate the transformation process, organizations need to consider several strategic factors. Particularly four strategic factors for the transformation process were identified in literature: *Leadership, Control System, Knowledge and Skills Enhancement,* and *Technology Enhancement*.

4.3.1 *Leadership*

Leadership is recognized in earlier change management literature, and more specifically digital transformation literature, to be a significant factor for successful change implementation (Markides, 2013; Massa & Tucci, 2014; Morakanyane, et al., 2020; Warner & Wäger, 2019). According to Andersson, et al. (2018), a successful digital transformation requires a dedicated leader and a central team driving the transformation. Many companies still use existing executive roles, such as chief information officers (CIO), to drive digital change, while others appoint chief digital officers (CDO) (Tavares Sousa-Zomer & Neely, 2020). Even if there might be no senior manager role preferred above the other when it comes to leading digital transformation, sufficient transformational experience and individual strategic incentives alignment is particularly important (Matt, et al., 2015). Independent of title, leaders play an important role in transformation and are responsible for the creation and cultivation of a culture enabling digital transformation to

successfully take place (Kane, et al., 2017; Morakanyane, et al., 2020). To achieve this, leaders must be fit to drive the transformation and must go beyond just commanding the organization to become digital (Kane, et al., 2017).

Leaders must provide clarity, connection, and accountability to employees (Sailer, et al., 2019) as well as transparency, empathy, cooperativeness, and proactivity (Sailer, et al., 2019). Leaders must also possess digital competence, inspirational abilities and change management skills (Tavares Sousa-Zomer & Neely, 2020). Further, agile organizations call for leaders who do not only clearly communicate strategic priorities throughout the organization, but who also empowers employees to do what they need in order to meet the priorities (Comella-Dorda, et al., 2019). This means that leaders should stop telling employees what to do and instead start allowing them to make decisions on their own as well as supporting them with required resources and removal of institutional obstacles that stand in the way of progress (Comella-Dorda, et al., 2019). Andersson, et al. (2018) state that this could be achieved by creating more collaborative environments facilitated by digital collaboration tools.

Further, leaders must understand digital trends, which Kane, et al. (2017) bring up as one of the largest criticisms of managers, next to a lack of strategic direction. The authors continue with recognizing the risk of having too many competing priorities, why executives must integrate the digital business strategy with the core business strategy of the company and at the same time stress the importance of the digital transformation. To enable more agile business models in established firms, Massa & Tucci (2014) stress the need for leadership unity to achieve mutual engagement and commitment in taking the risks necessary to innovate the business model.

It is not an easy task for an executive to drive digital transformation efforts in an incumbent firm permeated by path dependence, bias, and inertia. Companies associated with a large extent of historical heritage are according to Tushman, et al. (1986) in need of frame breaking change. The authors argue that this kind of change calls for new executives, often brought in from outside the organization, who have the power to create commitment to the new mission, energy to overcome inertia as well as freedom from prior obligations. The external executive will more likely possess both the right drive and the right skill set for the transformation and bring in substantial and symbolic effects on the organization (Tushman, et al., 1986).

Another role that can have significant impact in the transformation process is different kinds of promoters (Bucherer, et al., 2012; Teece, 2007). Promoters (i.e., visionaries) are responsible for overcoming resistance within the organization, transforming internal views, and facilitating necessary investments as some level of managerial consensus is needed to make investment decisions (Teece, 2007). Bucherer, et al. (2012) describe two types of promoters, power promoters and specialist promoters. Power promoters are responsible for overcoming resistances originating from lack of willingness, while specialist promoters are responsible for overcoming resistances originating from lack of knowledge (Bucherer, et al., 2012). Sailer, et al. (2019) stress the importance of seizing and recognizing employees who are open to change and who are encouraging, since they can act as role models towards their colleagues in the change process and take on the coaching role to achieve a greater buy-in throughout the company. Even though the term “promoter” is not specifically used, the role of these individuals is similar in overcoming resistance.

As a conclusion, leadership seem to play an imperative role in achieving successful digital transformation. Support from a skilled and inspirational leader are of value to help navigate the organization through its digital transformation efforts and overcome organizational barriers connected with any type of change. Focusing on having the right management in place should therefore be prioritized in order to increase the chances of success.

4.3.2 *Control System*

Organizations must realize the importance of appropriate incentive systems that supports the new digital strategy. As Teece (2007) mentions, a good incentive design is critical to achieve good business performance and sustain dynamic capabilities. Sailer, et al. (2019) agree and state that setting the right incentives is vital to establish a learning organization which is eager to discover new innovative topics and tools. Quantifying and monitoring digital progresses builds and sustains a momentum for digital change and also alters an encouraging culture towards digital transformation (Westerman, et al., 2012). In line with this, Malmi & Brown (2008) stress the importance of viewing the management control system as a package due to the fact that different parts do not act in isolation. Additionally, they state, the influence of different control mechanisms is complex and need to be considered in a more holistic way. They argue that the management control system package generally consists of five different controls: (1) planning – long range planning, and action planning, (2) cybernetic – budgets, financial measurement systems, non-financial measurements systems, and hybrid measurement system, (3) reward and compensation, (4) administrative – governance structure, organization structure, and policies and procedures, (5) and cultural controls – clans, values, and symbols. Different parts of the package form the actual management of the behavior of employees in an organization (Malmi & Brown, 2008). It is important to understand the influence of the control system package to make sure it is consistent with the organizational objectives and strategy (Malmi & Brown, 2008).

As already discussed in Segment 4.1, it is widely emphasized by authors that incumbent firms undergoing digital transformation benefit from more agile strategies. Comella-Dorda, et al. (2019) highlight that agile planning in organizations should consist of both agile and stable elements. One stability promoting element is for organizations to focus on a small, well-defined set of strategic priorities (ten or less), to avoid the dispersion of commitments resulting in insignificant performance gains in any single area (Comella-Dorda, et al., 2019). The strategic priorities should according to the authors guide planning and budgeting efforts and be updated on a quarterly basis to fit changing customer and market trends. Additionally, Comella-Dorda, et al. (2019) argue that the priorities should be well communicated to every level of the organization, so all employees work toward the same high-level goals. Comella-Dorda, et al. (2019) point out that agile organizations are in need of more detailed strategic priorities such as specific goals that can guide daily decisions. To achieve this, the authors suggest using objectives and key results (OKRs), where objectives is a clearly defined qualitative change and key result is a specific and usually quantitative performance target that must be met. Employees should according to the authors advantageously also be involved in the creation of OKRs, such as suggesting changes and what budget will be needed to meet them.

Another suggested method for working with high-level and low-level objectives, as well as integrating or connecting those to each other, are balanced scorecards (Kaplan & Norton, 1996). The authors describe that the concept of balanced scorecards aim to increase the focus towards

long-term goals by connecting traditional financial measures with measures of customer relationship, internal processes and organizational learning and growth. This subsequently creates a coordinated control system that connects the long-term business strategies with short-term actions (Kaplan & Norton, 1996). Previously, balanced scorecards have been met with criticism due to the fact that the concept is complex and time consuming (Petri & Catasús, 2013). However, with increased availability of data and digitalization, the concept is expected to gain convenience (Petri & Catasús, 2013).

To not suffocate experimentation, multiple times mentioned as important during digital transformation, Comella-Dorda et al. (2019) stress the importance of giving teams and individuals some freedom apart from the strategic goals to experiment and explore. Hope & Fraser (2003) drastically argue that by abolishing budgets, organizations can achieve a high responsiveness to the market. They state that budgets are rigorous systems which are both time consuming and holdbacks for true vision accomplishment as fulfilling the budget sometimes is seen as more important than doing the right thing. Instead, they propose result oriented key indicators, continuous planning (instead of periodical budgeting), challenging peer-to-peer comparison and rewarding of relative performance.

Incumbent firms that undergo digital transformation must redefine how they measure success (Bughin, et al., 2019). Bughin, et al. (2019) argue that too many companies still use the same metrics they have used for a long time, and concludes that these metrics are developed for a more rigid strategy and business, which makes them useless today. The authors provide an example of such an old metric as "market share" and point out that today's markets are vaguely defined because industry boundaries are constantly shifting, which makes it an irrelevant metric to use. More suitable metrics are suggested as related to first-to-market with innovations, productivity, or degree of ecosystem partnerships. Sailer, et al. (2019) agree by noting that not only classic business KPIs (key performance indicators) should be considered but also agile KPIs.

To conclude, different aspects of control systems should be considered as a package since different parts interplay and affect each other. The set-up of control system is determinative for the organizational culture, which is crucial for the transformation process. Moreover, control systems might have to be modified in order to drive digital transformation effectively in the right direction. Additionally, directed objective focus, agility, experimentation, and high-level and low-level goals are pointed out as important aspects to consider. How corporates alter and organize their control systems to drive digital transformation is thus an interesting aspect to consider.

4.3.3 *Knowledge and Skills Enhancement*

The foundation for a successful digital transformation is the core of skills and capabilities (Westerman, et al., 2012). Incumbent firms face challenges in developing new capabilities at the same time as keeping existing product innovation practices intact (Svahn, et al., 2017). Tensions are created between employees possessing existing core capabilities and employees eager to bring about change (Svahn, et al., 2017). Successful companies in mature markets characterized by high technological innovation (i.e., concept learners) need to have a capability of actively seeking new knowledge about emerging innovations to redefine the core business, at the same time as being able to unlearn existing competencies that might stand in the way for further development (Lei & Slocum, 2005). Skills particularly desired when digitizing includes social and mobile technology,

artificial intelligence, big data analytics, internet of things, networking and more (Andersson, et al., 2018). Other important skills are analytic skills, design skills and technology skills (Bughin, et al., 2018). Also, Teece (2007) discuss the critical skill of procuring technology externally (as a part of the dynamic capability: sensing) and then developing it internally, as well as the skill of integrating and combining resources (as a part of the dynamic capability: reconfiguring).

Incumbent firms must learn how to best reposition themselves beyond their focal industry or market (Lei & Slocum, 2005) and how to acquire the new skills necessary to drive and sustain the digital transformation. Getting and investing in the right digital skills and talent are crucial, which is emphasized by several authors (e.g., Bughin, et al., 2018; Bughin, et al., 2019; Hess, et al., 2016; Kane, et al., 2017; Sailer, et al., 2019; Tavares Sousa-Zomer & Neely, 2020; Teece, 2007). Skills and knowledge sharing in organizations also supports the creation of an innovative culture, which is a supporting factor of the digital transformation (Vey, et al., 2017). Digital talent is however limited since the pace of digital transformations is faster than the supply of people competent enough to deliver it (Andersson, et al., 2018; Bughin, et al., 2019). Attracting the right talent to execute the transformation or fill novel roles is one of the top challenges described by managers (Sailer, et al., 2019). Because of this, organizations should invest heavily in talent and capabilities as early as possible in the transformation journey (Bughin, et al., 2019).

Not only is it of importance to attract new digital talent into the organization, but it is also important to spread the talent throughout the organization and utilize it carefully. Employees should preferably be reallocated across the organization frequently to move resources to the most valuable digital efforts and spread knowledge, which is one way of deploying digital capabilities in a more agile way (Bughin, et al., 2019). Hartl (2019) describes the importance of digital skills to achieve digital transformation in organizations, and highlights knowledge sharing as an imperative connected to this. Hartl (2019) gives examples of knowledge sharing initiatives as utilizing job-rotation or “lunch-dates” to share knowledge, as well as other networking events. Employees with broad experience should also be used as translators in the organization which helps in creating buy-in from colleagues (i.e., creating commitment to the mission or goals among colleagues) (Bughin, et al., 2018).

Kane, et al. (2017) describe the significance of developing and maintaining talent when it has been acquired. Organizations need to go beyond training and ensure an environment where employees are encouraged to keep learning and gaining experiences, because environments that stimulate learning have a greater possibility to also retain the talent and not risk losing employees to competitors that provides the wished learning opportunities (Kane, et al., 2017). To accomplish this, organizations can for example encourage participation in platforms and communities for sharing of ideas and learning of new skills (Kane, et al., 2017).

Undergoing a digital transformation comes with many challenges, and securing the right skills and competencies of the employees and management seem to be an important aspect of overcoming these challenges. Incumbent firms therefore have to realize that their traditional skill set might need to be updated when striving for a digital transformation. Additionally, they have to start prioritizing this sooner rather than later due to the deficient availability of these skills. One way to do this is to make an extra effort to create a context for skilled employees to want to stay, and to create a context that attracts new competent persons to the organization.

4.3.4 *Technology Enhancement*

Several authors highlight the importance of different technological factors, especially data analytics and digital platforms, when undergoing digital transformation (Andersson, et al., 2018; Hossain & Lassen, 2017; Loonam, et al., 2018; Pappas, et al., 2018; Sebastian, et al., 2017). Organizations, and especially incumbent firms, need to understand the value and competitiveness that these can bring, and start address the managerial challenges that comes with the implementation.

The first technological factor widely mentioned is data analytics from big data systems, which can be used by companies to gain insights from data (Loonam, et al., 2018). These insights can act as a major competitive advantage for companies, if managing it in the right way. Big data is described by Pappas, et al. (2018, p. 480) as:

> *"[…] large volumes of data generated and made available online and in digital media ecosystems."*

It can be generated from multiple sources, for example transactions, social-media posts or sensors installed in objects, and allows prediction and explanation of events and support of artificial intelligence (Pappas, et al., 2018). Big data has even supported the creation of completely new business models that is based on automated data analytics decision making (Pappas, et al., 2018; Roedder, et al., 2016). However, the emergence of big data analytics not only supports completely new business models, but it also supports the creation of new services to existing customers and improved internal processes for greater production efficiency, automation and better decision making (Roedder, et al., 2016).

Despite the clear advantages that can be gained by big data analytics, several challenges are connected with it. Today, one of the biggest challenges for organizations that want to digitally transform is to understand how, and even if, the big data analysis can create value for customers and partners, and additionally, what the organizations' role and business model should be in this regard (Andersson, et al., 2018). Another key question for organizations to answer is how they can secure the necessary capabilities to be able to succeed with big data analytics (Pappas, et al., 2018). Big data analytic capabilities are according to Pappas, et al. (2018, p. 483) defined as:

> *"[…] the ability of a data actor to effectively deploy technology and talent to capture, store and analyze data, towards value creation, business change, and societal change."*

The authors name a few as achieving a data driven culture, organizational learning, investment in suitable technology and possession of technical and managerial skills, some of which already found as key enabling digital transformation factors in Segment 4.3.3. An example of an aspect to address related to big data analytics capabilities, is whether to build the capabilities internally, for example by assigning specific business units for the cause, or if outsourcing at least parts of the big data operations to partners is a more appropriate approach (Andersson, et al., 2018). Lastly, an important challenge to address for organizations engaging in big data analytics is how to secure an appropriate data storage and management, since data protection and privacy are important issues (Roedder, et al., 2016). An adequate choice of the stored data, anonymization and other data security techniques are according to Roedder, et al. (2016) therefore of considerable value.

The use of digital platforms is the second technological factor which is commonly mentioned as an important area for management to address in a digital transformation. From a business enterprise perspective, digital platforms can be described as a place enabling exchange of information, goods, and services between producers, consumers, and other platform users (Watts, 2020). From a more technological perspective, digital platforms can be described as based on software with extensible codebases for core functionality, and which can be complemented with modular services, i.e., software subsystems that can extend the platform functionality (Hess, et al., 2016). Additionally, Sebastian, et al. (2017, p. 203) define the digital services platform as:

> *"[…] the technology and business capabilities that facilitate rapid development and implementation of digital innovations."*

There exists a broad variety of digital platforms for different purposes, but what is common is that digital platforms, together with their assisting tools and features, offer valuable opportunities for organizations today thanks to creation of new possibilities for external collaboration and knowledge sharing (Hossain & Lassen, 2017). According to Andersson, et al. (2018), platform leaders, their competitors, suppliers, complementors and users interact both competitively and cooperatively. A distinguishing factor for organizations using digital platforms is an increased level of innovation and greater opportunities to solve problems that cannot be solved internally (Hossain & Lassen, 2017). Sebastian, et al. (2017) further state that it is from the digital services platform that the organization gets its speed and flexibility that is an integral part of digital innovation. The authors also highlight that it is possible to build digital functionality in organizations without the existence of a digital services platform, but that without the platform, the organization risks ending up with a range of individual services that create new risks and impede reuse.

Apart from recognizing and managing technologies such as big data and platforms, integration of technologies should be considered. Morakanyane, et al. (2020) highlight that companies that are digitally mature focus on the integration of digital technologies, as opposed to less mature companies that focus on solving problems with individual technologies. Additionally, Loonam, et al., (2018) stress the importance of organizations to integrate internal organizational systems, such as enterprise resource planning systems, customer relationship management systems and supply chain management, with new technologies like the above mentioned. By doing this, the authors highlight that customer preferences and requirements (customer data) can inform all activities in the value chain. Exclusively, it comes down to bringing information into a single place to see it all at once (Loonam, et al., 2018).

Based on the above insights, it can be concluded that both data analytics and digital platforms can provide great value in digital transformations. However, it is important for management to learn how to deal with these factors and the challenges that comes with them in an appropriate way for the organizations own needs and circumstances. Additionally, organizations must shift focus from the implementation of individual technologies, towards the integration of the different technologies.

4.3.5 *The Transformation Process – Contribution to Analysis Model*

To summarize, the strategic factors recognized as important in earlier literature within the strategic level *The Transformation Process* are *Leadership, Control System, Knowledge and Skills*

Enhancement and *Technology Enhancement*. The elements predominately discussed within those strategic factors are summarized in Figure 11 below. Note that the four strategic factors are of equal importance and one being presented at the top of another does not imply any relationship or hierarchy between the strategic factors as such. The same logic applies throughout this report for this part of the model.

Leadership was the first factor widely mentioned in literature as important for a successful digital business transformation. Leadership should according to earlier literature go beyond just commanding and instead focus on providing strategic direction, communicating strategic priorities as well as empowering and supporting employees in their daily work. Leadership also plays an important role in inspiring and motivating employees towards the necessary changes, and in this sense, it can be advantageous to assign a *Power Promoter* in the company who specifically works on minimizing resistance. Additionally, it was found that digitally skilled leadership, which preferably is objective and has earlier experience with change management, should be aimed for.

Further, *Control Systems* was found to be an important strategic factor as a result of the literature study. In the scope of this factor the importance of not having too many goals was emphasized, as well as the importance of balancing high- and low-level objectives. To not lose the agile dynamics in the organization, it was also suggested to keep a sense of freedom in the control system. And to conclude, many authors highlighted the importance of redefining measures in regard to supporting a more agile strategy and agile goals.

Another commonly recognized strategic factor is *Knowledge and Skills Enhancement.* Within the frame of this factor lies knowledge refinement, meaning, to be able to unlearn existing skills which is no longer appropriate in favor of the relearning of new skills. Since the digital skills necessary for a successful digital transformation is scarce, organizations should prioritize attracting and developing these skills early on. Additionally, knowledge sharing in the organization was widely mentioned as important, as well as creating a context attractive for skilled workers to stay in, in efforts to maintain these important resources in the organization.

Finally, *Technology Enhancement* was frequently mentioned in earlier literature. Especially, two elements widely discussed was the use of data and digital platforms as well as the management of those. Also, integration of different technologies and organizational systems was pointed out as an enabling factor for a successful digital transformation.

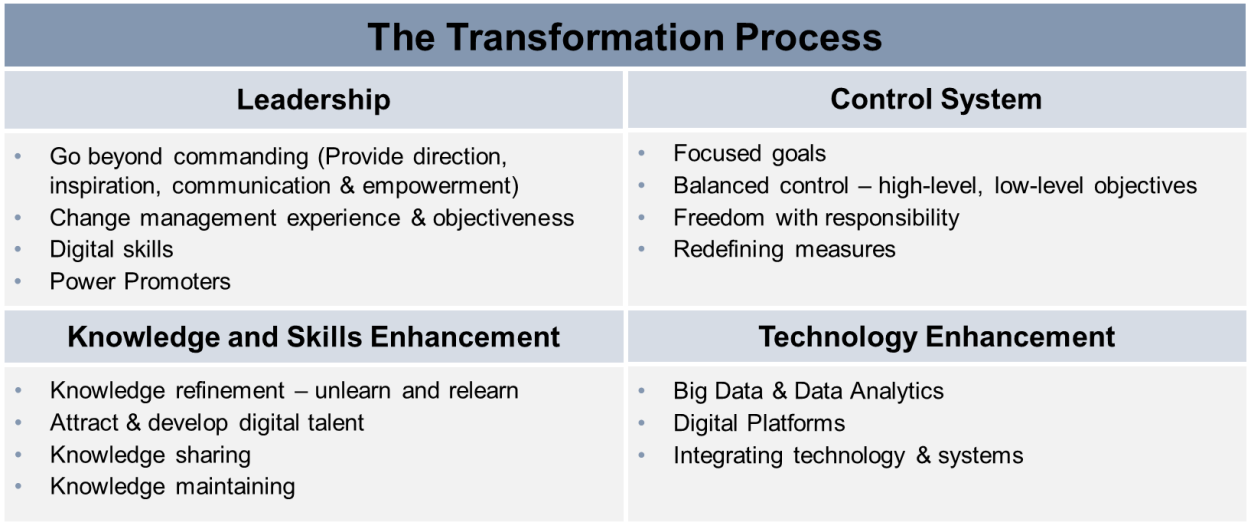

Figure 11. Elements predominately discussed within the strategic factors Leadership, Knowledge and Skills Enhancement, Technology Enhancement and Control Systems.

4.4 Initial Model of Analysis – First Dimension

As a result of the literature study, three strategic levels, ten strategic factors, and a range of ingoing strategic elements have been identified as especially important for a successful digital transformation, summarized in Figure 12 below. Firstly, the strategic factors *Clear and Coherent Strategy, Agile and Dynamic Strategy,* and *Dynamic Capabilities* were identified as important to address within the frame of the strategic level *The Vision and Strategy*. This level serves as setting the direction of the digital transformation. Furthermore, the strategic factors within this level were found to be of importance to acknowledge in the implementation of all the other identified strategic factors. For example, an agile and dynamic strategy puts certain demands on the organizational design to allow for this type of strategy, and a clear and coherent strategy puts certain demands on the control system and leadership to reflect and reinforce this strategy clearly and appropriately.

The strategic factors *Transformation Approach, Organizational Structure,* and *Partnership* were identified within the scope of the second strategic level *The Set-up.* This level highlights important prerequisites for a successful digital transformation. An enabling organizational structure is key to provide the best conditions for a successful digital transformation. Engaging in the right partnerships early on and deciding on the partnership strategy is also a key enabler to facilitate the rest of the digital transformation journey. For example, without the right partnerships in place, or a clear picture of the wished partnership strategy, the enhancement of new skills and knowledge as well as technology will proceed at a much slower pace.

The third level, *The Transformation Process,* contains of the identified strategic factors *Leadership, Control Systems, Knowledge and Skills Enhancement,* and *Technology Enhancement.* This level summarizes the strategic factors and strategic elements important to have in place and continuously sustain during the transformation process, to facilitate the transformation and avoid unnecessary barriers. Additionally, the strategic factors within this level benefit the creation of an appropriate organizational culture, which is imperative for a sustainable digital transformation. Leadership was found to be of special importance to facilitate the digital transformation and overcome resistance within the organization, as is also correct for change management in general.

Knowledge and skills as well as technology was also identified as important factors, since the possibility for a successful digital transformation relies on securing the required skill set for the transformation as well as taking advantage of technologies. Lastly, defining an appropriate control system package, which is supportive of new digital strategy and goals, was found to be of importance.

The Vision and Strategy		
Clear and Coherent Strategy	**Agile and Dynamic Strategy**	**Dynamic Capabilities**
• Focusing activities and resources • Guiding big and small decisions	• Iterative improvements	• Sensing, seizing and enhancing resources
The Set-up		
Transformation Approach	**Organizational Structure**	**Partnership**
• BM viability • BM experimentation	• Agile, decentralized structure • Cross-functionality and collaboration • Ambidextrous organization (BM synergies)	• M&A, JV and alliances • Joint digital ecosystems (Co-creation and collaboration) • Risk reduction • Acquiring skills and technology
The Transformation Process		
Leadership		**Control System**
• Go beyond commanding (Provide direction, inspiration, communication and empowerment) • Change management experience and objectiveness • Digital skills • Power Promoters		• Focused goals • Balanced control – high-level, low-level objectives • Freedom with responsibility • Redefining measures
Knowledge and Skills Enhancement		**Technology Enhancement**
• Knowledge refinement – unlearn and relearn • Attract and develop digital talent • Knowledge sharing • Knowledge maintaining		• Big Data and Data Analytics • Digital Platforms • Integrating technology and systems

Figure 12. The first dimension of the initial model of analysis – important strategic aspects.

5 Digital Maturity Level

In this section, the second dimension added to the theoretical basis is outlined. The dimension includes a framing on digital business transformation process stages, culminating in three different maturity stages: *Early in Transition*, *Digitally Advancing*, and *Digitally Mature*.

5.1 Transformation Stages and Staging

The stepwise digital transformation is supported by several authors. Westerman, et al. (2012) clearly recommend that steps towards digital maturity should be taken in accordance with the current digital maturity level of a firm in order to progress successfully. Kane, et al. (2017) describe the process as building a path toward digital maturity that surely is not a quick process, but a step-by-step process that requires that leaders continuously rethink their business situation in order to proceed. Berghaus & Back (2016) state that by recognizing the digital stage or situation of an organization, new directions for course of actions can be identified. However, as Hambrick & Fredrickson (2001) presented in their five-element framework for business strategy design, they particularly argued that one of the elements rarely gets enough attention, both in literature and by practitioners, namely, the element *staging*.

According to Hambrick & Fredrickson's (2001) definition, staging describes what the speed and sequence of moves will be of a strategy. They motivate that the staging aspect of a strategy is important, and further elaborate that (Hambrick & Fredrickson, 2001, p. 52):

> *"Most strategies do not call for equal, balanced initiatives on all fronts at all times. Instead, usually some initiatives must come first, followed only then by others, and then still others."*

They claim that staging is an important aspect when it comes to increasing the likelihood of a successful vision realization. However, as they state, there is no universally superior sequence path. Instead, the staging must happen in accordance with the prevailing circumstances judged by strategists. Circumstances that can have an impact on staging decisions could be the availability of resources or urgency (Hambrick & Fredrickson, 2001). The authors especially claim that certain achievements of different dimensions of a strategy could be particularly important in anticipation for attracting additional resources or to gain competitive lead.

As previously stated, the stepwise digital transformation is supported by several authors. Many of them also provide different definitions of digital maturity stages. The purpose of maturity models is twofold. Either they can provide a *descriptive function* portraying the present, or a *prescriptive function* acting as a base for defining new courses of action in need to reach a higher stage (Berghaus & Back, 2016). As earlier outlined, Westerman, et al. (2012) provided the two-dimensional maturity framework, in which the digital maturity of a firm could be decided based on the digital incentive's intensiveness and the transformation management intensiveness. In their survey on 3 500 individuals in 29 industries, Kane, et al. (2017) divide the digital matureness linearly into three groups: (1) companies at the early stages of digital development, (2) digitally developing companies, and (3) businesses that are digitally maturing. Given these notations, they claim that there were differences in how strategy, talent, organizational structure, culture, innovation, and technology are tackled by companies in different maturity groups. Hence, the current state corresponds to different change agendas for company leaders.

In their empirical study on digital matureness, Berghaus & Back (2016) derived five different stages of maturity: *Promote & Support*, *Create & Build*, *Commit to transform*, *User-centered & elaborated processes*, and *Data-driven enterprise*. The different stages indicated on differences in intensity in several dimensions: customer experience, product innovation, strategy, organization,

process digitization, collaboration, information technology, culture and expertise, and transformation management. Furthermore, in their global Industry 4.0 survey PWC (2016), they suggested a maturity path of four archetypes: *Digital novice, Vertical integrator, Horizontal collaborator,* and *Digital champion* tracing different prioritization in seven areas: (1) Digital business models and customer access, (2) Digitization of product and service offerings, (3) Digitization and integration of vertical and horizonal value chains, (4) Data and analytics as core capability, (5) Agile IT architecture, (6) Compliance, security, legal and tax, and (7) Organization, employees and digital culture.

Soule, et al. (2016) investigated the journey of becoming a *Digital Organization*, or as they call it, becoming a *Digital Dexterity*. The Digital Dexterity possesses the capability to adapt roles, responsibility, and relationship flexibility in order for the Digital Organization to leverage new digital options simultaneously as customer experiences, industries, and internal strategies change. The Digital Organization supports three clusters of digital capability: (1) using technology to address customer expectations or customer communication and interaction, (2) using technology for optimizing, automating, or streamlining internal processes, and (3) using digital tools to facilitate cross-boundary collaboration or skill development, or cross-organization knowledge sharing. Drawing on interviews and surveys from over 150 organizations, Soule, et al. (2016) found that key characteristics of a Digital Organization; Digital mindset, practices, workforce, and resources improved at different pace in different maturity stages. As they found that the transition to a Digital Organization typically followed a S-curve pattern, that is, change starts slowly, followed by a stage of steep improvement, and finally followed by a period of incremental improvements. As of this, they divided the maturity levels into three: *Early in transition* – Early indicators of development, *Transition under way* – Largest growth, and *Digital Dexterity Threshold* – Steady Improvement.

5.2 Initial model of Analysis – Second Dimension

Based on statements above, it is obvious that strategic prioritizations rarely stay the same during a whole digital transformation process. This study will follow a linear dividing distinguishing between three maturity stages such as those proposed by Kane, et al. (2017) and Soule, et al. (2016). The stages are defined as: *Early in Transition, Digitally Advancing,* and *Digitally Mature*, see Figure 13 below. What should be noticed is that there is no fine line between the stages. This since the purpose of the maturity stages is to distinguish and point out strategic prioritization shifts as the transformation proceeds, not to strictly classify the digital maturity of a firm.

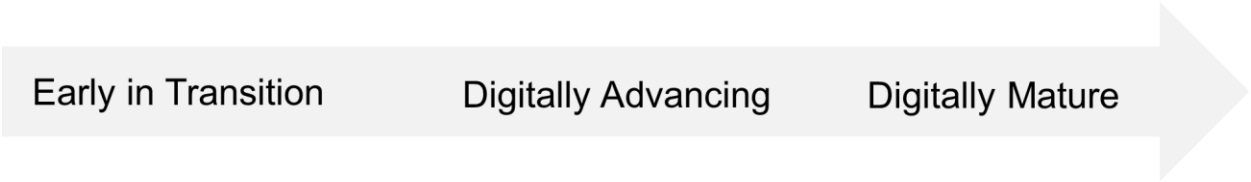

Figure 13. The three maturity stages in digital transformation used in this study.

6 Analysis Model Reconfiguration

In this section, results from the focus group study, aiming at identifying improvement possibilities to the first dimension of the analysis model, based on consultant experience and knowledge from the client company within the studied subject, is presented. The first dimension – strategic aspects, together with the second dimension – the maturity stages, compose the final model of analysis presented at the end of this section.

6.1 Focus Group Study

The focus group study was held with four consultants from the client company, where the outcome from the focus group study was agreed upon by all participants. The primary outcome from the focus group study on the first dimension of the analysis model resulted in improvement feedback regarding the structuring of the levels, the terminology, and the areas of relevance. Meaning that the content of the initial analysis model resulting from the theoretical frame of reference is not modified as an outcome of the focus group study, but rather the structuring or choice of terminology of the factors and elements of the model. Regarding the structuring of the levels, arising discussion aspects were that parts of the business model (particularly the customer value and revenue model) in the analysis model should be considered as a strategic top-level topic (*The Vision and Strategy*). Furthermore, dynamic capabilities should be considered as a part of the strategic factor *Knowledge and Skills Enhancement*, the *Transformation Approach* as a part of the strategic level *The Transformation Process*, and *Control System* as a part of the strategic level *The Set-up*.

As for terminology and addition of relevant areas to include in the model, *Control Systems* were considered to be better captured under the term *Governance*, complemented by an additional important aspect to be observant to during the empirical collection – ownership and accountability to different levels of stakeholders within the organization. Moreover, the scope included in the strategic factor *Organizational Structure* was considered better captured within the term *Operating Model* where the organizational structure together with the actual functionality and collaboration occurring across it are included. Lastly, the strategic factor *Transformation Approach* was considered better captured within the term *Value Proposition Transformation Approach*, since the first choice of terminology was considered too broad considering the content of the strategic factor. The total analysis model configurations are visualized in Figure 14 below.

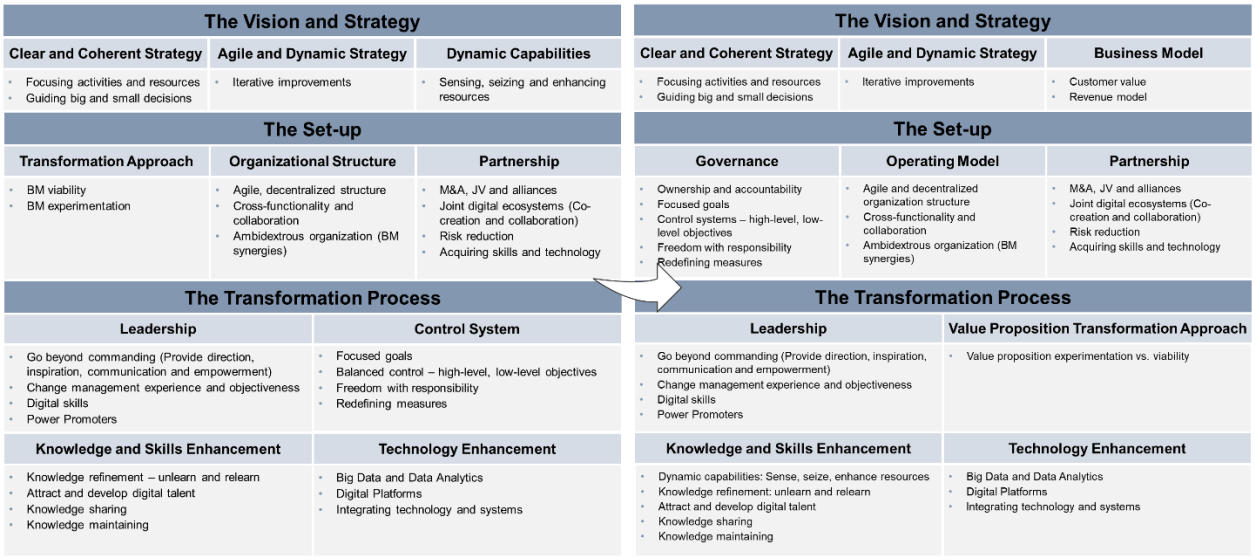

Figure 14. Analysis model reconfiguration based on improvement feedback from the focus group study.

To summarize, the initial model of analysis was improved by configuring the following:

1. Consider the strategic factor *Dynamic Capabilities* as a part of the strategic factor *Knowledge and Skills Enhancement*.
2. Consider business model parts such as customer value and revenue model as a top strategic level by adding the strategic factor *Business Model* under the strategic level *The Vision and Strategy.*
3. Refocus the strategic factor *Transformation Approach* to *Value Proposition Transformation Approach*, rather part of *The Transformation Process* than *The Set-up*.
4. Consider the strategic factor *Control System* as a part of the strategic level *The Set-up* complemented with aspects of ownership and accountability under the term *Governance.*
5. Rename the strategic factor *Organizational Structure* to *Operating Model* to more accurate mirror the content of that aspect.

6.2 Final Model of Analysis – First and Second Dimension

The theory collection together with the improvement feedback during the focus group study indicated on three different strategic levels, and ten different strategic factors important during the digital transformation process. In each of those strategic factors, more detailed elements important during the business transformation were identified. Moreover, literature emphasized that strategic prioritization should be altered in regard to the prevailing circumstances, indicating that strategic prioritizations during a digital transformation and during digital maturing may not constantly be the same. As of this, this study will process and analyze the empirical findings through the two dimensions emerging above – *Important Strategic Aspects* in relation to *Digital Maturity Level*. The two dimensions of the final model of analysis, visualized in Figure 15 and Figure 16 below, will act as a shell for the empirical collection taking both relevant strategic aspects and digital maturity into consideration. Once again, note that the four strategic factors under the strategic level *The Transformation Process* in Figure 15 are of equal importance and one being presented at the top of another does not imply any relationship or hierarchy between the strategic factors as such.

The first dimension of the final analysis model will particularly be in focus to answer the first research question: *What are the most crucial strategic aspects enabling successful digital business transformation in incumbent firms?*

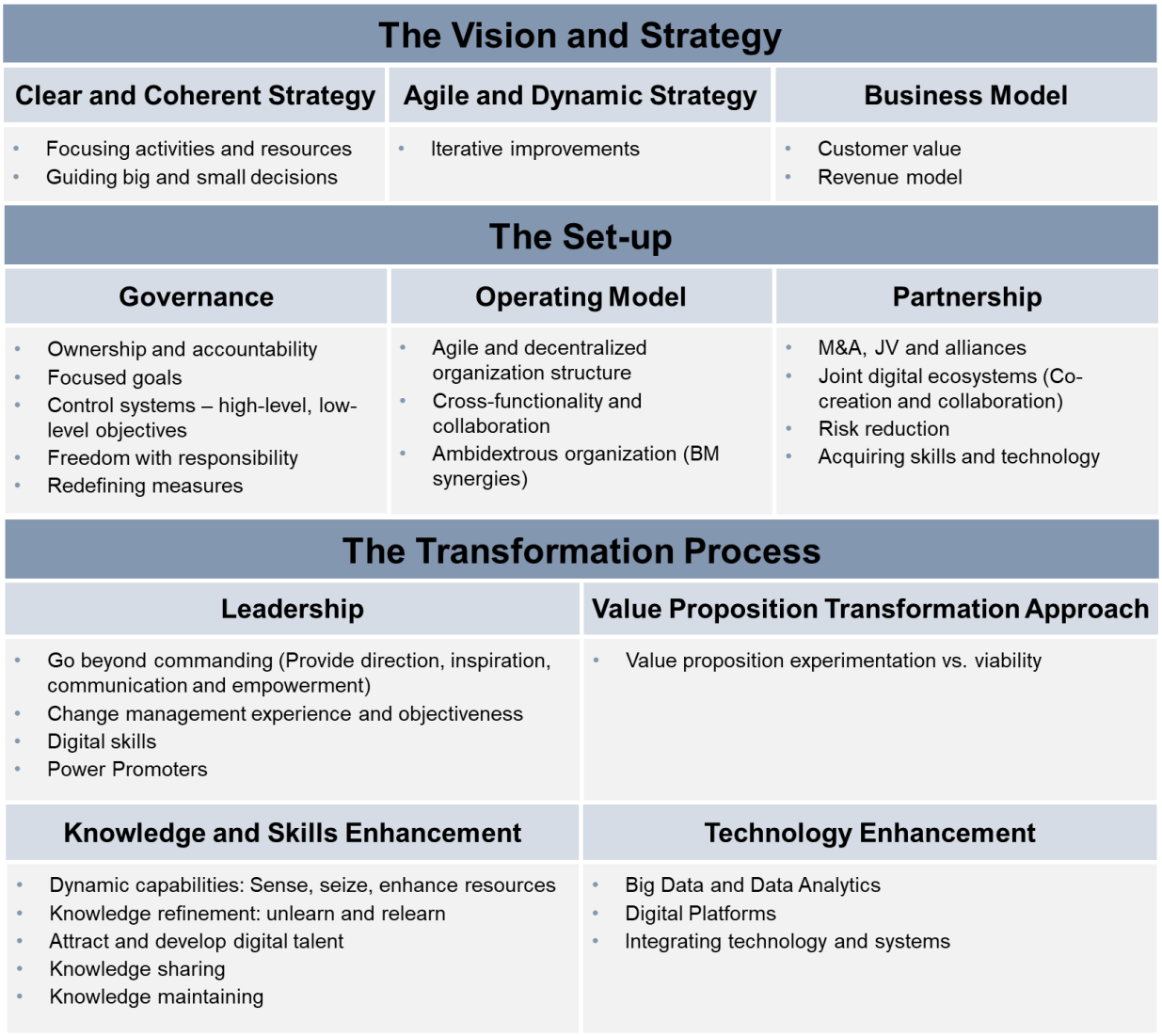

Figure 15. The first dimension of the final model of analysis – important strategic aspects.

The second dimension of the final analysis model will be applied to the first dimension of the final analysis model to nuance variations of these aspects with regards to digital maturity, thus, explore the second research question: *How does the identified important strategic factors and constituent elements shift in characteristics depending on different maturity stages of the digital business transformation process?*

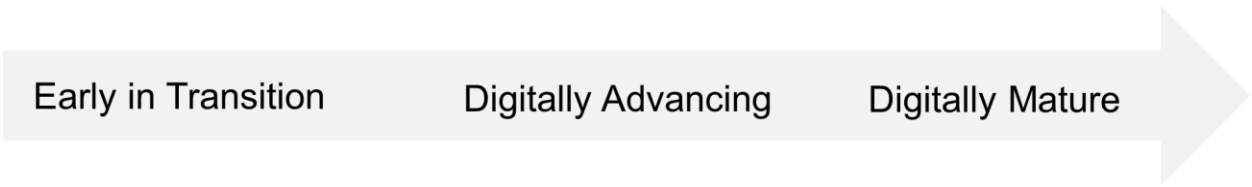

Figure 16. The second dimension of the final model of analysis – digital maturity level.

7 Empirical Findings

In this section, the empirical findings from the eleven interview sessions with the interviewees from various case sites, shown in Segment 2.2.8, are presented and analyzed. In the first segment, the main challenges connected with the digital business transformation, as expressed by the case sites, are presented and discussed to provide a background to the problems that the interviewees experience. The second segment presents the strategic factors that were considered the most important to have in place during the digital business transformation journey according to the interviewees. The segment is summarized by presenting the first dimension of the resulting framework. The final segment provides a summary of the case company interviewees thoughts on the relative importance of some of the strategic factors, depending on the different maturity levels. The segment is summarized by presenting the second dimension of the resulting framework.

7.1 Challenges

As evident from the majority of case sites, digital business transformation cause business ecosystems to transform. Corporations have to adjust to these new ecosystems, including new partners, competitors, power relations and customers. What earlier was a competitor might now be an attractive partner and the other way around. Incumbent firms that are used to being the giants in the market, are now competing with large, successful tech-companies such as Google, IBM, and Microsoft. The continuous development of the tech-industry also puts greater pressure on rapid action by these otherwise rather rigid corporations, who now are forced to reduce time-to-market, make quicker decisions, and embody a more agile way of working.

Several of the case company interviewees described how the changes in the business ecosystem force corporations to move away from the traditional, in-house development way-of-working towards a more collaborative way-of-working, where the business ecosystem plays a significant role in the amount of value a company can deliver. As one interviewee described it:

> *"[…] you have to move towards an ecosystem where services have to live in symbiosis with other products and services, from both your own but also other companies."*

Another interviewee emphasized that in the near future, to stay attractive, it might be a requirement that the products and services of a company can communicate with other companies' products and services, in order to jointly create greater value for the customers. To summarize, these firms clearly realize the need to be a part of, and take advantage of, the wider business ecosystem, but at the same time address the challenge to adjust to this new reality and the collaborative difficulties that comes with it.

Most case company interviewees made it clear that the new business reality, following a digital business transformation, creates a need for new business models. This is because the traditional business models of incumbent firms often do not fit well with a digital offering. However, the interviewees acknowledged the need of a new business model as one of the greatest challenges with the digital business transformation. This is because it is challenging to understand how the new business model should be structured, as well as to understand what digital business opportunities that exists and what the potential of these are.

Apart from the challenge in deciding which digital products and services that should be offered, the interviewees expressed the challenge of deciding on what go-to-market strategy that should accompany the chosen offerings. Moreover, the most challenging decision related to the new business model seemed to be regarding the financial model of the digital offering. These traditional firms are used to a certain product-centric, financial model where customers pay for the product after which the customers receive ownership of it. The traditional, financial model have provided a stable profitability for these firms for a long time-period, and to achieve similar profitability with a digitally transformed value proposition creates complexity and insecurity in the design of the revenue model. Additionally, digital value propositions imply a change in revenue streams, since these offerings often are connected with some sort of subscription model. This is far away from what the incumbent firms are used to, which creates a challenge in choosing a suitable revenue model.

The majority of interviewees also put a lot of attention on the need of a more customer-centric business model. Without a shift from the traditional product-centric business model towards a more customer-centric business model, the interviewees made it clear that it would be almost impossible to survive in the market. This was however emphasized as challenging since it requires a shift in company mindset as well as it is connected to difficulties in understanding the actual customer needs. Especially one interviewee expressed the difficulty in understanding how business models should be developed to make sure that the customer relation does not end when the product ownership has shifted from the company to the customer. Additionally, the interviewee of the case company addressed the challenge in understanding how the business model should be developed to make sure that the customer only pays for the actual utility of the product, and thereby increase the customer value. Lastly, the interviewees emphasized the struggle in developing digital services that actually fulfils customer needs and that the customers are willing to pay for. This is because many digital services are close to free for customers to utilize, which sets this as an expectation.

Other major challenges widely addressed by the interviewees are that the new business model puts new requirements on the incumbent firm's governance model and operating model. Incumbent firms have to move away from their more rigid and hierarchical structures where they are utilizing waterfall methods, towards a more agile structure that suits the dynamics of the new digital environment and supports the transformation. However, such significant changes are connected with great risks since it implies a move towards something more uncertain and alien, and away from something that has been well-functioning for a long time-period. Additionally, significant changes like this create a lot of opposition by employees who are satisfied with the current way-of-working and who does not understand the need for the change. These incumbent firms are often associated with an extraordinary sense of quality and expertise within their area, and therefore employees might struggle in understanding why a change is needed.

To accomplish the digital transformation, interviewees also widely emphasized the challenge that comes with conversing the knowledge base of the company, and that this is a very time-consuming process. The incumbent firms are in need of both new digital competence but also competence related to transformation processes in general. Adding to this, many case companies expressed that there are a lack of availability of the desired knowledge and competence in the market. At the same time, the incumbent firms are competing with large tech-companies about attracting this knowledge, which is not an easy task. Individuals with the digital competence desired are more likely to apply to famous and widely mentioned tech-companies rather than to incumbent firms that are more known for their not-so-digital value offering and workplace. Another concern expressed by some interviewees is the difficulty of recruiting new, digital talent when you do not even understand the digital area yourself. One case company expressed it as the following:

> *"It is hard to recruit a new digitalization manager when you do not understand what requirements to put forward. It is like buying something that you do not understand."*

The need of a business model shift clearly poses a lot of challenges for incumbent firms. One of the root causes behind the many difficulties for these large, established firms are found to be that they are run for financial purposes and that their main goal is to leverage return to business shareholders. This acts as a roadblock to many of the necessary transformations that needs to be performed in these companies in order to secure long-term attractiveness in a digital environment. The digital offering and revenues for most of the case companies currently only stand for a minor

part of the total offering and revenues, and the digital offerings are in fact often even offered as free services that are connected to the traditional products. These digital offerings are rather driven as investments in future business and serve as a starting point from which the companies can learn more and develop the offering in the future. This is because in the future, digital products and services will most likely be a vital part of these companies.

Due to the fact that the share of the traditional value proposition currently is far greater than the share of the digital value proposition, the traditional business together with its supporting governance model and operating model tends to be prioritized by top management to secure short-term return to shareholders. Also, as noted by several interviewees, the traditional value proposition is currently financing the digital value proposition, since without the income from the traditional value proposition the company would not afford to invest in the new digital initiatives that are currently connected with an insecure profitability. In other words, the incumbent firms are very dependent on their traditional value proposition and have to be careful in any decisions related to the abandonment of it. This creates a challenging trade-off between how to prioritize between the traditional business which secures short-term returns, and the new digital business which secures more long-term returns.

Based on the above insights, it can be concluded that incumbent firms encounter many challenges and questions when undergoing digital business transformation. The legacy of the past, in the form of for example the traditional business logic, many times stand in the way for the transformation to occur as rapidly as wished for. In an effort to provide clarity into the subject, some of the by case company interviewees most frequently mentioned strategic factors important to facilitate a successful digital business transformation are summarized and discussed in the following segment.

7.2 Crucial Strategic Aspects

In the following segment, case company interviewees insights related to research question number one will be presented. That is *What are the most crucial strategic aspects enabling successful digital business transformation in incumbent firms?*

7.2.1 *Vision and Strategy*

When asking interviewees about their digital vision and strategy, having it closely integrated with the common business vision and strategy, where digital transformation is seen as an enabler of the greater vision rather than a separate aspect, was the predominant answer. To demonstrate, one of the interviewees explained that digitalization and automation of the value proposition is one of the strategic lines, which however share one common vision with the other strategic lines. Another interviewee stated that business strategies rather point out the direction and need of digital initiatives, and that the digital perspective is woven into the overall business strategy. At another case site, the interviewees explained that there is no separate clear digital vision and strategy, but that digital elements and prioritizations however are seen in the overall business strategy which guides the digital business transformation. The interviewee further explained how the digital aspect has gone from being an item on the strategic agenda, to become a complete separate strategy to accelerate the digital phenomenon for a while, to now be more integrated into the overall business strategy. Today, digital components are present in most of the transformation strategies at the company. Due to this fact, they have chosen to integrate the digital parts with other parts of the

business strategy instead of keeping it separate. The interviewee explained that keeping it separate made it difficult to relate to, prioritize between, gain an overview, and understand the effect of digitalization in relation to the overall business. As of the integration, the interviewee explained that:

> *"We may not be able to see the effect of digitization, but we can see the total effect of the move and it is much more valuable to us than trying to find what the digital component is."*

The interviewee further emphasized that integration is important in order to engage the whole organization in the digital business transformation.

In line with the examples above, another interviewee explained that the precise digital vision can be difficult to distinguish in the overall business strategy, but that those parts are integrated, and if you break the strategy down there are clear digital channels. The interviewees at the case company explained that the business strategy sets out a need to drive digital business transformation, and digital business transformation is an enabler to fulfill the overall business strategy. At this case site, interviewees however also stated that they have more specific digital goals such as to increase the service sales and drive revenue streams in new ways, e.g., different subscription forms. One of the case companies stand out from the others, clearly stating that their company has a specific and dedicated digital strategy with distinct and separate expectations and goals, such as digital sales growth, and external and internal engagement which guides the digital business transformation. Nonetheless, interviewees at this case company emphasized that integration between the digital strategy and the business strategy is important.

Taking all above into consideration, it is evident that there is a strong connection between the digital vision and strategy and the business vision and strategy. One interviewee stressed that in order to motivate resource allocation to digital initiatives it is of importance that there is a strong connection and alignment between the digital strategy and the business strategy. Another interviewee explained that a clear digital vision is important to formulate in order for the strategy to gain foothold in the organization, and further described this need as:

> *"Paint the picture of what future you are heading into and point out the importance of the change."*

This challenges management to be brave and to choose a digital direction even if this direction is not generating a clear business case from start and even if the future business landscape evolution is still uncertain, the interviewee further states. Notwithstanding, amongst the majority of the case sites, a clear digital vision and strategy seem to be lacking or are at the phase of emergence. The interviewee at the deviant case company with a clear and separate digital vision and strategy explained that the strategy and vision has emerged together with organizational learning and insights on digital business opportunities, which has been vital to get to where they are at today. The interviewee expressed that:

> *"We pave the way during the journey while we learn more."*

Above insights demonstrate the importance of relating the digital vision and strategy to the overall business vision and strategy in order to engage the whole organization and to understand how

digital business transformation affects the whole business. However, the aspect of trying to bring clearance and focus to the specific digital elements in the strategy seem to be challenging in the majority of the cases. The single case with a clear digital vision and strategy indicates on clearance emerging over time as the organization learns, and subsequently the strategic direction altered accordingly. Setting up a vision and direction, even if it might change in the future, seem to be central to motivate the digital journey throughout the whole organization.

When discussing vision and strategy and related challenges, the interviewees particularly pointed out aspects that business leaders must take into consideration and apply to the vision, strategy and business model or models of the company as the digital business transformation proceeds. These will be further outlined in the segments below.

Broaden the Value Proposition and Extend the Business Network

A particular strategic shift, as a consequence of the overall digital transformation in the business landscape and society, is the need of broadening the value proposition in order to preclude potentially new competitors to gain foothold within the industry. One interviewee explained that new actors, such as sharing economy platform companies or alternative distributors, can find ways of getting in between the company and their current customers. Thus, creating a service platform themselves or developing the distribution and sales channels becomes important aspects in defending the customer relationship. One interviewee said that it is also important to understand that the company used to be the big player in most cases, but now also need to keep an eye on, compete or collaborate with big software vendors such as IBM, Google, Amazon or Tesla, who are finding ways into new markets and industries.

Another interviewee emphasized the significance of a strong and extended business network in order to deliver attractive products in the future. Yet another interviewee said that finding new digital business opportunities that are related to the core business is key in broadening the value proposition and defending the market position.

Extend the Customer Relationship and Develop New Revenue Models

The interview findings indicated on transformation towards an extended relationship with the customer through digital value propositions, which in turn places demands on new types of revenue models. Several interviewees explained that some of the digital offers developed can be applied to and strengthens current business models, such as digital attributes to the hardware. However, some digital offers are not considered optimally supported by the classic business model where the relationship with the customer ends as soon as the product ownership shift has occurred. In this, alternative distribution of value and generation of revenue is central. Interviewees also explained that it is important to find new ways of generating revenues from attribute services (which in most cases today are included without additional costs just as a part of delivering an attractive product) in order to financially support the digital business transformation. One of the interviewees explained that changing the revenue model is one of the basic parameters in the business logic that are in need of change due to digital business transformation. The interviewee further explained that revenues need to be built on customer loyalty and a continuous value exchange, where the customer relation and understanding of customer needs become vital.

Increase the Customer Focus and Apply an Outside-in Approach

For the manufacturing companies it was evident that steady product development and advancement has happened through an inside-out process during a long period of time. However, when digitally transforming the business, interviewees emphasized that there is a greater need for an outside-in approach in order to address customer pain points effectively and to become more customer centric. Using this approach can also reduce the risk of developing diffuse or misaligned digital offers pushed out through an organization that commonly is silo structured, one interviewee explained. Elaborating on this, the interviewee explained that the customer requisite needs to guide the organization to work cross-functionally rather than different functions or departments in the organization trying to make inside-out attempts that do not even align with each other or customer needs. Another interview highlighted the issue with trying to push out solutions that is based on existing organizational strengths rather than customer needs. The interviewee proposed that the organization needs to find a customer centric philosophy and act more as start-ups.

A reoccurring subject during the interviews was the view of the customer as a valuable business partner with whom iterative co-development, experimentation and digital offer validation becomes increasingly important. At the other end, some of the interviewees also claimed that it is important to try to understand how digitalization is connected to the core business, explaining that new digital offers should not be too distant to the traditional business. One interviewee explained that the sweet spot to find is the digital opportunities that aligns with the core business and customer needs in order to build safe customer confidence.

Target Customer Shift and Sales Core Competencies

A few of the interviewees also stressed the importance of being attentive to the need of customer target group shift, and to adjust the sales core competencies accordingly. To elaborate, one interviewee stressed that new digital offers and its associated new business model might and probably will include new customer segments, as market shifts will be a result of digitally transforming the offer. Moreover, within the current customer segments, there might need to be a shift in customer archetype target, putting greater emphasis on individuals that endorses and understands digital offer benefits in order to avoid any potential customer resistance towards new offers. To elaborate, the interviewee explained this by stating that a service manager (that has been the previous customer archetype target) might not see the value connected to digital offers or attributes to the same extent as a production planner (previously not seen as the natural customer archetype target). As of this, the sales and distribution functions of the company need to have the right digital knowledge and knowledge about the new digital offers in order to sell them to the right customer archetype target in both potentially new and present customer segments. The interviewee stressed that this part is important, since not being able to sell digital solutions that, however, are well developed and in line with customer needs, could be seen as a back lash creating organizational frustration and confusion, not supporting further digital business transformation.

To conclude the vision and strategy segment, interviews pointed out the importance of integrating the digital vision and strategy with the business wholesome, but also to bring clarity to the digital parts of this wholesome, even if it can change over time as the organization learns more about the digital landscape and digitalization in relation to the core business. To be more precise, organizations might have to look at broadening the value proposition and extend their business

network in order to defend their market position from potentially new competitors. Moreover, digital business transformation calls for an extension of the customer relationship and a more customer centric approach in which revenue models need to be modified to financially support new digital offers. Lastly, organizations need to ensure that value understanding aligns with sales core competencies and chosen customer archetype targets. A summary of the key insights derived from the above discussions are presented in Figure 17 below, with the key insights sorted into the first three strategic factors of the analysis model *Clear and Coherent Strategy, Agile and Dynamic Strategy* and *Business Model.*

Clear and Coherent Strategy	Agile and Dynamic Strategy	Business Model
• Digitalization seen as an enabler of a bigger goal • Closely integrated with the business vision and strategy	• Iterative improvements, emerging together with organizational learning and insights on digital business opportunities	• Broaden the value proposition • Extend the business network • Extend the customer relationship • Develop new revenue models • Increase the customer focus and apply an outside-in approach • Target customer shift and sales core competencies

Figure 17. Key insights derived from case company interviews on the strategic aspects Clear and Coherent Strategy, Agile and Dynamic Strategy, and Business Model.

7.2.2 Governance

All interviewees, in one way or another, addressed the importance of the governing model and control system of the organization in overcoming challenges associated with the digital business transformation. Especially, a decentralized ownership model as well as adjusted KPIs were emphasized as key strategic factors.

Decentralized Ownership Model

The majority of interviewees pointed out that the responsibility for the digital business transformation ultimately comes from the top management and CEO of the company, but that this is shown via middle managers and divisional managers on different levels of the organization. Moreover, an emphasis on decentralized ownership models was recognized in the interviews. Below are examples of how this takes form in some of the case companies.

One interviewee described that the responsibility for the company's digital transformation belongs to the divisional managers, who are responsible for the totality of performance for their respective division, digital measures included. The interviewee thus noted that this governance model might not be suitable for companies who drive digital initiatives independently from the traditional business, and that in those cases a specific Chief Digital Officer (CDO) with a main responsibility for the digital transformation might be needed.

Another case company follows a similar approach, where the business divisions have ownership of their digital portfolio. This is also in accordance with the traditional approach where the business divisions are responsible for their own financial performance. However, to secure that the digital transformation is not de-prioritized as compared to the traditional business, the organization has

assigned special groups within the divisions with a responsibility of managing the digitalization efforts. Apart from this, the organization has a strategy and innovation function responsible for driving new innovations and initiatives as well as supporting the divisions within new business areas such as digitalization. Moreover, the IT-department is responsible for securing the right structure to enable the digital business transformation.

One interviewee advocated that generally, it is not enough to have one responsible person per function in an organization to drive the digitalization. The interviewee meant that the digital business transformation will progress faster by assigning a specific function or group with digital responsibility and with the role to support the other organizational divisions and functions. This is in line with the case company described above, who do not only assign responsibility for digital transformation to the business division manager, but also to the separate strategy and innovation function.

Another case company put responsibility of the digital transformation on the digital division together with the Human Resources department to drive the needed competence development. Although, as the digital transformation affects more and more parts of the organization, the interviewees for the case company addressed that the responsibility is being more and more delegated down to the wider organization.

Yet another interviewee described that its company utilized team ownership of initiatives at the company, digital initiatives included. The product or service owner in the team owns the responsibility of the delivery of the initiative, and the team has authority to prioritize independently towards its own dedicated goals. Top management are however involved in setting the direction of the teams. This governance model utilizes "management by objectives", which was emphasized as important by several interviewees in order to receive the organizational agility needed to respond to a dynamic and digital environment. One interviewee mentioned it as follows:

> *"To be able to work faster, which is vital for digital development, employees need to get the opportunity to prioritize towards their own goals, instead of having the manager delegating activities to them."*

This governance method creates a need for managers to get better at breaking down goals in concrete sub-goals that employees understand and can utilize as direction when prioritizing in their daily activities.

To summarize, the above examples illustrate the importance of a decentralized ownership model of organizations digital transformation. In fact, all organizations interviewed utilized decentralized governance models in some way. However, apart from the decentralized ownership of divisional managers recommended, some interviewees stressed the need for a separate function with responsibility of digital transformation efforts. This was specifically recommended for new digital initiatives which is not yet integrated in the traditional organizational structure as well as for speeding up the digital business transformation. What was also stressed as an attractive governance method in the light of a digital business transformation are management by objectives. However, contrasting the decentralized model with decentralized decision rights, some of the interviewees advocated for another model during the early stages of a digital business transformation.

In fact, two interviewees emphasized that especially at the early stages of a digital business transformation, when digital initiatives are still a novelty and faces organizational resistance, top management should take on a more central role and organizations should centralize decisions instead of decentralizing them as described above. One interviewee described that the transformation can be more efficiently driven in an early phase by centrally pushing it onto the organization, and that it might even be what is needed at that time. When the digital initiatives have gained a wider acceptance and the organization is more familiar with the importance of those, the organization could move towards a more decentralized governance model. Another interviewee agreed, by stating that it is a challenge to carry through changes in an organization where decisions are pushed far down. The interviewee meant that normally this model is successful for incumbent firms since it creates engagement and motivation for employees. But when it comes to significant changes such as a digital transformation of a traditional company, top management need to clearly make decisions and communicate the necessary direction to centrally push the organization towards the needed change.

The interviewee further stated that middle managers will not have the courage or will to redirect their divisions by their own, since it is connected with too much risk and opposition by employees. The interviewee highlighted that employees will more likely start adjusting and accepting the needed change if the top management clearly shows that there are no alternatives, rather than if the decision is up to the divisions or departments themselves.

To conclude, the case companies showed a preference towards a decentralized governance model to control the digital business transformation progress. However, when connected with very early stages of digital transformation when the organizational opposition for change might be significant, a centralized governance model is expressed to be of advantage.

Adjusted Control System

To monitor that the digital business transformation is progressing in the direction and pace wanted, some sort of follow-up system might be needed. All interviewees expressed that Key Performance Indicators (KPIs) is a good means of measuring progress in the organization. Some even expressed that without translating the vision into measurable targets, execution will rarely happen. A few of the interviewees articulated its vitality as follows:

"What does not get measured, does not get done."

Moreover, another interviewee formulated the importance of follow-up systems in the following way:

> *"It is when you follow it up [digital progress] it becomes important. […] What you talk about is what will end up in focus and gain power in the organization."*

Furthermore, the majority of interviewees also expressed that special KPIs, or adjusted KPIs, that are specifically focusing on measuring the digital progress, is needed. New KPIs are according to one interviewee needed to motivate innovations and new business opportunities. A second interviewee highlighted that the vision is important to put pressure on change, but that adjustment

of KPIs is important to not be driven in the wrong direction and to communicate concrete transformation. Or as a third interviewee phrased it:

> *"If you do not reset and think new in what KPIs to measure and follow-up upon, as well as how you evaluate performance in the organization, you will not get the transformation wished for."*

However, one interviewee mentioned that indeed KPIs are important, but that they are not crucial for the digital transformation to be prioritized. The interviewee highlighted that what matters for digital initiatives to be prioritized is top management engagement, which is discussed further in Segment 7.2.5. Another interviewee expressed that digitally adjusted KPIs are not necessary, and that the traditional KPIs are good enough since the digital progress can be seen in those as well. The interviewee however emphasized that the important aspect is that the organization understands that digitalization is a vital part of maintaining the traditional measures. It is, for example, important to communicate what kind of digitalization efforts that is needed in order to increase sales, which is measured by the traditional KPIs.

Despite these discussions, the fact remains that nine out of eleven interviewees found adjustment of KPIs to better visualize the progress of digital transformation efforts as important. The need to adjust KPIs in favor of the digital transformation is because the traditional KPIs in the organization usually are not well suited to measure digital progress. Actually, some interviewees even pointed out that traditional KPIs can act as a barrier for digital initiatives, since the traditional measures often are based on required rates of return or profitability. Many case company interviewees expressed that the measures should receive a shift in focus and move from traditional profitability related measures towards growth related measures.

One case company utilizes two sets of KPIs. One set measures the basic delivery, which includes everything from for example sales to logistic costs. The other set measures areas within which the organization would like to see a change, so called "transformation KPIs". Within the transformation KPI set, digital initiatives are often included. The KPIs are decided on top management level and based on these, each team can create its own broken-down KPIs. The most variable KPIs are followed up upon on a weekly basis, and the least variable KPIs are followed up on a monthly or quarterly basis. The same case company also visualizes the KPIs clearly on each team's dashboard, so that they are visible on a daily basis and can generate motivation among employees.

However, despite the good example of how to measure digital KPIs provided above, and despite the emphasized importance of adjusting KPIs, most interviewees expressed that their company does not yet have specific digitally adjusted KPIs in place. This is because they are struggling in finding suitable KPIs to measure the digital transformation progress. As explained by one interviewee:

> *"We are a rather financially driven company, so we have loads of KPIs regarding financial measures, […] but the non-financial goals that are more connected to competence level and so on, those we are not as good at yet. It is not really in our culture; we work more with hard facts."*

Another interviewee emphasized that the digital areas are harder to measure since they are related with a lot of secondary effects. However, the interviewee mentioned that a good KPI is to measure number of participants in trainings.

Apart from adjusting the KPIs, some of the interviewees also mentioned the need to adjust reward systems. This is to motivate efforts in favor of the digital transformation and new business opportunities. One interviewee especially mentioned the need to reward self-learning. This is because self-learning individuals are vital to receive the wished knowledge transformation, as described more in Segment 7.2.7.

The above insights make it clear that KPIs play a considerable role in monitoring both the traditional business progress and the digital business progress. However, to monitor the digital transformation progress KPIs need to be adjusted to reflect digital efforts more appropriately, and more clearly visualize its progress. Even though this was considered as a key factor by most interviewees, very few have so far succeeded in transforming their KPIs.

A summary of the key insights derived from the above interviewee discussions on the analysis model strategic factor *Governance* are presented in Figure 18 below.

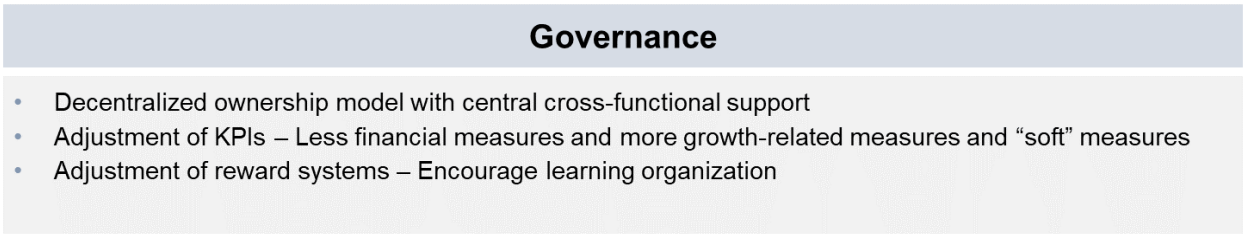

Figure 18. Key insights derived from case company interviews on the strategic aspect Governance.

7.2.3 Operating model

The operating model was widely brought up as an important strategic factor to adjust in favor of the digital business transformation. Especially two areas were discussed, which is the need of increasing the organizational agility and cross-functionality, and the need of separating new, digital initiatives from the existing organization.

Increased Agility and Cross-Functionality

A majority of interviewees described the need for its organization to leave the traditional organizational structure in the past. In the past, most of the incumbent firms interviewed have embodied a silo-structured organization, with hierarchical groupings and isolated work. This model has been efficient for the traditional product development and way-of-working in these firms, but a shift in focus that allows a more appropriate response to environmental dynamics is now called for. One interviewee explained the needed shift as follows:

> *"[…] the company is organized around developing products and not services. There are great differences in the way these should be managed, for example waterfall principles versus agility, functional dividing versus a more holistic view to capture the customer perspective."*

Similarly, several other interviewees expressed the need to move towards a more agile operating model, without an isolated silo-orientation. In the past, the isolated organizational structure with restricted responsibility areas was appropriate due to its compatibility with the different product areas that existed. But today, when digital services are added to the value proposition, a need for a more collaborative and cross-functional approach is necessary, since digital services might need to address several product areas at the same time. Another interviewee stressed that roles, responsibilities, and processes are structured in favor of a certain goal, and that when the goal changes, so too must the underlying organizational structures.

As already mentioned, a more agile organization was widely advocated as something to strive for. An agile organization was described to not only be necessary to succeed with the digital business transformation, but also with business development in general. Following an agile organization comes more independent teams with decision rights and rights to prioritize towards own goals, as discussed in Segment 7.2.2. One interviewee also described that to receive wider flexibility in its organization, they restructured towards having a competence center where competence could flow to the assignment rather than getting stuck in the hierarchy as before.

Cross-functionality, which is closely related to an agile organization, was brought up as a key success factor by several companies interviewed. One of the interviewees described their old way-of-working as beginning with a thorough pre-study and research, before operating the projects, and then years later delivering on it. The interviewee meant that by the time that the product was delivered, the worldview might have changed due to the dynamics in the environment. Because of this they moved towards working in cross-functional teams with smaller projects and more frequent delivery streams. Several other case companies have also adopted cross-functional teams, and emphasized its attractiveness in that they can be flexible with those teams over time depending on the present needs.

What was also highlighted by two interviewees was that the IT function and the business function especially are in need of a more collaborative and cross-functional approach. This is because the business function historically has had a hard time understanding the concrete value that digitalization brings to the business, why the IT function need to help the business function in understanding this. One interviewee stated:

> *"It is required that IT and business become more of a team to mutually deliver towards a common goal."*

One of the interviewees especially highlighted that the IT function should not only be seen as a support function, but something well integrated in the rest of the organization.

Despite that a shift in operating model for the incumbent firms interviewed might be highly necessary and called for, two interviewees highlighted that it is risky to move too rapidly towards abandoning the old operating model. One of the interviewees mentioned that the company is successful in what it is doing right now, and therefore changes has to happen carefully and only for the part of the organization where it is suiting. Moreover, the interviewee predicted that its company would work in some kind of hybrid model during the upcoming years. The aim of the hybrid model is to keep the traditional structure for traditional products, at the same time as being more experimentative with new structures and operating models for the new areas without a

corporate legacy. The other interviewee agreed with the risk of restructuring too rapidly, and stressed that before restructuring, the company has to make sure that the processes surrounding the organizational structure allows people to easily communicate and collaborate. According to the interviewee, without this in place, an organizational restructuring will probably not work.

To summarize, the case companies interviewed highlighted the need to move away from the traditional, hierarchical organizational structure with waterfall methods and isolated work, towards a more agile and cross-functional organization which more appropriately can meet the dynamics of the fast-changing environment. However, it was also noted that the firms need to be careful in abandoning the old operating model too rapidly, since the traditional organization and way-of-working have been a vital success factor in the past.

Separation followed by Integration

Apart from a shift towards a more cross-functional and agile way-of-working, all interviewees emphasized the need of separating new digital initiatives and projects, especially in its early phases.

Most interviewees expressed a need to keep the existing business model organizationally separated from the new, digital business model. It was described by an interviewee as a separate start-up that is kept outside the traditional organization. One of the reasons behind this approach is to secure that the traditional business does not take over in prioritization. One interviewee phrased it as follows:

> *"I have myself been part of the work in trying to combine them [traditional and digital business model]. I have never seen that it works since the operational and traditional takes over in prioritization. My experience is that it is of advantage to separate them."*

The same interviewee also expressed that to not lose focus, the business models should be kept separated even in the commercial phase of the digital initiative life cycle. However, this is an opposing view as compared to the majority of the other interviewees, who argued for integration of the new, digital initiatives in a scaling-up phase.

One interviewee described that its case company has assigned a new organization to manage digital products and new products that is far from the traditional ones. This was done to avoid any organizational inertia that might follow in trying to get the whole existing organization on board on working with the new initiatives. The interviewee advocated that as long as the delivery is independent from the existing organization it should be separated, but whenever it is scaled-up and leaves the experimenting phase, it should be integrated with the existing organization.

Another interviewee agreed with the idea to integrate initiatives and explained it as follows:

> *"When you have some evidence of that this [digital initiative] is worth going for, it is important to put demands and integrate the initiatives with the existing business."*

The interviewee further explained that the integration is important to create a momentum in the organization as well as to create a culture of maturity and willingness to effectively manage the

transformation. Otherwise, employees might manage these initiatives like a “special interest” that is separately treated.

Another interviewee further adds to the importance of separating digital initiatives in an early stage, and even highlighted that it might be necessary to put another brand name on it until the gap to the existing organization is closed. However, this is only if the digital initiative is very far from the traditional business, since in that case it is connected with greater risk to keep it under the same brand if customers would lose acceptance and respect towards the company. The interviewee however still thinks it is a good idea to eventually integrate the initiative with the existing business, when the gap is closed and customer reaction has been tested.

As noted by an interviewee, it is important to make sure that the organization has the prerequisites in place to manage the integration of the digital initiative, before starting the integration. An example of a prerequisite to have in place is to secure enough resources for the project, so that it does not end up becoming de-prioritized as compared to the existing business.

As evident from the above insights, most interviewees prefer separating the new digital initiatives or business model in its early phases, to integrate it with the existing organization when it has reached the scaling-up phase or when the gap between the existing and the new has lessened. However, what was also widely mentioned when advocating the separation of the new and the old businesses, was to ensure synergies between them. One interviewee described the importance of cultivating a cultural collaboration between the separated parts of the organization, which demonstrates both parts importance for the business. It is important that both parts are valued the same and are perceived as exiting, to not create two opposing teams in the organization. Another interviewee agrees with the need of a collaborative approach, and further described the need to share technology and competence between the existing and the new organization. To conclude, one case company expressed the advantages of sharing common key components between different parts of the organization, to gather the organization around a common core.

A summary of the key insights derived from the above interviewee discussions on the analysis model strategic factor *Operating Model* are presented in Figure 19 below.

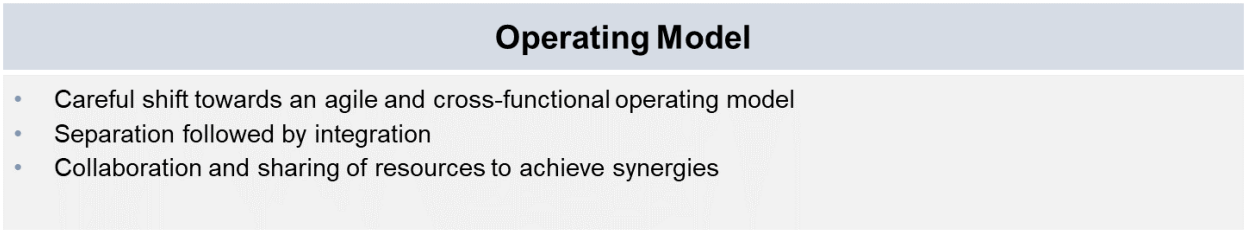

Figure 19. Key insights derived from case company interviews on the strategic aspect Operating Model.

7.2.4 *Partnership*

During interviews, partnership was particularly portraited as an increasingly important aspect to consider during the digital business transformation, both with customers and other business actors. The great majority of interviewees expressed that relations to business actors and customers has already started to change and taken on a more collaborative form. Only one interviewee stressed that there were no big changes with regards to partnership or changed actor relations yet, but

expressed that this probably will become more apparent in the future as new pervious unknown areas of business become relevant to the company.

In the following segments, predominant aspects connected to partnership highlighted as important by the interviewees will be further outlined.

Customer Co-creation and Market Validation

As previously discussed in Segment 7.2.1, several of the interviewees expressed the need of applying a more customer centric approach in order to align the organizational efforts with customer needs. In managing this, partnership with key customers is considered particularly valuable. One interviewee explained that customer partnership enables iterative co-creation well adapted to different customer contexts, such as infrastructure conditions. Another interviewee emphasized that by sharing both opportunities and "pain" with the customer, you are able to create mutual value. Moreover, one interviewee expressed that co-creation with customers are important in order to develop successful strategies and solutions that are applicable to a wider market. Other interviewees also stated that the customers are a valuable asset in the early assessment of new ideas, as well as for actually validating developed solutions in small scale before targeting the wide market. As another interviewee put it:

> *"Customer validation is the new form of field validation for digital value propositions."*

Customer partnership is also considered important in efforts of trying to extend the value proposition and customer relationship. As one interviewee explained it, extending the relationship and getting an increased understanding of customers pain points opens for sensing and seizing business opportunities where certain professional expertise related to the core product become valuable, not just the hardware product. Moreover, close connections to customers are important to gain knowledge and understanding of future customer preferences in the business landscape. One interviewee especially claimed that the collaboration with customers is fundamental in refining the understanding of digital opportunities.

Gaining Resources through Partnerships

As will be discussed more in detail in Segment 7.2.7, organizations are in great need of a knowledge and competence shift in order to manage the digital business transformation successfully. Amongst other solutions to this challenge, different forms of partnership, such as alliances, joint ventures or acquisitions is highlighted as a catalyst in gaining the right valuable knowledge quickly. One interviewee explained that by acquiring relevant companies, they also acquire the knowledge and skills embedded within this organization. Another interviewee proposed that acquisitions can be a way around the time-consuming problem of not even knowing what competencies to seek for in new employees. The interviewee explained that it is difficult to hire the right people as themselves do not even know what right is. The interviewee continued to explain that by acquiring companies with the right digital skills, the digital business transformation journey has gained speed:

"It would have taken at least ten years to build such a team from scratch within the company, now we got it straight away."

Another interviewee shared this view by emphasizing that that partnership is vital in order to gain speed in the digital business transformation, by for example decreasing the time-to-market. The interviewee, however, do not limit the utilization of partnership to solely knowledge and competencies, but also stated that other assets, such as pre-existing platforms, can be valuable. Another interviewee agreed with this and highlighted that it is important to both get access to knowledge, particularly big data, and machine learning, but also pure technology.

Interviewees explained that working close to other business actors opens for learning opportunities, allowing people inside the organization that work closely with business partners to continuously learn more. One interviewee especially emphasized that the combining of industry knowledge, business knowledge, technical core product knowledge and digital knowledge builds a strong foundation for a successful business transformation. The interviewee further explained that the development of the tech industry constantly influences the business ecosystem, both customers and other actors. As the society and overall business landscape become more and more digitalized, other partners will arise as valuable – actors that the organization might not have had any or very limited contact with, or actors that do not even exist yet. In many cases, the interviewee proceeded, the organizational need for digital knowledge and skills through tech start-ups are as great as the start-ups need for industry and customer understanding. As of this the partnership becomes mutual. The interviewee lastly stated that entering into partnership with the right actors is a crucial success factor in digitally transforming business:

"The success factor is to marry these two [partnership and customer understanding]. The companies that are best at marrying the development of the tech world and have the right partnership there, and at the same time have the strength and understanding of what customers and the business need, they are the ones who will succeed."

Risk Sharing and Shared Value

Numerous of interviewees expressed that there is no value in trying to develop in isolation from the rest of the business ecosystem. To begin with, digital business transformation might need heavy investments, in which risk sharing and joint funding might be the only solution. Moreover, one interviewee explained that by sharing the financial risk, there will be two or more parties that are dependent on the progress, which could enhance the engagement and resource allocation for specific initiatives to drive marketing and scale up. Interviewees explained that there is no point in isolating themselves from the business ecosystem and trying to generate revenues as a sole actor since products no longer exist on isolated markets. Finding start-ups or peers with whom you could share knowledge base, resource base and financial means with to create increased customer value is stronger than the single case. One interviewee said that sharing revenues with multiple parties could in fact be a good thing. However, as some of the interviewees noted, the company needs to be observant of the partnership position and what input and output that is gained from each engagement. One interviewee said the following:

"It's easy to get caught up in this zeal to open up and innovate together, but at the end of the day, it's often one party that makes more money than the other."

For the partnership to be sustainable over time the partnership position needs to be well thought out in order to avoid getting into an inferior dependent position.

To conclude, interviewees have expressed that the extension of the business network is going to become increasingly important, and so also the capability of initiating partnership with the right actors to deliver attractive products or services in the future. Partnership can provide greater understanding for both customer needs and digital opportunities. It can also be used to address knowledge gaps and combining of knowledge that adds up to a greater total than the sum of the parts. Moreover, partnership provides a safe zone were both financial risk and solution validation can be managed in a better way. Lastly, understanding the partnership position is important to avoid being taken advantage of in greater business network.

A summary of the key insights derived from the above interviewee discussions on the analysis model strategic factor *Partnership* are presented in Figure 20Figure 19 below.

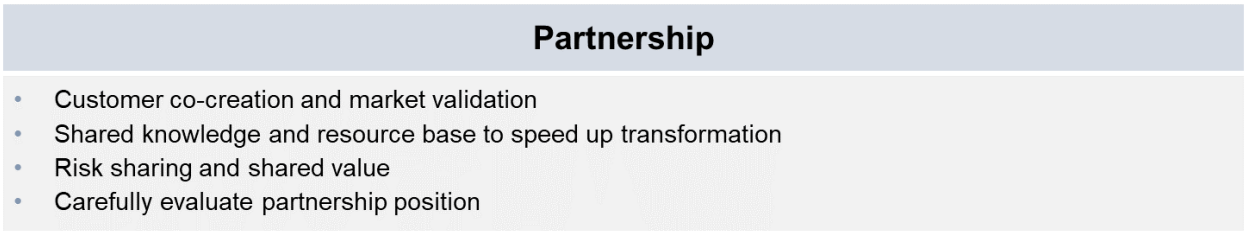

Figure 20. Key insights derived from case company interviews on the strategic aspect Partnership.

7.2.5 Leadership

During interviews, leadership was highlighted as an important aspect in order to achieve a successful digital business transformation. Especially two areas were predominantly discussed, which is top management engagement and direction, as well as leadership attributes of courage, openness, and competence.

Top Management Engagement and Direction

A widely mentioned strategic factor, that is perceived vital for a successful digital business transformation, is top management engagement and direction. Top management has during interviews showed to play a key role in securing that the digital efforts in the organizations are prioritized. Another primary role of top management is to lead change management and act as role models during the transformation journey, in order to overcome resistance and insecurities that naturally might appear in established, traditional firms.

As for the first mentioned role of top management, the role of securing prioritization of digital efforts, several interviewees have emphasized its importance. Despite the significant attention on decentralizing the organizational responsibility for the digital transformation, as discussed in Segment 7.2.2, the majority of interviewees at the same time put attention on the importance of top management direction and communication. Decentralization of decision rights is indeed a good means of cultivating agility and motivation throughout the organization, but without clear top management communication and direction, the digital business risks being overshadowed by prioritization of the traditional business. By securing that top management are engaged in the

digital transformation and clearly communicates its importance throughout the organization, middle managers and other employees can use this as direction when making their own decentralized, decisions. Otherwise, there is a risk that employees only prioritize initiatives in favor of the traditional business, since that is what they are most familiar with and is therefore also connected with less risk.

As for the top management role of leading change management, a clear majority of interviewees have addressed the importance of leadership in overcoming barriers related to organizational inertia. One interviewee described that it is the mentality in the organization that is the main barrier for transformation, and that it takes time to change this due to issues related with gaining acceptance from employees. Similarly, another interviewee recognized that it is the humans in the organization, as well as their will and prerequisites to change, that will be decisive of how fast the digital transformation can evolve. One interviewee described the employee unwillingness to change as follows:

> *"A lot of people do not want the change; they are rather satisfied with the business as it is and the work that they have."*

As described by another interviewee, employees in incumbent firms often have a preconception of digital efforts not being worthwhile, which makes them very sensitive to become aware of less successful digital initiatives. This is problematic during a digital transformation journey, since the process often is naturally related to a lot of trial and error and far from all initiatives are successful. The interviewee phrased it as follows:

> *"Every minor failure triggers a reaction of 'I knew it, this will not work!', making them [employees] close their ears about digital initiatives until proven wrong by successful initiatives later on."*

Most case companies interviewed expressed the need to make every employee aware of that digital technologies will change customer behaviors fundamentally over time, and that a change therefore is necessary. One interviewee also expressed the need to build confidence throughout the organization, confidence in that the organization can realize digital initiatives. Moreover, since far from all digital initiatives will succeed, the organization according to most case company interviewees needs to build persistence and understanding in that this is a natural part of the digitalization process and believe in that long-term, the benefit will show.

To meet the above-mentioned needs and overcome inertia in the organization, leadership communication again plays a vital role. Top management and other leading positions in these incumbent firms have to clearly communicate the direction in terms of digital transformation as well as in terms of the value it brings to the business. Additionally, they have to cultivate an understanding and acceptance of the mutual, overarching goal of the digital transformation journey as well as of how each employee's day-to-day work contributes to this goal. One interviewee even emphasized that employees does not have to agree with the communicated goal, it is enough that they accept it.

Another interviewee described the importance of top management to clarify that the digital efforts are not simply a side organization but a vital part of the existing organization. The interviewee

further expressed that when employees become aware of that top management prioritizes the transformation, they will increase their motivation in contributing to the transformation. The CEO for one of the case companies acts as a good example of top management communication, in making it clear to its organization that they need to invest in the digital transformation, no matter when in time the financial benefit will show.

Another example of how top management in one of the case companies have communicated the importance of the digital transformation, is by leading specific in-depth or focus areas. One year, the subject of the focus area was to develop a digital action plan to cultivate a momentum to change. The initiatives or projects initiated within the focus area can then act as a basis for, and force of, future developments within the area.

Based on the above insights, top management engagement and direction seem to be vital elements of a successful digital business transformation journey. Not only is it vital in balancing the prioritization between traditional and digital business, but also in leading change throughout the organization.

Courage, Openness, and Competence

From the above insights, it is evident that leaders play a significant role in steering the transformation process. During the interviews, especially three leadership attributes were expressed as attractive when leading a digital transformation journey: courage, openness, and digital competence.

As of the attribute courage, several interviewees expressed that management need to be brave in the decisions and directions communicated to the organization. Since digital initiatives often are connected with insecurity and opposition in traditional organizations, a brave leader is needed who dares to push the organizational boundaries. As discussed earlier, digital initiatives not always generate financial return at an early stage, which calls for a leader with the courage to endure and not give up on these initiatives too early on, despite that the organization is highly driven by financial incentives. Another perspective provided by one interviewee is that leaders require courage to provide mandate to, and let go of tight control of, the employees. This is necessary in order to achieve an agile organization. To conclude, one interviewee also mentioned the importance of that leaders throughout the organization are willing to try and learn accordingly, why courageous leaders are advantageous.

The trial-and-error mindset described, according to the interviewee, also requires a sense of openness of leaders. Several interviewees mentioned openness as an attractive attribute. It is about openness of trying new digital initiatives in favor of future benefits, and about an openness to the necessary changes that may need to be accomplished in the organization in order to achieve the transformation.

Lastly, interviewees expressed the need for competent leaders to drive the digital transformation. Leaders need to possess knowledge of digital opportunities and values, to be able to communicate it to the rest of the organization. They also need to know what needs to be done and what prerequisites that have to be in place for it. One interviewee highlighted it as follows:

"Without the appropriate competence level of leaders, it is hard to prioritize in a suitable manner and create the organizational push that is needed to make things happen."

What was also highlighted is that not only digital competence is needed, but competence concerning transformation processes in general, to be able to drive change management in the organization.

To summarize, courage, openness, and competence are three important attributes to strive for in a leader in order to support the digital business transformation. However, many interviewees also expressed that finding a leader with these attributes internally at the organization might be challenging. One interviewee described the case company leadership as follows:

"[…] top management is not competent or brave enough to clearly communicate what needs to be done in order to move towards a certain new direction, rather they are used to push decisions down the organization."

A possible alternative in solving this problem, according to a few of the interviewees, would be to recruit new leaders externally with the wished attributes and mindset.

A summary of the key insights derived from the above interviewee discussions on the analysis model strategic factor *Leadership* are presented in Figure 21Figure 18 below.

Figure 21. Key insights derived from case company interviews on the strategic aspect Leadership.

7.2.6 Value Proposition Transformation Approach

As previously discussed, the increased customer focus has driven extension of both the value proposition and the customer relationship, which has increased the need of bringing the customer closer to the business and even involve customers through partnership. When interviewees were asked how new digital value propositions were validated, all of the interviewees referred to one or several of the terms MVP, experimentation, trial and error, and fail fast mentality in order to drive increased agility, which was stated to be increasingly important in a more volatile business ecosystem.

The terms were particularly used to describe how the companies over time more and more see the customers as an important asset when it comes to validating functionality of digitized value propositions and redefined business models. One interviewee explained that the experimentation and customer validation approach is important to handle the overload of opportunities, and further stated that they cannot "go for everything", and therefore need to refine the understanding of digital value in relation to their company's core. In this process experimentation in small scale together

with customers has become progressively important. Another interviewee stated that the iterative co-creation is necessary in order to fit the digital offer into different customer contexts. Those contexts are difficult to assess internally without a product prototype, why close MVP testing with customers is important to move in the right direction rapidly.

One of the interviewees explained that there are two pitfalls when it comes to the validation methodology:

1. The company stops experimenting too early and shifts focus to industrialization too fast without knowing if the concept for sure is going to be well-functioning in practice.
2. The company never comes to the industrialization phase, just continuing to run new digital initiatives ad hoc.

The two pitfalls, the interviewee explained, fairly often leads to loss of control and disability to ensure quality for digital initiatives.

In the following segments the nature of validation methodology, challenges with this and important aspects to consider are elaborated further.

Balance Experimentation with Market Validation

As touched upon in the foregoing segment, experimenting in close contact with customers is important to avoid unnecessary resources on internal validation, that could be rather challenging to perform, and faster arrive at well-functioning solutions that are attractive among customers. This is not only critical in order to locate a sustainable business case, but also to motivate the organization as such. One interviewee explained that working on something internally for a long time without close co-creation with customers in most cases lead to failure and this hurt and scare the organization to invest both resources and engagement in other initiatives in the future. The interviewee stated that this is an important aspect to consider with regards to change management, emphasizing that draw backs could trigger resistance. Experimentation decreases the risk of commercializing something that fails, as you learn through testing together with customers in small scale before scaling up. Another interviewee followed the same reasoning and emphasized that the learning process is important, and that you might need to commercialize immature products or services in a very small scale together with close partners in order to test them properly before going big.

Another interviewee expressed the validation methodology as a delicate balancing act, implicating on managing experimentation with caution. As a premium brand the case company is careful with releasing too unprocessed products or services to the market since the brand is strongly associated with quality. Nevertheless, the interviewee also stated that the organization might have been burned due to excessive experimentation and validation not leading anywhere due to this cautiousness. Bringing this together, the insights above indicate the importance of finding a balance between experimenting enough to ensure product or service attractiveness, but also being brave enough to allow marketing of products or services that are not completely mature in order to gain speed and a fail-fast mentality that magnify organizational engagement. As already discussed in Segment 7.2.3, a way to decrease the risk of brand damaging while commercializing

concepts that are not fully mature yet, is to separate the concept from the company by temporary releasing the concept within another brand name.

Persistence and Building a Stable Base

One interviewee explained that in order to learn and increase the understanding of digital opportunities, it is important to innovate with an explorative approach and at the same time be persistent and let the experimentation proceed even though results are not perfect from the beginning. According to another interviewee, it is important to understand that MVP, which is a cost driver, is a method to amplify innovation which serves to assess the business value in different initiatives which over time will be valuable for the company. Another interviewee stressed that challenges come with the fact that the company is financially driven. This can push the organization to build very uncertain business cases and go into industrialization phase before even knowing if the concept is well-functioning (as pointed out as the first pitfall in the introduction segment). The interviewee emphasized that investors need to shift this view and rather see investments as a more long-term way of building capabilities. In consonance with this, another interviewee stressed that there needs to be less focus on the financial parts in the beginning and a confidence in future value instead. Another interviewee that also raised the financial aspects said that in order to meet the legacy of the organization (referring to the traditional, hierarchical and budget-based culture), experimentation is important in the innovation phase, but that the experimentation needs to be driven agile in combination with an up-front but controlled investment where the final goal always is to industrialize the concept. The interviewee further stated that:

"[…] in other words, it is not completely free, you need to think consistently."

Taking this together, organizations need to find a good balance in managing innovation in an explorative way, but yet financially controlled in order to satisfy shareholders, as well as shareholders need to understand that if the company is to successfully digitally transform, a more risk-based approach might be necessary.

To actually reach scalability and a stable future payback, one interviewee stressed the importance of sticking to iterative experimentation and validation procedures, both internally and externally, long enough for the company to build a strong foundation that is scalable before trying to commercialize it. Moving forward too fast can create trust issues both externally and internally, the interviewee further stated, and not having a strong foundation will create future challenges on how to continue experimenting and developing new feature or offers. The interviewee said that the foundation should build on robust platforms and underlying systems that are reliable and scalable. When this is in place, experimenting with less mature attributes can be done more confidential. Another interviewee also mentioned the stable base concept as important to further experiment, learn and discover the digital customer value. However, as stated as the other common pitfall in the introducing parts of this segment, industrialization and scalability has been appointed as peculiarly challenging for these kinds of companies (incumbents). Several of the interviewees expressed that the experimentation itself is quite easy as ideas are flowing, but however, scaling them comes along with discouragement. Interviewees explained that scaling-up is complex and especially brought up global alignment, marketing, sales, and distribution as complicated aspects to manage. Almost all of the interviewees identified upscaling as a challenge that they did not yet know how to handle.

To conclude, interviewees greatly emphasized the increased importance of taking a more agile approach in the innovation phase. This by cultivating a trial and error or a fail-fast mentality where both experimentation and validation occur in close relation with customers. Interviewees expressed that the learning process is speeded up by for example testing immature products or services or developing and providing MVP to a smaller scale of the market, which is considered resource effective. Experimentation and external customer validation are important to navigate in the digital business landscape and to attain successful commercialization in a relatively short period of time, which inherently is important to motivate the organization to keep going in a digital direction. As previously stated in Segment 7.2.3, to minimize the risk of damaging the company reputation, commercialization of immature products is proposed to be kept under another brand for a period of time while testing it. Furthermore, interviewees indicated that it is important to be financially and mentally persistent and realize that the innovation phase can take time and needs to be seen as a long-term investment in future value. This could be particularly important to overcome one of the greatest challenges when it comes to moving forward from the innovation and small-scale phase, namely scaling and industrialization. Lastly, to succeed in the scaling-up phase, and to maintain a successful digital development, interviewees emphasized the importance of building a stable, well-proven and scalable foundation on which other initiatives can be built around.

A summary of the key insights derived from the above interviewee discussions on the analysis model strategic factor *Value Proposition Transformation Approach* are presented in Figure 22 below.

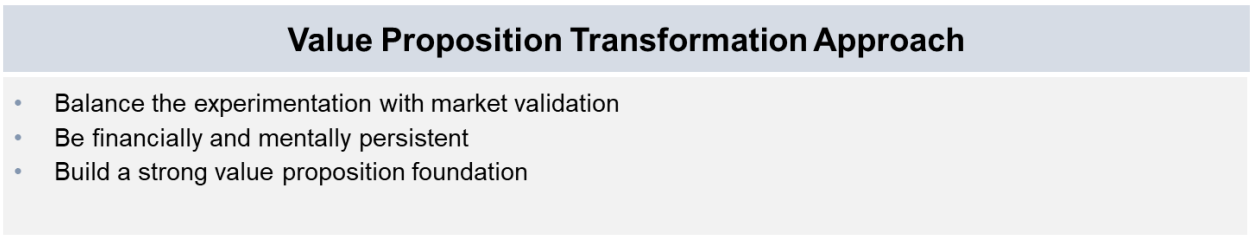

Figure 22. Key insights derived from case company interviews on the strategic aspect Value Proposition Transformation Approach.

7.2.7 *Knowledge and Skills Enhancement*

As outlined in Segment 7.1, conversing the knowledge base is considered as one of the main challenges for incumbent firms due to the wide scope in need of knowledge shift, extreme labor competition, as well as the vague and uncertain competency requirements. In addition to this, when discussing various strategic challenges connected to the digital business transformation with interviewees, knowledge and skills enhancement seemed to be the solution to multiple of challenges, why this aspect is important. During the interviews, knowledge and skills was emphasized to be one of the most important aspects when digitally transforming, since many of the challenges seem to be rooted in this area.

The need for knowledge and skills enhancement throughout the whole organization is evident and widely emphasized. Interviewees expressed that there is a need for digital competencies among

the top management, executives, various levels of leaders, as well as all the people managing the day-to-day activities. One of the interviewees expressed it like following:

> *"There should be just the right level of competencies amongst the wider mass in the organization rather than excellence with a few."*

For example, as discussed in Segment 7.2.5, a higher level of knowledge is required among senior managers in order for them to be able to prioritize correctly and create pressure in the organization to make things happen. There is also a need for leaders to have the right competencies to act as the bridge between the top management and the organization. One interviewee stated this as:

> *"One part of it [digital business transformation] are the maturity in understanding what it means for the business – many employees and managers who know the business and the customers extremely well may have difficulty translating their needs, problems or opportunities into a digital requirement – that competence we have had to shift and work with."*

Moreover, there is a need for all the people in the organization to be enough skilled to act jointly committed and perform the daily tasks needed to realize the vision and strategy. For the digital vision and strategy to rain down effectively, the quality of the wide knowledgebase is stated as key amongst interviewees.

As previously discussed in Segment 7.2.4, different types of partnerships are important sources to knowledge and skills, both in form of acquiring, co-learning and knowledge sharing. Interviewees claimed that partnership, together with external employment of digital talents and internal knowledge and skills development are all important sources to gain the development required to manage the digital business transformation effectively.

To drive the knowledge and skills enhancement internally, interviewees mostly stated that this goes hand in hand with creating an understanding for the need of digital transformation and curiosity for digitalization in relation to the core business rather than to just demand participation in different training modules. The motivation of learning needs to be rooted within the people of the organization leading to genuine interest and passion. One interviewee said, that to catalyze this, the organization need to reward self-learning, as also mentioned in Segment 7.2.2. To increase the digitalization interest, one interviewee declared that they have had different campaigns within the company, where one was directed towards managers to "lead the digital transformation", which they hoped to spread within the company. Moreover, they have also set up trainings for the wider mass within the company with the intention to raise the digital awareness. Another interviewee expressed that it is important to intercept and acknowledge those people that are curious to solve problems by approaching them differently, by for example putting those people at leading positions of digital initiatives or giving them the opportunity to educate themselves further within the area of digitalization. Moreover, one interviewee also expressed that it is important to foster a culture that spreads confidence in seeking knowledge together with new people, such as externally recruited, partners or other between people in the organization that normally do not collaborate.

A third method to enhance the knowledge and skills base within the organization is to recruit people with the right competencies, even if, as previously stated, it is challenging to know what

"right competencies" are. To attract the right people, many of the interviewees expressed that there is a need of rethinking their employer branding, since their new target group have been extended. Today, not only a narrow kind of engineers are of interest to the firms, but rather a much wider segment of different professions or expertise areas. This changes in what kind of context these companies need to act in to get attention from potential future workforce, but also how they need to portrait themselves and be as an employer. Interviewees stated that to attract and to maintain the right competencies, they need to create an attractive environment and culture which both invokes interest and is continuously motivating. Moreover, to reach a wider mass of potential future employees, one interviewee also explained that they had expanded geographically by setting up office sites at new locations to cover more ground. Last but not least, interviewees claimed, external recruiting is particularly important, not only to gain new insights and competencies, but also to minimize the risk of falling back to old habits or business-as-usual practices. Thus, it is an important part in pursuing change management.

Lastly, it is important to acknowledge the value and strength in knowledge and skills combinations. One interviewee emphasized the significance of finding a balance between building the future on the current muscles within the company in combination with digital expertise.

> *"A mix between digital competencies and industry knowledge is vital to be able to deliver business in a successful way."*

Similarly, another interviewee claimed that it requires extremely skilled people who know both the business and have tools on the digitization side.

To conclude this segment, interviewees greatly emphasized that knowledge and skill enhancement is one of the root challenges for the companies. Gaining a wide organizational competence shift is important to create a joint commitment around the digital business transformation journey and to benefit from the strength of knowledge and skills combination. In order to achieve this, companies must utilize both partnership relations, develop competencies internally, and also recruit externally. To be an attractive employer, to which enough potential workforce seeks to and existing workforce stays at, the employer branding channels might need to be rethought, target groups widened, and the working environment and culture adapted.

A summary of the key insights derived from the above interviewee discussions on the analysis model strategic factor *Knowledge and Skills Enhancement* are presented in Figure 23 below.

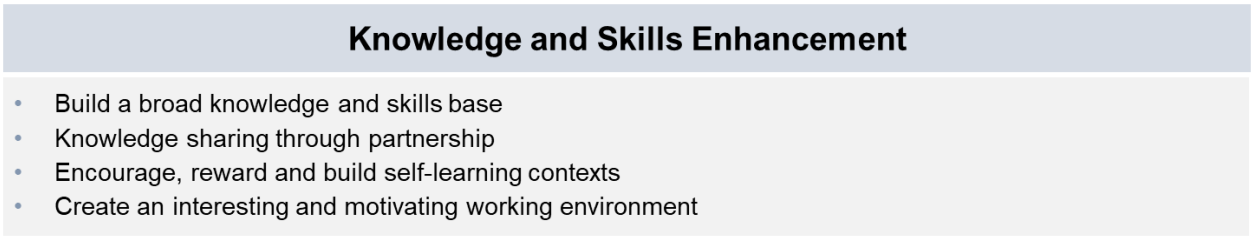

Figure 23. Key insights derived from case company interviews on the strategic aspect Knowledge and Skills Enhancement.

7.2.8 *Technology Enhancement*

The most commonly mentioned factors related to technology enhancement are utilization of data, Artificial Intelligence (AI), cloud technologies, and digital platforms. As for the first factor, utilization of data, a range of interviewees emphasized the many opportunities but also challenges that comes with data utilization. Most of the case companies interviewed are actively collecting data through their traditional products, which has great business potential in being used to add value to existing product offerings or to develop new digital services based on the insights from the data. Several of the case companies interviewed are already offering a range of services to their customers which is enabled by the data collected. This serves as a great advantage that these established firms possess as compared to new businesses that does not have access to the same amount of data.

Despite the many business opportunities offered by data, it comes with a range of challenges. Interviewees have addressed the difficulties in accessing a sufficient quantity of qualitative data that can be combined in a good enough way to create high quality services. It is not only important to make sure that enough data is accessible, but also that it is of enough quality and structured in a way that makes it possible to use it. Data puts requirements on the organization to be able to manage it in a smart way, and this is vital in order to move forward and make adequate decisions. What also appeared to be challenging is to have a clear enough vision of what to do with the data, otherwise the organization risks being left in a position with access to a lot of valuable data but that they do not understand how to make the best use of. Moreover, some interviewees expressed the General Data Protection Regulation (GDPR) as a potential barrier in making use of customer data. Given these challenges, several interviewees highlighted the need for incumbent firms to early in the digital transformation process try to make sense of how they can use and interpret the data that they have access to, in order to build an attractive service for customers.

To effectively make good conclusions from great amounts of data, some interviewees expressed the need of utilizing AI technology and analytics. By utilizing this, an automated decision process can be accomplished as well as generation of customer specific offerings. Another important technology mentioned is cloud solutions to enable storing and sharing of data between organizations as well as to enable development and distribution of software.

Digital platforms were another widely brought up factor at interviews. Platforms play a key enabling role in utilizing external data and in combining and integrating information. One interviewee described some of the advantages with digital platforms as:

> *"Platforms become important in reusing capabilities, in rapidly entering the market, and in collaborating with others."*

One case company describes its digital product and service platform as a central platform, connecting different product platforms in a structured way and which is the channel towards the customers. The digital product and service platform covers several different business models which allows reuse of components between different digital offerings, similar to how companies traditionally are used to utilize similar components for physical products. This kind of platform was also described as a good standpoint from which the company can innovate new types of digital offerings and which enables a more rapid go-to-market for digital products. The digital product and service platform was explained to serve as a success factor for companies that invest heavily

in digital offerings and with a broad variety of digital offerings and business models. Digital platforms were also described to be of importance because today it is vital to be a part of the wider business ecosystem, where services might have to exist in symbiosis with other products and services, as was discussed as a challenge in Segment 7.1. However, as noted by one interviewee, it is important to understand how products should be connected to the platform and what data that is accessible as well as similar questions, before attempting to build the platform too early. At the same time, the platform should not be built too late in the digital business transformation either.

Taking the above discussion into consideration, it can be concluded that utilization of data to offer new digital services, together with AI, analytics, and cloud technology to efficiently manage the data, is key enabling factors in favor of a digital business transformation. Moreover, digital platforms are found to be of significant importance in order to efficiently develop and release new offerings and make use of earlier capabilities.

A summary of the key insights derived from the above interviewee discussions on the analysis model strategic factor *Technology Enhancement* are presented in Figure 24 below.

Figure 24. Key insights derived from case company interviews on the strategic aspect Technology Enhancement.

7.3 Resulting Framework – First Dimension

Based on the findings on the crucial strategic aspects from segment 7.2 above, the first dimension of the final framework can be developed, with the intention to answer the first research question *What are the most crucial strategic aspects enabling successful digital business transformation in incumbent firms?* The most common interviewee responses on important strategic success factors for a digital business transformation are summarized into Figure 25 below, followed by an elaboration on its constituent parts. To repeat, note that the four strategic factors under the strategic level *The Transformation Process* in Figure 25 are of equal importance and one being presented at the top of another does not imply any relationship or hierarchy between the strategic factors as such.

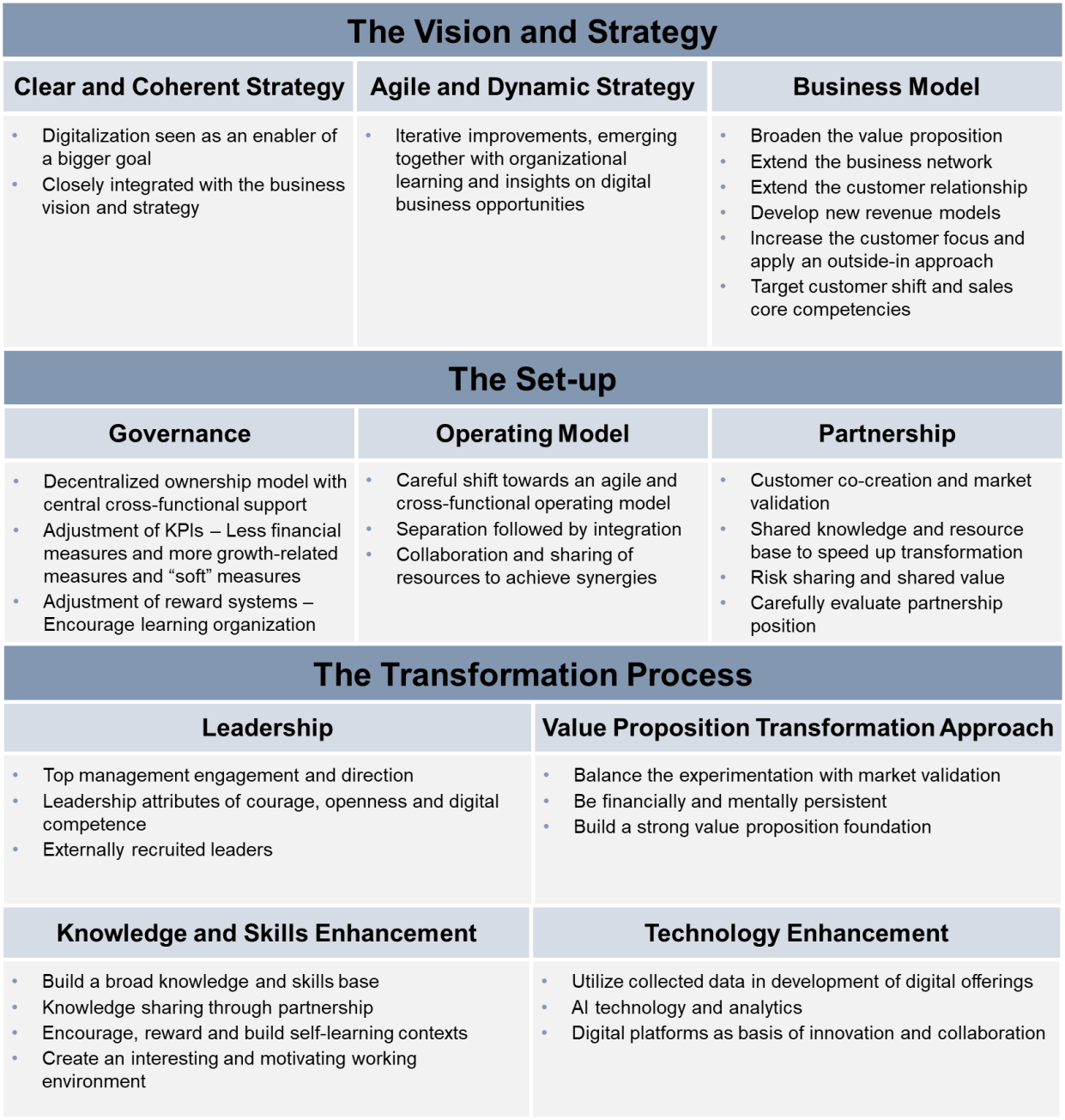

Figure 25. The first dimension of the final framework – important strategic aspects.

As a consequence of digital business transformation of incumbent firms, traditional business models have to be re-examined and innovated to better meet the new business landscape requirements and market needs. When incumbent firms decide to digitally transform, it comes with new competitors and potentially new customer segments, which in turn challenges the firm's traditional value proposition that has to be extended. Following this, new revenue models need to be adopted that are far from what incumbent firms traditionally are used to. Revenues have to in a wider sense be built on customer loyalty and continuous value exchange, where customer needs become the center of attention and an outside-in approach is embodied. These shifts in business logic pose great challenges for incumbent firms who are used to a certain, historically successful

way of doing business, in which the physical product and the company core capabilities act as the standpoint for most decisions and actions. Nevertheless, the shift in business logic is a necessary means of achieving a digitally transformed business.

In order to deliver the new business model, partnership is an important strategic factor to consider. Partnership opens up for a range of opportunities and has shown to play a vital role in increasing the likelihood of a successful digital business transformation. The value of co-creating and co-delivering together with partners is extensive, since by combining resources and expertise companies can mutually deliver to increase customer value, at the same time as risks are shared between the parties. Valuable knowledge and technology can be gained, and time can be saved by not having to develop the new and necessary capabilities in-house from scratch. As of this, acquiring companies who possess wished resources are showed to be an attractive option to speed up the transformation journey. Moreover, partnering with customers provides great opportunities to develop the most attractive and competitive value proposition, tailored to customer needs and wishes.

As evident from the above discussion, resources are vital in order to enable a successful digital business transformation. Incumbent firms need to both acquire new resources and recreate or refocus existing, to better support the digital business transformation. Especially knowledge and skills as well as technology are two widely mentioned resources that plays key roles in the digital business transformation. As of knowledge and skills, digital competence and transformational or change management competence in general are examples of competences needed. Without an appropriate knowledge base within the organization, the accomplishment of the majority of transformational tasks needed within an incumbent firm will be challenging. One could conclude that a lack of necessary knowledge and skills are the root cause to a lot of the struggles within incumbent firms when trying to digitally transform their business.

As for the resource technology, new technology such as digital platforms, AI, and data analytics, are needed. Digital platforms act as an enabler of innovation of new digital products and services and allow for shorter time-to-market, by making it possible to reuse capabilities and easier collaborate with business partners, as is already emphasized as a key strategic factor. Additionally, data collection poses a special competitive advantage for incumbent firms who generally have access to a lot of data from their traditional products and services. By utilizing data analytics and AI to make sense of the data in efficient ways, new digital services can be offered based on the data, which serve as a valuable addition to the new business model. However, as previously mentioned, new knowledge and skills are needed to make the most out of these opportunities, which creates a necessity to both educate existing personnel but also to employ externally. Due to the changes in business landscape where competitors are extended to also cover tech giants such as Google, Microsoft, or IBM, acquiring the wished knowledge is not an easy task. To combat this, incumbent firms have to spend a lot of effort on becoming an attractive and motivating workplace for employees with the wished competence set.

The shift in business logic also puts demands on incumbent firms' agility, where focus is on iterative improvements that emerges together with organizational learning and insights on digital business opportunities. A key factor in enabling this new corporate mindset is to promote a "fail-fast" mentality in the organization, where new digital products and services are developed in an experimentative manner. Experimenting, by for example delivering MVPs or testing innovations

in small scale together with a limited customer base, allows for continuous learning and validation of the initiative's attractiveness together with customers. This is a means of reducing risks connected with delivering new, digital offerings which is a novel area for incumbent firms and an area within which customer acceptance might be uncertain. The experimentative approach also provides the agility needed in order to keep pace with the dynamics of the digital business environment. To become fortunate with the experimentative approach, incumbent firms need to be persistent in the belief that income and success of the initiatives will come with time and acknowledge the fact that not all initiatives will always succeed. Additionally, equally as important, incumbent firms need to keep in mind that the main goal is always to industrialize the initiatives to generate income to business shareholders, and not get stuck in a never ending experimentative phase. This calls for a need of finding the right balance of to which degree the company should experiment before deciding to deliver the initiatives to a wider market and ramping it up to a greater scale. However, as evident from the interviews, the strategy of how to in the most successful way scale up these new, digital initiatives, remains fairly unanswered by the incumbent firms themselves.

As noted above, an experimentative and more agile way of developing products and services, as well as knowledge and skills enhancement, are both valuable means of achieving a successful digital business transformation. To facilitate these, and to account for the new business models developed, the operating model and the governance model of the incumbent firms need to be adjusted. Traditionally, incumbent firms have been used to working rather silo-oriented with a hierarchical structure and by adopting waterfall methods, which has been successful in the past when work could be structured around different product areas. However, when incumbent firms are digitally transforming, digital services are developed which span over several business areas, making the traditional silo-structure obsolete. Moreover, the new digital reality of the incumbent firms requires a greater speed and flexibility in the organizational activities than has traditionally been needed, which is not supported by a hierarchical organization. These insights call for a more decentralized, agile, and cross-functional organization, where teams have decision rights and freedom to prioritize towards own goals, and where teams are set up of a range of cross-functional competencies that can vary with time depending on the current needs of the task. Ownership of digital progress should lie within each division of the organization, but with centrally distributed cross-functional support if necessary. As previously noted, this kind of organization also facilitates organizational learning as well as an experimentative approach in development of products and services, both of which are important for the digital business transformation.

However, since the traditional business initiatives are vital for the continuous existence of the incumbent firms and for the financial support required to invest in digital initiatives, the traditional organizational structure and way-of-working should be adjusted with great caution. To ensure that the traditional business is not suffocated or in other ways negatively affected by the new, digital initiatives that are far from the existing ones, digital initiatives should be kept separate from the existing organization during its early stages. However, it is important to ensure synergies by sharing resources and collaborating. By time, when the experiments and customer collaborations have revealed the digital initiatives attractiveness and acceptance on the market, and are starting to be scaled up, they should be integrated within the existing organization. The integration is important to not create two opposing teams in the organization and to make employees aware of the importance and business potential of the digital initiatives, as well as to share knowledge and insights from these initiatives.

Since the end goal is to integrate digital initiatives within the existing organization, it is important to make sure that the digital initiatives are not de-prioritized as compared to the traditional ones. This is a great risk because employees are used to the traditional products and way-of-working, why they might have a natural preference towards these initiatives. Additionally, business shareholders put a lot of pressure on the incumbent firms to deliver financial returns, why traditional initiatives might be appealing in order to ensure fast and secure income. Moreover, the integration of digital initiatives, but also the necessary changes towards a more cross-functional and agile organization, might face a lot of resistance in the organization due to unwillingness to change and confidence in the current way of doing business. To avoid that digital initiatives are de-prioritized, and to overcome resistance connected with the many needed organizational changes resulting from a digital business transformation, leadership has showed to play a vital role. Top management need to act as role models for the organization, and clearly communicate their engagement and focus on the digital business transformation. They need to be brave and open towards new digital business opportunities and transformations necessary to get there, why recruiting leaders externally might be valuable to overcome legacy that might hamper these abilities. In order to reach acceptance in the organization they also need to educate the organization about the real value that the digital transformation can bring to both the business but also the employees themselves in their everyday work.

Furthermore, to embody the agile and decentralized organization described, leaders must clearly communicate direction to the organization, and provide clear goals that employees can independently prioritize against. To further secure that digital initiatives are prioritized, management should adjust control systems to reflect the importance of the digital transformation. KPIs should be adjusted in favor of the digital business transformation, by shifting from a focus on measuring financial aspects towards more growth-related measures, or measures focusing on soft values which is important for the digital transformation, such as number of participants in trainings. Reward systems should also be adjusted by for example rewarding self-learning, which is crucial to cultivate the learning organization that is needed to succeed with the digital transformation. What is however apparent is that a lot of incumbent firms struggle in adjusting their KPIs, even though they recognize the need of it.

Despite that top management need to clearly communicate the importance and direction of the digital transformation and initiatives, it is not necessary to have a separate digital vision and strategy in place in the organization. As long as leaders are talented in communicating the importance of digital initiatives and in ensuring the priority of those, the digital area can be incorporated into the existing company vision and strategy or simply act as an enabler of the overall business vision.

7.4 Focus Shift During Digital Maturing

In the following segment, case company interviewees insights related to research question number two will be presented. That is *How does the identified important strategic factors and constituent elements shift in characteristics depending on different maturity stages of the digital business transformation process?* The results are concluded in a table at the end of this segment.

7.4.1 *Digital Maturity Level at Case Sites*

One of the introductory questions asked during the interviews was at which digitally mature stage the interviewee perceived their organization to be in with regards to the digital business transformation. All interviewees, with no exception, answered that they were no way near being digital mature, but rather in the digitally advancing phase or just moving from the early in transition phase. One interviewee even expressed that no industrial company with a long history of engineering tradition should be able to consider themselves as digital mature as of today.

With no company having any experience in the final phase, most of the findings are connected to the first and second phase of the digital maturing scale. Especially, and logically, this was mostly the case when the interviewees were speaking of the challenges and solutions they have experienced, when open questions regarding transformation challenges were asked. However, at the end of every interview, dedicated questions regarding the three phases were discussed, making the interviewee speculate on future challenges when being in a digitally mature stage.

To answer the second research question, nuances of maturity level shift from the general discussions during the interviews has been taken into consideration. However, most of the findings relating to this question will be based on the final statements from interviewees as they were asked to specify the differences in strategic challenges as maturity increased. What should be noted about the findings from the last phase, *digitally mature*, is that these findings have no connection to real life examples and should therefore be interpreted as implications on future aspects that incumbent firms might have to manage in the future.

7.4.2 *Early in Transition*

In the beginning of the digital business transformation, interviewees motivated that first of all, an innovative and explorative culture, as well as a curiosity towards digital opportunities, needs to be established in the organization. Even if digital initiatives at first glance might be seen as something new, thrilling, and appealing, questioning old ways of doing business and cultivate digital awareness in the organization is important to start the big acceptance journey that lays ahead of the firm. To be successful, interviewees stressed that it is important to create a nuanced self-image about the current position and a vision for the digital direction, and thereafter start sketching the path in between those positions, even if the positions and the path might change over time.

Finding a position and path is preferably done by exploring how, or in what way, digitalization can be applied to the existing business. For most firms this implies finding a connection between the existing core business and the potential digital customer value. As one interviewee put it, this could be trying to understand how a digital offer could be shaped, building on data derived from the current traditional products or services that the firm delivers today. The connection between the future digital offer and the current core business is important to find a stable base for the digital

offer, future organizational synergies, and customer trust. Finding a valuable position shall not be restricted by the organizational boundaries. Rather, partnering with customers and other business actors can be of great value in the discovering phase, as joint forces can be a way of finding unique and novel solutions delivering greater value than individual efforts.

Interviewees stressed that in this early phase, drive and endurance are the most critical parameters. The transformation will not happen automatically overnight, and new initiatives will probably not be as profit generating as the existing business has been or is. In the beginning, interviewees say, the firm might even have to give certain attributing services away for free as they continue to discover the new digital landscape. In this, it is important that leaders have the strength to challenge and believe in a future situation, and that the management supports new initiatives with investment capital. Undoubtedly, the experimenting process needs to continue even if results are not perfect from the beginning, seeing data generation, feedback, and future value as the payment. For the digital journey to gain confidence in the organization, the organization needs to focus on creating a momentum for the digital journey by delivering a successful example that coincides with customer demands and the so called "market ketchup effect".

As one of the interviewees put it, digital business transformation is more about managing the interplay between people and information rather than the technology itself, and many interviewees expressed the vitality of change management to succeed with the digital business transformation. To avoid inhibition of politics and existing processes, as well as cannibalization on the present business, interviewees stated that digital initiatives are suggested to be managed separately in the beginning, with cross-functional support from digitally important functions such as IT. Separation is important to uphold focus and to dare being bold without putting the current business at risk. However, as the separate exploration continues, sometimes by a different brand, it is vital to prepare the organization for a future integration. As of this, top management needs to plant a seed and clearly show the importance of the change and direction in which the organization is heading. Conveying a belief in the future business becomes extra important in order to be able to reform the existing strong processes and the mechanisms that exists between them.

Interviewees expressed that being able to deliver what is stated above requires extremely talented people that together have a strong combination of knowledge and competencies of both the business and the business landscape, as well as digitalization and technology. Sometimes, adding external workforce can be important to challenge old structures and processes, evoking insights from a new perspective. In this phase, as the organization explore and learn, it is also important to start developing and establishing an optimal and harmonized IT landscape and a platform foundation that will work as a collective unity for future development.

7.4.3 *Digitally Advancing*

As the previous phase is more about finding the direction and preparing the organization for a change, this is the phase where the actual change management is happening where both systems, mindsets and ways-of-working are going through a conversion. As one interviewee explained it, in this phase, relatively big changes need to happen simultaneously for the transformation to move forward. In this phase, interviewees emphasized that initiatives need to go from being "exotic hobby projects" to be integrated in the organization concurrently as the firm builds shared capabilities, resources and commitment that can be reused to create multiple digital offerings in a

shorter amount of time and with less resources. It is a matter of continuing to invest in the path taken and broadening the use of initiatives, trying to bring home the effects of the previous implementations. In this phase, organizations need to actively work with the business model or models of the firm, re-thinking on how value propositions should be delivered and what corresponding business logic parameters that changes due to this. Moreover, it is a question of trying to create a momentum where digitalization is industrialized, driven, and demanded by the whole organization. For this to come about, interviewees stressed the continuous support from top management which needs to rain down in the organization through leaders at the same time as silo structures are broken and the organizational environment and capabilities become aligned with the chosen digital direction. However, interviewees said, the balance between the traditional business that can finance the transformation and the actual transformation is extremely important and should not be forgotten.

To succeed with all of the above, interviewees emphasized that attention and support needs to be provided by management, assisting in removing various obstacles on the way. For existing strong processes and mechanisms to change, not only a visionary leader needs to communicate the importance of digitalization, but ownership of incentives needs to be pushed out in the organization, reporting structures and teams needs to be reformed, and adjusted measures driving and motivating progress within this area needs to be set. If the control system, ownership, and the organizational structure are not aligned with the communicated digital direction, motivation is difficult to cultivate, the interviewees stressed. Ownership of incentives is also important to avoid miscommunication of responsibilities.

To ensure speed and long-term commitment, agility, knowledge, and utilization of shared capabilities through partnership are key aspects. Since the market is volatile, it is almost impossible to plan and understand what the market demands, why interactively continuing to experiment and validate solutions are important to keep guiding the digital journey in the right direction. To avoid friction in the organization, digital knowledge and competence levels needs to be raised on all fronts, from top management to coworkers. Several interviewees stressed that almost all the challenges connected to this phase roots in lack of knowledge and competence and that a wide knowledge base is vital to succeed. One interviewee explained that the whole organization needs to understand what they are working with to create harmony in the organization. To ensure speed and a future valuable business network position, partnership is particularly important and can help both the focal firm and its partners to advance as critical aspects such as resources, knowledge, risks, and value can be shared. One of the interviewees believe that there is a “tipping point” where the organization has enough knowledge, technical pre-requisites, and mindset for the transformation to actually gain speed.

To maintain a continuously efficient transformation process, interviewees especially emphasized the importance of continuously shaping digital platforms that connects different business models and lets the organization reuse digital components in order to reach the market with new offers even faster. One interviewee explained that the modularization approach commonly applied in traditional manufacturing industry can be of relevance even for digital offers delivered through various platforms, and should be applied.

7.4.4 *Digitally Mature*

When the interviewees were speculating regarding the challenges in a digital mature stage, most of them moved their focus away from the actual organization, declaring that challenges supposably were to be originating from the business ecosystem rather than from within the organization. Many of them referred to a more complex and volatile business ecosystem which needs to be managed. One of the interviewees expressed that probably, a lot of stakeholders in the existing value chain will disappear, and others will appear. Being able to manage this in a successful way the interviewee thought would be vital, but nevertheless the greatest challenge during the digitally mature phase. Following the same line, another interviewee explained that one need to be attentive to industry boundary changes, new competitors and customer segments, and new customer expectations. Another expressed that the biggest challenge will be to manage the shift in the ecosystem in which the business will be embedded, which puts greater demands on competencies and collaboration capabilities within the business network.

To manage the volatile business ecosystem successfully, interviewees proposed that establishment of a strong customer loyalty will be vital since products and services supposably will be more easily interchangeable when customers are not bound to any product ownership. Moreover, the organization must find ways to broaden the value proposition to shut out single competitors or other competitive business networks. Thus, creating a valuable network position is important in the continuation of the transformation journey, where partnership and creation of integrated and shared platforms where products and services delivered by the business ecosystem can live in symbiosis, are speculated to be vital.

As evident, the majority of the interviewees expressed that the digital business transformation will lead to a greater dependency on other surrounding business actors, thus, emphasizing that managing this network position and changes in the network will be the key strategic challenges in this phase. However, two of the interviewees did not express this as strong as the others. They thought that in this stage, digitalization will not be seen as a separate phenomenon, but rather as a part of the daily business. As of this, they claimed that the strategic challenges will probably be the same as before the digital phenomenon even started to influence the organization. In other words, back to normal strategic challenges that businesses of their kind face daily. Nevertheless, these statements do not exclude close surveillance and adaption to the outside world, which closely aligns with what the other interviewees stated.

To finalize this discussion, two interviewees expressed that it is important to realize that there is no end to a digital business transformation, thus, there is no end to the digitally mature phase. Due to this, the organization needs to maintain flexibility and willingness to continue adaption and cultivate a lasting innovation driven culture to ensure that digital initiatives do not stagnate. These statements align well with what is stated above.

7.5 Resulting Framework – Second Dimension

Based on the above insights, the second dimension of the final framework can be developed, with the intention to answer the second research question *How does the identified important strategic factors and constituent elements shift in characteristics depending on different maturity stages of the digital business transformation process?*

As an organization digitally matures, different strategic challenges arises. Thus, different strategic actions are required to succeed with the digital business transformation. A summary of the shift in strategic focus are visualized in Table 3 below. Note that some of the strategic factors in the last phase were not possible to draw any conclusions on, hence these are not filled out.

In addition to differentiate focus shift among the strategic factors outlined in the first dimension of the framework, key activity, attitude towards digitalization, key characteristics, and phase goal has been specified for each digital mature level to bring clearance to the context of the different maturity levels that each recommendation applies to.

Table 3. The second dimension of the final framework – digital maturity level.

	Early in Transition	***Digitally Advancing***	***Digitally Mature***
Key Activity	Explore separately and plant a digital seed	Integrate and scale	Build a strong business network
Attitude Towards Digitalization	*This is something new, thrilling, and appealing*	*This is organizationally difficult to deeply implement in an efficient way*	*This is not distinct and organizationally challenging anymore, but the business ecosystem upon which dependency lies is more volatile*
Key Characteristics	• Cultivation of an explorative and curious environment for discovering opportunities • Be persistent and believe in a future digital state, do not expect the same profit generation as for traditional business from day one • Focus on delivering a successful example to start motivate the whole organization in transforming	• Digital initiatives are to be integrated and not treated as a special interest • Focus on change management to break up from old systems, working methods and mindsets • Build common capabilities, resources, and engagement that can be re-used and facilitate the ongoing transformation process • Create a momentum where digitalization is industrialized, driven, and demanded by the whole organization	• Monitor the business network in which the value propositions will be embedded • Cultivate a flexible organization with a willingness to change and align with ecosystem shifts • Ensure that digital innovation is upheld and not stagnating
Phase goal	Understand how digitalization can be connected to the core business	Ensure that digital value propositions will be financially sustainable over time	Defend the market position by being a valuable partner at an attractive position in the business ecosystem
Vision and Strategy	• Outside-in approach to discover digital opportunities connected to core business • Strategy emergence	• Focus on constructing business models in line with customer needs • Identify key partners and appropriate target groups in customer segment	• Cultivate customer and partner loyalty • Extend the value proposition to defend the market from new competitors
Governance	• Central decision making	• Push out digital initiative ownership and implement adjusted measures and follow-up systems	-
Operating model	• Separation and supportive organizational functions	• Integrate initiatives in the current business organization	-
Partnership	• Introduce customer partnerships and discover joint forces with other business actors • Discover “how the total can be greater than the sum”	• Discover the partnership position and build a competitive business network to share resources, knowledge, risks, and value	-
Leadership	• Tone from the top emphasizing the vitality of the novel digital transformation direction	• Tone from the top emphasizing the vitality of the digital transformation direction • Delegate responsibility and encourage downstream digitally aware leaders to be open minded	-
Value Proposition Transformation Approach	• Experimentation and establishing a “fail-fast” mentality	• Experimenting and validating to steer development in the right direction • Find ways to scale experimentation incentives	-
Knowledge and Skills Enhancement	• Develop a small team with business and digital excellence • Digital knowledge among senior leaders	• Build a strong knowledge base throughout the whole organization	-
Technology Enhancement	• Collect data from the traditional products or services • Explore the opportunities of building a stable platform foundation for future digital initiatives to develop from • Adapt technologies and create a harmonized IT landscape that can support and streamline the digital transformation process	• Connect several business models and digital offers to the stable product service platform foundation • Re-use components between different digital value propositions	• Creation of integrated and shared platforms were products and service delivered by the business ecosystem can live in symbiosis

8 Discussion and Recommendations

In this section, the empirical findings will be discussed in the light of the previous outlined literature findings. More specifically, this section cares to explain how the findings of this study conformed with, extended, or contradicted to previous theories and research, displaying new insights delivered by this study. At the end of this section, recommended practical usage of the developed framework will be presented.

8.1 Managing an Organization of People

At the introduction of this study, researchers (e.g., Ismail, et al. (2017), Schwertner (2017), and Westerman, et al. (2012)) announced that strategies and management of organizations are far more important than the actual technology adaption to succeed with digital business transformation. The same was confirmed when exploring previous research and outlining the initial model of analysis, as building blocks rather correlated to change management aspects of an organization than technology itself. Accordingly, when listening to interviewees speaking about their digital journey, this became even more evident as challenges were pointing to managing people, mindset, and trust rather than technology adaption.

That digital business transformation is challenging for incumbent firms and requires management on multiple aspects is no exaggeration, but this is not only restricted to digital transformation, rather these challenges apply to all forms of Business Model Innovation (BMI). BMI is previously explained by Waldner, et al. (2015) to be rare in later life cycle stages. However, as the creative destruction created by digital technology has a far impact on all kinds of businesses, both new and old, incumbent firms has now reached a state where business innovation are no longer a subject to disregard. Nevertheless, incumbent firms face specific challenges regarding structural and cognitive lock-ins, as outlined by Chesbrough (2010). These lock-ins were significantly confirmed during interviews at different organizational levels and in different forms.

8.2 Theory Conformity

Speaking in broad terms, the findings of this study is generally coherent with the theory explored. For example, both theory and interviewees emphasized the need of a clear but yet dynamic digital business direction supported by an organization with increased agility and collaborative capability, defined ownership and decentralized accountability, and an adequate digital resource base. In addition to confirming most of the theory emphasizing what strategic aspects that are of importance, empirical findings also suggested what kind of strategic aspects that were certainly challenging to manage and in what way and when. This gave the researchers implications on the relative importance based on the level of challenge. With this said, interviewees did not state that aspect X is more important than aspect Y, but rather said that aspect X is especially challenging, why aspect X should get more attention. Moreover, the empirical findings also pointed out relations between aspects as they were speaking of them more as a whole, increasing the holistic understanding of this phenomenon. In fact, sometimes the actual categorization of subjects during the empirical coding phase was challenging due to this interconnectivity between aspects.

As all the interviewees stressed, the digital vision and strategy are closely integrated and connected to the overall business strategy. Finding the coherence between those two aspects was the main argument for keeping it like this – a valid argument according to theory, stressing the importance of alignment between new digital value propositions and overall value capturing strategy of the company, for initiatives to survive (Teece & Linden, 2017). As theory outlined, creating this coherence, but also having a clear digital strategy, is one of the main challenges among companies according to Kane, et al. (2017), and a clear and coherent strategy is mostly common among digitally mature companies. As it seemed, interviewees had difficulties outlining more about their digital vision and strategy beyond stating that it is a part of the overall business vision and strategy,

implying that this strategic clarity might be lacking. Hence, theory confirm the perceived maturity positions among the interviewees. That is, not being digitally mature yet.

When discussing the governance model and operating model, it was clear that firms were trying to find ways of receiving capabilities of being ambidextrous, as described by Markides (2013), by both increasing digital focus by separation and exploring adjusted follow-up systems, as well as increasing the synergies by cross-functionality and, then later integration. Moreover, as stated in theory specifically by Andersson, et al. (2018) and Sailer, et al. (2019), interviewees accentuate the need of a dedicated central leader through top management engagement from which the accountability and responsibility is to rain down in the organization. This is to cultivate a common digital culture and vision that all the people in the organization stand accountable for. Taking all of this together, it is clear that interviewees stressed the importance of several parts of the management control system package presented by Malmi & Brown (2008) – such as cybernetic measures (e.g., KPIs), reward and compensation (e.g., rewarding of self-learning) and administrative (e.g., governance and organizational structure) – and that modification of all parts contribute to a more successful transformation. However, as interviewees stated that KPIs were important for actually ”making things happen”, the majority of them explained that they had no adjusted KPIs in place or were struggling to configure those in a useful way. This problem might arise from the fact that a clear digital vision and strategy in many cases are perceived lacking, creating problems of trying to break it down into focus areas.

Studying the phenomenon of value proposition innovation, Teece (2007) emphasized the crucialness of the “open innovation” approach where companies need to look for opportunities of customer, supplier and complementor integration to build a strong ecosystem and strong product and service portfolio. Likewise, this need was also emphasized by interviewees, particularly as a way of finding novel business opportunities by sharing resources and gaining speed, also specifically outlined as important by Massa & Tucci (2014). Furthermore, the crucialness of forming a strong ecosystem was stressed by interviewees as being increasingly important as the firm digitally matures in the future. Partnership with customers and other business actors were at the center of attention regarding these aspects.

When discovering new digital opportunities, both theory and empirical findings stress the importance of having an experimenting approach where terms such as MVP, “fail fast” mentality and “trial and error” were perceived as successful methods to quickly find the right digital direction and products or services that were marketable. However, what was particularly challenging, which has also been mentioned by Kane, et al. (2017), is the ability to scale or industrialize digital initiatives. Kane, et al. (2017) described this as an ability mostly recognized among digital mature firms, again confirming the perceived maturity level among interviewees. Despite the vast challenges of scaling, additional theoretical insights on this were not noticed in the literature reviewed.

When comparing the insights on knowledge and skills, theory especially accentuate the need of gaining enough people within the organization to understand digital technology by attracting new people to the organization, sharing the knowledge as well as retaining it. This view was supported by the interviewees as well. However, what is not as widely mentioned in theory, and strongly emphasized by interviewees, is the crucialness of knowledge combination – business knowledge together with digital opportunities and digital technology knowledge. Moreover, the empirical

findings also stressed that the lack of a wide knowledge base within the organization is the root cause for many of the organizational challenges in the digital business transformation.

Lastly, when discussing technology with the interviewees, the greatest focus was steered towards data utilization and platform design, aspects (amongst others) that was pointed out as important in existing theory. What was especially emphasized by interviewees to take into account at an early stage and then continue to manage, is the modularization approach for platforms – where the platform should be seen as a stable foundation further used for extension of platform functionality to decrease the risk of reusing difficulties and diffuse individual services. This view was also greatly shared in theory by Hess, et al. (2016) and Sebastian, et al. (2017). Shared platforms, also mentioned important from a cooperative approach by Andersson, et al. (2018), was considered most important at a later maturity stage by interviewees.

8.3 Practical Challenges and Aspects of Greatest Importance

For many of the organizations, interviewees stressed the challenge of having a legacy and a current situation of being a financially driven company instead of an experimenting company with a risk-based approach regarding business opportunities. This could sometimes lead to conflicts on multiple areas such as organizational structure, goals and measures, culture, and processes which could slow down the transformation process.

As outlined in the beginning of this research, one can argue that current theory has differing perspectives on how to manage technological change in incumbent firms – where Lei & Slocum (2005) proposed cautiousness, and Weick & Quinn (1999) and Tushman, et al. (1986) disruptiveness. As of today, the majority of revenues of the case companies still originate from the traditional products rather than the digital ones, something that Sebastian, et al. (2017) found was common among incumbent firms. In this research, many of the interviewees talked about how to gain speed in the transformation, what obstacles that slowed the transformation down and what measures that were necessary to manage this. But what should not be forgotten, is that some interviewees also mentioned market timing as important, and for most of the case sites, the current business is considered rather stable and well-functioning and should therefore not be interrupted by dispersed and hasty initiatives. With that being said, firms should not digitally transform just for the sake of it, risking becoming what theory referred to as a *Digital Fashionista* (Westerman, et al., 2012). Even if interviewees spoke both about gaining speed, this view was also greatly emphasized as interviewees claimed that there must exist a great faith in future business value and a strong connection to the business core if the transformation should succeed. Moreover, they also accentuated the crucialness of balance between the financial stable part of the business (the traditional business) and the exploring part of the business (digital transformation initiatives). Taking all above into consideration, it can be realized that there exists no simple answer on how rapidly an incumbent firm should digitally transform, because it is highly dependent on the unique context of the company such as the market dynamics and the company readiness to transform.

Nevertheless, with no focus on the actual speed of the transformation, particularly four aspects were considered being or have been the most important aspects to consider:

- Top management engagement
- Discover opportunities through experimentation

- Broad knowledge and competence base within the organization – from top management to co-worker
- Customer and business actor partnerships

Top management are considered crucial for the transformation to actually gain foothold within the organization. Experimentation is important to, in a resource efficient way, find a digital direction and viable digital business cases. The broad knowledge base was stated to be crucial in order to overcome inertia, giving the people in the organization a better understanding why change is needed and how the organization as a wholesome can act to make it happen. This view is supported by Greenwood & Hinings (1988), stating that inertia occurs if the perception of sensing of need is not strong enough. Lastly, partnership was considered important to share resources and knowledge, jointly deliver a higher value than given by individual efforts and decrease the economic risks.

As firms digitally mature in the future, interviewees particularly saw two aspects in need of great attention and consideration:

- Scaling initatives
- Managing shifts in business ecosystem

As of today, many of the case companies claimed that they had good ideas and concepts in place but are having a hard time of actually scaling them. Moreover, to the authors knowledge, this area has gained limited academic attention so far.

Regarding the business ecosystem, organizations recognize what was found in the study of the Taxi Kurir case by Petri (2014), showing that digitalized value propositions change the way companies set their price models, inevitably also having an influence across company boarders and how they cooperate. Moreover, interviewees and theory stress that as the dynamics change, so can also the competitive positions, which composes a risk. To manage this risk, a valuable partnership position is proposed by both the interviewees and theory. As Teece & Linden (2017) explains it, it is more about the strongest business ecosystem rather than the strongest company since customer value often increase when products and services of multiple companies are combined. Finding a position in such a strong business ecosystem where the dependency is mutual is therefore considered crucial.

8.4 Practical Usage of Results

The first dimension of the framework sets out the general strategic factors that are in need of mindful consideration to succeed with a digital business transformation. For these strategic factors, particular strategic elements are listed, describing what details that should be in focus within each strategic factor. The second dimension specifies how the focus shifts within these strategic factors and elements as a company digitally matures. According to Berghaus & Back (2016), as previously outlined, the function of a maturity model is two-fold as it could both provide a descriptive function and a prescriptive function. The same can be assumed for the first and second dimension of the resulting framework of this study.

Elaborating on what is stated above, the framework could be used as an inspiration for setting up transformation programs or planning a transformation or the next phases of a transformation

(prescriptive function). It could also be used to assess a current transformation situation to identify obstacles and to sort out where next efforts and resources should be put in order to succeed with the transformation (descriptive function). Using the framework in both a descriptive and prescriptive way could therefore support and guide incumbent firms in preparing for a successful digital business transformation, but also to successfully redirect an ongoing transformation. The framework guide incumbent firms on how to find their way to a new viable business logic, supported by an aligned structural set up and a committed culture. What should however be noted, as previously outlined, is that different circumstances such as available resources and urgency, can have an impact on what is considered to be the most optimal upcoming strategic move (Hambrick & Fredrickson, 2001). As of this, deviation from the framework does not necessarily imply transformation failure.

9 Conclusion

In this section, the study is concluded and reflected upon. The first segment concludes the purpose and theoretical as well as practical contribution of the study. The study is concluded to both assist incumbent firms in navigating towards a successful digital business transformation, and to fill the research gap in the field. Further, the second segment concludes recommended areas for future research, where more detailed investigations on the strategic factors identified in this study is encouraged as well as additional contextual perspectives on the topic.

9.1 Fulfilment of Purpose and Contributions

Incumbent firms face extraordinary challenges in the process of successfully accomplishing a digital business transformation due to the legacy that these organizations bring, which is not coherent with the needs of a digital organization or digital environment. Therefore, the aim of this study has been to investigate key strategic factors for incumbent firms to achieve a successful digital business transformation and overcome the barriers arising when transforming an already established business. Furthermore, the study aimed to provide clarity on what strategic factors are the most important given different maturity stages of the digital business transformation.

By answering the first research question, *What are the most crucial strategic aspects enabling successful digital business transformation in incumbent firms?*, a framework constituting of three strategic levels, 10 strategic factors, and 32 strategic elements have been developed. Moreover, the importance of these strategic factors and elements have been analyzed in the light of three different maturity stages of a digital business transformation. The discussion and summarized table regarding the maturity stages of the digital business transformation have been performed on the basis of research question two, *How does the identified important strategic factors and constituent elements shift in characteristics depending on different maturity stages of the digital business transformation process?*

The resulting framework, together with the discussion on its importance in regard to the different maturity levels, contributes to the deficient amount of literature in the field of successful digital transformation in incumbent firms. Earlier contributions to the field are not only limited, but also fragmented, why a wider range of research in the field is called for to deepen the understanding. The results of this study therefore serve as a valuable addition to previous literature on successful digital business transformation in incumbent firms. In addition, by investigating the importance of the identified strategic factors during different maturity levels of the transformation, this study sheds light on the subject from a novel perspective than earlier research. Moreover, the study does not only identify crucial strategic factors for successful digital business transformation, but it also points out and analyzes the challenges and complexities that typically accompany this process for incumbent firms. By identifying challenges, the study contributes to the identification of necessary areas in need of further research.

As for managerial implications of the study, the resulting framework can be used by strategists in incumbent firms as guidance and support when trying to navigate towards a successful digital business transformation. By using the framework as guidance, incumbent firms can avoid common pitfalls and instead focus resources and activities where it is most needed, as well as where it is most likely to contribute to a successful outcome of the digital business transformation. The result of the study can also increase the understanding of the characteristics of a digital business transformation process and what it usually means for an incumbent firm, which is important in order to make well-grounded strategic decisions that potentially affects a lot of people in the organization.

9.2 Future Research

This study took on a wider lens when investigating the strategic factors for a successful digital business transformation, and did therefore not always provide the exact details on how incumbent firms should acquire the strategic factors recommended. However, in this study, each area identified as an important mean of achieving a successful digital business transformation could in fact itself act as the basis for future research. In other words, future research can focus on the details of how incumbent firms should go about acquiring and achieving each of the identified strategic factors in the most sustainable and efficient way, given different maturity stages of a digital business transformation.

Especially three areas are recommended for further research, which are identified in this study as important for a successful digital business transformation, but at the same time related to complexity in achieving. The first area recommended for future research is knowledge and skills enhancement since this was widely emphasized by interviewees as crucial in order to succeed with the digital business transformation. Knowledge and skills are important in laying the foundation for a successful outcome of the remaining strategic factors identified, but was however connected with a lot of insecurity regarding how to acquire the necessary knowledge base. The second area recommended for future research is industrialization or scaling of digital initiatives in incumbent firms, since this also is a vital part of a successful digital business transformation that relates to a lot of insecurities. Insecurities exists regarding both how the organization should be configured to achieve this, but also what the most appropriate timing is. Lastly, future research on how to formulate appropriate control systems, supporting a digital business transformation of incumbent firms, is recommended. This because, in this study it has been acknowledged that digitally adjusted KPI's and reward systems are beneficial, but at the same time very few incumbent firms have managed to achieve this.

As mentioned, this study has investigated the identified strategic success factors in relation to three maturity stages to provide a wider perspective on the field of study. A recommendation for future research is also to investigate the area of successful digital business transformation in incumbent firms in relation to additional contextual parameters. Examples of such parameters could be to differentiate the success factors depending on the corporate size, the industry it operates within, or the market competition or growth.

Moreover, as a final recommendation, it would be advantageous to study the topic based on a wider set of incumbent firms in order to test the applicability and generalizability of the resulting framework. The participating incumbent firms in this study are limited to six case companies, which is not considered enough to be able to confidently generalize the findings to suit any incumbent firm.

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Appendices

In this section, the interview guide used as a base during interviews, the study information sheet sent out to interview participants, as well as the informed interview consent form sent to all the interview participants can be found.

A. Interview Guide

The interview guide act as a support during the interview process in order to collect relevant data. All questions might not have been brought up during the interview, dependent on what is previously discussed under other topics, and how much information the interviewee brings up during a previous question in each topic segment.

Introduction (sent before interview)
The interview is to investigate important strategic aspects during different digital maturing stages in the digital business transformation. The maturing stages that are investigated are the following: *Early in transition*, *Digital advancing* (transition under way), and *Digital mature*. There is no fine line between the stages as the scale is a bit floating. Pior the interview, think about what stage your organization fit best into at the moment.

The following strategic aspects is to be discussed during the interview session:

- Vision and Strategy
- Business Model
- Governance
- Operating Model
- Partnership
- Leadership
- Value Proposition Transformation Approach
- Knowledge and Skills Enhancement
- Technology Enhancement

Background

1. Tell us a bit about your background, role and responsibilities.
2. Which maturity stage do you consider your organization to be at currently?
3. In big terms, describe how you value proposition have changed due to the digital business transformation.
    a. What were big changes in the business logic to deliver this new value proposition?
4. What have been the most important strategic aspects to proceed in the digital transformation?
5. What have been the biggest strategic challenges when digitally transform?
    a. When did those occur?
    b. How were those challenges managed?

Vision and Strategy

6. Currently, is there a clear digital vision and strategy?
7. Has the digital vision and strategy been integrated with the overall business vision and strategy or have them been separated?
8. Describe the pillars of the digital strategy set up today.
9. Were there any challenges during the organizational implementation of the digital strategy?
10. What have been the most important aspect to "make things happen" according to the strategy?

The Set-Up

Transformation Approach

11. Do you mainly focus on validate new digital initiatives internally before commercializing it or did you use market experimentation to validate it iteratively?

Organizational Structure

12. Did you have to adapt the organizational structure in order to proceed in the digital transformation, or did you keep the structure as before? (decentralisation, cross-functional teams, new business units, need for increased collaboration between internal or external actors etc.)
    a. Has this change over time?
13. What was the biggest organizational structure challenge during the transformation process?
14. Has the need for cross-functionality (both internally and externally) changed during the transformation?

Partnership

15. During the transformation process, did any business relation or partnership alteration or initiation occur?
    a. Would you say that this was vital in order to transform?
    b. When?
16. What was the biggest reason for the partnership/alliance/merge/acquisition?

The Transformation Process

Leadership

17. Which roles in your organization has been responsible to drive the digital transformation?
18. Were you in need of new roles and responsibility in order to drive transformation? (CDO, CIO, power promoters etc.)
19. What has been the biggest leadership challenges during the transformation process?
    a. How was this managed?

Knowledge and Skills Enhancement

20. Have knowledge and skills enhancement been vital in the digital transformation?
    a. In what way?

    b. Has the importance change over time?
21. How has the need for knowledge and skills development been handled during the transformation process? (investments in motivating environments to attract and keep digital talent, acquiring knowledge, knowledge sharing, internal education, consultants etc.)

Technology Enhancement

22. What kind of digital technologies have you, or do you plan to implement during the transition (both for internal processes, the value proposition, and the value chain)?
    a. Did the focus between internal processes, the value proposition and value chain differ during the transformation process?
23. Has the implementation of these technologies been vital for the digital transformation?
24. What has been the biggest challenge in implementing these digital technologies?

Control systems

25. In terms of transforming strategies into actions, what has been the biggest challenge?
26. Do prefer strict activity controlling or more experimenting towards a set goal?
27. Are the digital transformation or digital goals controlled by any control systems such as long term or short-term planning, objectives (financial or non-financial), bonus systems, organizational values?
    a. Has this been the case during the whole process?
28. Did you have to alter the control system methods changed since you started to digital transform (e.g., changed KPI's)?

Conclusion

29. What do you think will be/which was the biggest challenge during the phase of early digital transition?
30. What do you think will be/which was the biggest challenge during the phase of digital advancing?
31. What do you think will be/which was the biggest challenge during the phase digital matureness?

B. Study Information Sheet

Thank you for agreeing to participate in this research. In what follows is a Study Information Sheet which describes the aim and contribution of this research, as well as it describes your role as a participant.

This research is a Master Thesis carried out within the frame of a Master Science degree in Industrial Engineering and Management at Linköping University. The thesis work is carried out in collaboration with Triathlon Group. The purpose of this Master Thesis is to investigate central strategic factors for incumbent firms in order to achieve a successful digital transformation. Moreover, this research aims to develop a framework highlighting the most important elements within each strategic factor as an incumbent firm reach different stages of digital maturity. The framework is aimed to act as a guide for incumbent firms when digitally transforming, increasing the understanding for certain strategic key activities during different steps of the transformation. The researchers of this study are Sandra Sjöbäck and Amanda Spaak, both Master Science students studying the master profile Strategy and Management Control.

You have been chosen as an interview prospect for this research based on the believe that you, with your background, current role or/and experience can provide valuable insight to this research. If you agree to participate in this study, the interviewers will collect information during a one-hour session over a video meeting tool, such as Microsoft Teams. The interview will be audio recorded, compiled into a text document, and sent to the interviewee for review and correction if any misunderstanding has occurred.

In the report, industry affiliation and roles of participants will be outlined in the methodology section. However, no detailed information such as name of the company or name of the interviewee will be specified. Specific interview data will be anonymized in the report, not connecting any interview details to any specific interviewee. Note that quotation might occur, however, this will in that case be stated in the compiled interview document reviewed by the interviewee.

The participance in this research is voluntary. If you, the interviewee, feel that you no longer want to participate in this study you are free to withdraw your participance without being asked any further questions. The interviewee will receive the resulting report when the master thesis is finalized.

Once again, we would like to thank you for agreeing to take part in this study. If you have any questions about the research at any stage, please do not hesitate to contact us. If you have no further questions we ask you to sign the interview consent form attached in the same e-mail.

C. Informed Interview Consent Form

Informed Interview Consent Form

- I, the undersigned, have read and understood the Study Information Sheet provided.
- I have been given the opportunity to ask questions about the Study.
- I understand that taking part in the Study will include being interviewed and audio recorded.
- I have been given adequate time to consider my decision and I agree to take part in the Study.
- I understand that my personal details such as name and employer address will not be revealed to people outside the project.
- I understand that my words may be quoted in the report, but my name will not be used.
- I understand that I can withdraw from the Study at any time and I will not be asked any questions about why I no longer want to take part.

Name of Participant: _____

Signature: _____

Date: _____