



How to develop digitalization strategy for software organization

Maria Valkeapää

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Laurea-ammattikorkeakoulu

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Maria Valkeapää
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Abstract

The ongoing digitalization is reshaping both society and business practices, necessitating a proactive response from companies to harness the potential of digital data, software, and ecosystems. (Schildt, 2020) This thesis aims to empower Organization X for future growth by providing enhanced tools and a deeper understanding of its operations.

The thesis study revolves around the central research question: How to develop a digitalization strategy for software organization? This question serves as the cornerstone of the study. The main research question is supported by sub-research questions aimed at providing comprehensive insights into the digitalization process.

The structured theoretical framework guides the thesis through the digitalization journey. Analyzing business strategy, establishing a clear vision and mission, and using the OKR methodology to define achievable objectives aligned with the mission. The theory section includes Kotter's 8 Steps Process for a structured approach to initiate organizational change and gain employee support. Additionally exploring continuous learning in dynamic environments, emphasizing the role of technology in shaping learning methodologies. It encourages for fostering a learning culture within companies undergoing change, emphasizing the importance of understanding influencing factors throughout the change process. Before initiating the change process, a comprehensive understanding of digitalization, including principles, maturity levels, and methodologies, is crucial.

To assess the current status, eight employees of Organization X were interviewed with open-ended questions related to the theoretical framework. Key discovery from the interviews indicates that although Organization X is committed in investing in software development of its core business, a notable gap is identified in the attention given to auxiliary software and processes related to them. The communication and ownership inside Organization X regarding them has been suboptimal. If these important components receive insufficient focus, it can potentially lead to hindering the organization's overall understanding and implementation of digital transformation.

To address these challenges, this study include suggestions for adopting the Roadmapping technique and conducting a digital maturity assessment. These measures aim to provide a clearer understanding of the current digitalization state and prioritize development needs effectively. Additionally, enhancing stakeholder involvement and designating a responsible person for overseeing the digitalization journey are proposed to ensure successful implementation of strategies and initiatives.

Implementing a digitalization plan requires significant time and effort, emphasizing the need for effective communication. The understanding of strategic objectives, and tools like the eight-stage approach could enhance the success of implementing and anchoring change. Future research should explore the software ecosystem concept at a deeper level.

Keywords: Digitalization strategy, Business strategy, Strategy tools, Digitalization

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1 Introduction

Digitalization is revolutionizing how both society and businesses operate. To harness the opportunities offered by digital data, software, and digital ecosystems, companies are encouraged to cultivate a 'digital culture' and embrace new agile processes. Business literature suggests that substantial changes are underway, and companies unwilling or unable to pursue digital transformation run the risk of obsolescence. (Schildt, 2020)

New players are entering the markets and renewing how traditional services are delivered. Platform providers are one example where traditional services are shaped through a new approach by the likes of Uber and Airbnb. Though they disturb the market with their new innovative platform approach, these companies still have the same digitalization journey to go through where it comes to their business processes and utilization of data. (Schildt, 2020)

Depending on their journey status companies are in different maturity levels. Determining the classification of companies according to their level of digital maturity is a multifaceted process, depicted through three key scales: the digitalization strategy, the extent of the organization's digitalization, and its readiness for digital transformation. Based on these three scales, four distinct levels of digital maturity are delineated: "beginners," "catchingups," "off-track," and "leaders". (Aslanova & Kulichkina, 2020)

1.1 Purpose, research question and objectives

The purpose of this thesis is to develop a digitalization strategy for a software Organization X. The aim is that with a strategy Organization X should enable their future growth with better tools and understanding on how their organization operates.

First goal in the thesis is with the help of theory on business strategy to understand the strategy the organization has selected and how it will affect the future business operation choices. With the vision and mission clarified the next phase is to set feasible objectives and key results through OKR-methodology, that will aim towards fulfilling the mission. With Kotter's 8 Steps Process, we continue providing a structured approach for organizations to establish the necessary conditions to initiate the change process and gather support from employees for the envisioned transformation. (Kotter, 2007)

We will explore the significance of ongoing learning for organizations operating in dynamic environments and examine how technology is shaping the methods of learning. We will discuss the reasons why companies should adopt a culture of becoming learning organizations.

Throughout the process of change, the organization need to comprehend the factors influencing the change process and how they should be taken into consideration.

Before starting a change process, it is also crucial to understand the concept of digitalization. What is digital transformation, what kind of maturity levels there are and how they are determined. Qualitative research conducted based on the theory part of this thesis is used for determining the status of the project Organization X in their digitalization journey. After gaining the understanding of base line the roadmap for development can finally be drafted.

The research work is guided by the following sub-research questions to address the question of developing a digitalization strategy for a software organization.

Why does the organization need a digitalization strategy?

How to understand the digitalization maturity of the organization?

How to proceed with the development project?

How to implement the strategy in practice?

1.2 Thesis structure

This thesis is organized into four sections. The first section introduces the purpose of the thesis, which is to investigate the development of a digitalization strategy for a software organization operating in the platform industry. It outlines the structure and theoretical framework.

In the second section, the focus is on the software industry, covering its history and status. A detailed examination of platform providers is included, followed by an exploration of business strategy and the tools used for its determination. The latter part of this section delves into digitalization, exploring its concept and various levels. A summary section concludes section two, highlighting the main points.

The third section is dedicated to the research aspect of the thesis, presenting the introduction of the qualitative research methodology and the chosen interview method. It provides a comprehensive description of the data collection processes and conducts data analysis on the gathered interviews to reveal the findings.

The final section contains the discussion and conclusion, summarizing the work and proposing next actions for the development of digitalization strategy for Organization X.

1.3 Theoretical framework

Theoretical frameworks central element Context and Decision-Making represents the continuous decision-making process that businesses undergo in terms of products, markets, generic strategy, scope, growth, and development options. The center emphasizes the need for understanding the business and aligning strategic options with organizational goals.

Key questions for Strategic Options surround the central decision-making process and highlights the key questions proposed by Campbell et al. (2004) to evaluate strategic options.

The third layer Strategic tools aid in the evaluation and selection of strategic options.

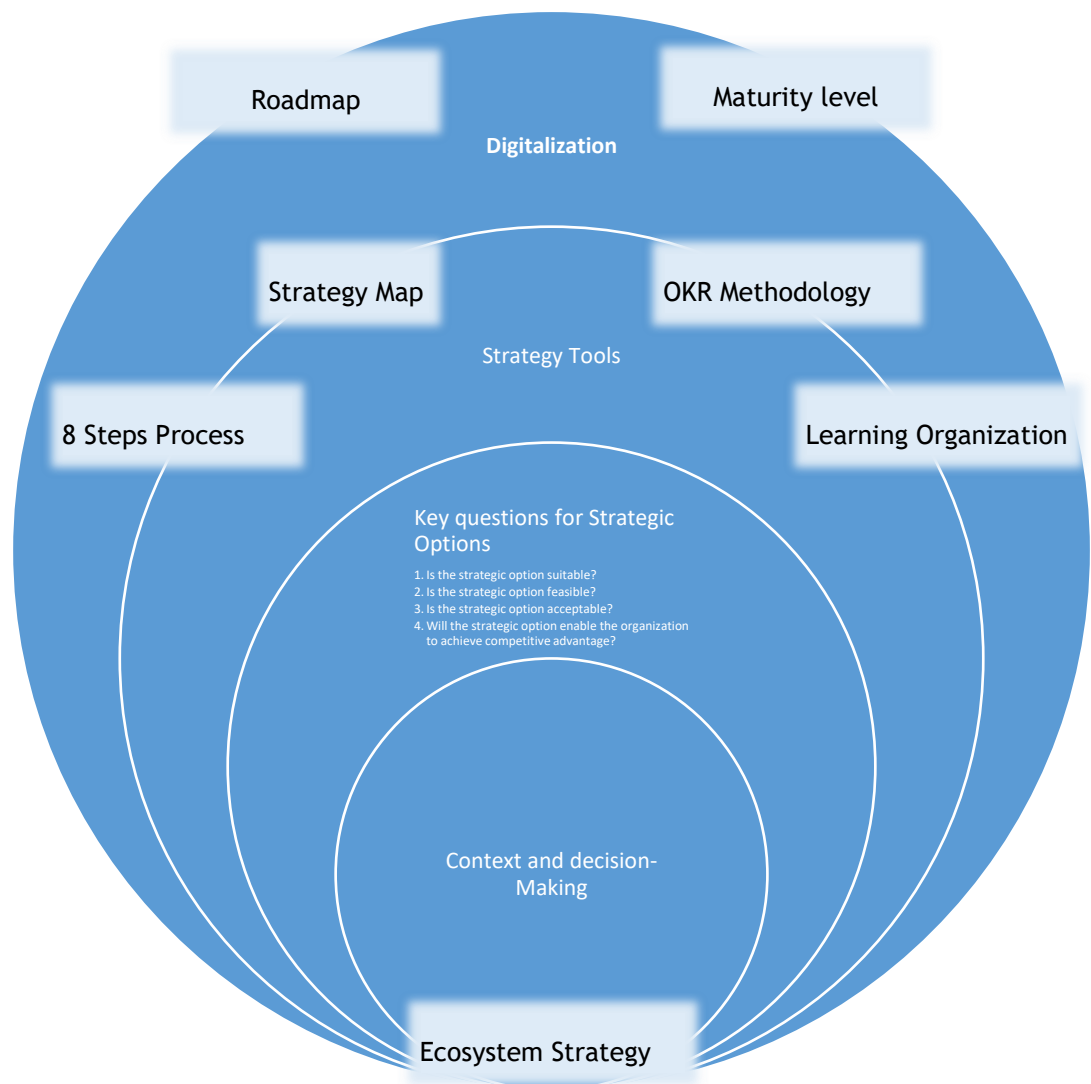


Figure 1: Theoretical Framework.

The framework guides through the digitalization journey. Recognizing the outer layer Digitalization as a force comparable to the industrial revolution. Giving tools with Maturity level assessment and Roadmapping for Identifying outdated management practices and organizational cultures. It provides a comprehensive view of how organizations navigate the complex landscape of technological advancements and organizational adaptation, emphasizing the need for strategic alignment, continuous learning, and agility in the information economy.

2 Software industry

Software industry has evolved significantly since its origin in the 1950s, transitioning from early punch-card programming to today's innovative trends like software as a service (SaaS), device programming for the Internet of Things (IoT), and the growing adoption of open-source alternatives by major companies. (McDonald, 2022) Future technology trends have been grouped into five broad categories: the AI revolution, building the digital future, compute and connectivity frontiers, cutting-edge engineering, and a sustainable world. (Chui, et al. 2023)

Software is deeply intertwined with our daily lives in the information age, as individuals and businesses rely on it for various tasks. Enterprise software spending is on the rise, making it one of the fastest-growing segments in the tech industry, with projections indicating further growth in 2023. A prominent trend in the sector involves the shift from on-premises software to software-as-a-service (SaaS), representing a substantial portion of the overall software market. SaaS offers advantages like reduced total ownership costs and simpler implementation compared to traditional models, pointing to continued growth in this direction. (Statista.com. 2023)

This transformation in the software development landscape is reflected in both the industry and the profession. Significant changes have been noted, with a growing focus on tools and methodologies that enhance automation, adaptability, and scalability (Schneckenberg, et al. 2021). Key advancements include practices like continuous integration/continuous development (CI/CD) and the increasing use of cloud platforms to manage hardware resources and the foundational layers of the software stack (Laato, et al. 2022). These shifts underline the dynamic nature of the software industry and its ongoing impact on society.

The development of the industry makes the weight of talent even larger. The shortage of talent stands as a foremost issue impeding growth, resulting in a substantial disparity between the demand for individuals possessing the requisite skills to harness the potential of technological trends and the availability of such talent. The lack of suitably skilled professionals has consistently acted as a restraining factor in the advancement of numerous high-tech domains, spanning AI, quantum technologies, space technologies, and electrification and renewables.

The talent shortage is particularly emphasized in the case of trends like cloud computing and the industrialization of machine learning, which are indispensable in nearly every industry. Additionally, this shortage poses a substantial challenge in fields that rely on exceptionally specialized experts, such as the future of mobility and quantum computing. (Chui, et al. 2023)

2.1 Industry description, focus on platform providers.

Throughout history, the concept of platforms serving as intermediaries, connecting buyers and sellers, has played a pivotal role. Marketplaces have been instrumental in this regard. Recent times have witnessed a similar role being assumed by entities such as shopping centers and stock markets. These platforms have traditionally struggled with limitations related to physical distance and transaction costs, necessitating the involvement of intermediaries at a significant expense. The arrival of digital platforms has steered in a transformative shift, facilitating connections between buyers and sellers at a substantially reduced cost in comparison to conventional platforms and intermediaries. This evolution is made possible through the combination of various complementary digital technologies. (Ojanperä & Vuori, 2021)

Industrial transaction platforms, serving as intermediaries in B2B interactions, exhibit characteristics of low data integration but high ecosystem actor integration, primarily due to the substantial number of participating buyers and sellers. These platforms are primarily oriented toward reducing transaction costs between customer and supplier businesses to stimulate increased transaction volumes (Truong et al., 2012). They capture value through intermediary commissions, earning them the classification of industrial transaction platforms. While they streamline offline customer-supplier interactions by reducing search and transaction costs, they may not fully exploit the additional value potential that industrial data offers. Challenges including trust issues and irrevocable expenses have hindered their widespread adoption compared to B2C platforms. (Madanaguli et al., 2023)

Industrial digital platform ecosystems represent the peak of data and actor integration. They strategically orchestrate partners and leverage data extensively in value creation, delivery, and business models (Gebauer et al., 2021). These platforms enable new data-driven value delivery, making traditional manufacturing and selling less appealing (Jovanovic et al., 2021; Shree et al., 2021). This transformation introduces various business model complexities, such as balancing leverage, data sharing, architectural management, and boundary control. (Thomas et al., 2014; Jovanovic et al., 2021, Madanaguli et al., 2023)

Platform leaders, often large industrial firms, seek to create ecosystems that deliver complex value propositions to customer businesses, departing from the winner-takes-all logic of traditional platforms (Hein et al., 2019). Architectural openness and the ability to incorporate multiple contributors emphasize generativity and complementarity, reinvigorating discussions

about new value creation and value protection. These ecosystems of firms serve as vehicles for business models focused on digitally enabled services or digital servitization, enabling complex value creation, delivery, and capture mechanisms that differ from traditional platforms. (Jovanovic & Ritala, 2024; Sjödin et al., 2022; Madanaguli et al., 2023)

Digital platforms are now recognized as pioneering and potentially revolutionary frameworks for structuring a diverse range of trading activities. This acknowledgment of their substantial potential is a relatively recent development, as exemplified by the launch of Apple's App Store in 2008, which initially received significantly less attention than the iPhone. It took time for industry observers to understand the App Store's crucial role as a complementary component to the iPhone, a trend embodied by the remarkable growth of platform-based businesses like Airbnb, whose market capitalization now surpasses the combined value of traditional hospitality giants Marriot and Hilton. This transformation extends globally, with platform-based enterprises growing, and the United States and China leading the way. In 2021 eight of the top ten most valuable companies are platform-based entities, including six from the US (Apple, Amazon, Facebook, Google, Microsoft, Tesla) and two from China (Ant Group, Tencent). (Ojanperä & Vuori, 2021)

The remarkable growth in market value of leading companies is driven by their scalability. Furthermore, digital platforms harness network effects, enhancing their appeal to new customers as the user base expands. Once a platform reaches critical mass, its growth accelerates, often posing challenges to potential competitors. Additionally, as a platform's user base grows, it generates increasingly extensive datasets. (Ojanperä & Vuori, 2021)

2.2 Business strategy

How is strategy defined? "Strategy can be defined as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals". (Chandler, 1962)

One of the key terms used in strategy literature is Strategic management, it is used in companies as a vehicle for achieving and sustaining superior performance. Strategic management is the continuous and dynamic process through which companies shape their central purpose, thoroughly assess both their external and internal landscapes, and strategically choose one or more approaches to generate value for customers and various stakeholders, notably shareholders. (Hoskisson, et al. 2004)

This central purpose, often referred to as the vision, encompasses at least two vital elements: a mission that encapsulates the firm's fundamental identity, and a forward-looking portrayal of the firm as it envisions itself in the future. The mission serves as a manifestation of the organization's essence, encapsulating the essential information and traits necessary for

its proper functioning. The vision aims to inspire and guide the organization's employees, inviting them to envision the firm's future potential and fostering a framework for ethical conduct. (Hoskisson, et al. 2004)

A strategy is essentially an orchestrated course of action meticulously crafted to drive an organization closer to the realization of its envisioned future. In contrast, the firm's mission focuses on the markets it serves and the specific products, be they goods or services, that it offers. The mission serves as a loadstar, defining the core purpose of the organization and outlining the specific industries or sectors in which it intends to operate. (Hoskisson, et al. 2004)

The traditional approach to strategic thinking in firms has long advised them to concentrate on a specific industry, pinpoint an optimal position, and cultivate capabilities aligned with that position. Historically, venturing into unrelated industries was viewed as a potentially ill-advised move, with genuine leadership attributed to having a vision that aligns organization's actions toward a particular goal. Even those advocating strategic agility often narrow their focus, emphasizing agility within the existing industry and rapid product development rather than expanding executive perspectives to harness the novel opportunities of the platform era. (Ojanperä & Vuori, 2021)

As a contrast to the traditional approach, Ojanperä & Vuori (2021) have proposed a new paradigm for strategic thinking, where leading firms actively seek to transcend traditional industry boundaries and create synergistic value across diverse sectors. This capability is enabled by the utilization of platform business models and AI tools, which allow for the integration of activities that were traditionally considered incompatible. However, this ability isn't solely reliant on technology; it also hinges on the human qualities of creative insight to spot opportunities and the courage to act.

In the domain of resource-based strategy, organizations are mandated to possess a diverse array of resources, encompassing financial, human, tangible, and intangible assets, to achieve predetermined goals. The distinctive skills associated with a firm's core competence contribute additional value, establishing a competitive advantage that is formidable to replicate. In the context of the modern business landscape, dynamic capabilities play an increasingly pivotal role, compelling organizations to foster innovation, adaptability, and the assimilation of changes in both tangible and intangible resources. A comprehensive analysis of how value-adding activities are structured and coordinated becomes indispensable. (Teece, 2007)

Business professionals wield a crucial influence in guiding the planning, organizing, leading, and controlling of organizational resources. In the contemporary dynamic milieu, characterized by turbulence and uncertainty, managers across private, public, and voluntary sectors contend with a diverse array of rapidly advancing technologies. Their mandate is to adeptly integrate the most suitable and pertinent technologies into their strategies and business

models while consistently pursuing entrepreneurial and innovative solutions to establish and sustain a competitive edge. The impact of information systems on organizations and business conduct is unquestionably profound, ushering in transformative shifts in operational paradigms and methodologies. (Campbell et al. 2011)

To transcend conventional industry boundaries, a firm should possess three pivotal elements and conceptualize its strategy as a sequential progression over time. These three factors encompass: 1) harnessing network effects through a platform-oriented approach, 2) establishing an AI-enabled learning loop, and 3) actively leveraging human intelligence, insights, and creativity. (Ojanperä, 2016)

2.3 Strategy tools

In most cases a business is in a continual process having to make decision on products and markets, decisions on generic strategy and scope, decisions on growth and development options. (Campbell et al., 2004)

For an organization to be able to make these decisions they need to understand their business and where they are aiming at. According to Campbell et al., (2004) when evaluating which of the optional actions the business should pursue the following questions should be asked.



Figure 2: Questions for determining the actions business should pursue. Modified from (Campbell et al., 2004).

A strategic choice proves suitable when it genuinely aligns with the organization's capacity to attain its strategic goals. Feasibility characterizes a strategic option if it is practically achievable. Should an option demand resources like capital that are currently inaccessible, human expertise challenging to procure, or scarce intellectual assets, it's more likely to fall short of meeting the feasibility criteria. (Campbell et al., 2004)

An option becomes acceptable when it gains approval from the key stakeholders involved. Stakeholders possessing the highest combination of both the ability to exert influence (power) and the inclination to wield that influence (interest) will wield the most effective impact. In

many instances, the board of directors emerges as the most influential group of stakeholders. A strategic option would not pass the competitive advantage test if it's anticipated to result in the business merely attaining a status of 'ordinary' or aligning with industry norms. (Campbell et al. 2004)

There are number of tools that can help managers to run through the evaluation and selection stage to determine the best option. In the following sections we will cover selected tools for the thesis.

2.3.1 Strategy Map

The lack of a comprehensive strategy description not only inhibits effective communication among executives and employees but also obstructs the establishment of organizational alignment. This challenge becomes increasingly critical in the context of evolving global competition, deregulation, customer empowerment, advanced technology, and the growing significance of intangible assets such as human and information capital (Kaplan et al., 2004). To address these issues, the strategy map, an evolution of the balanced scorecard, serves as a visual guide for creating value by connecting strategic objectives through causal relationships denoted by arrows, ultimately facilitating organizational alignment with the strategy (Evans, 2013).

The construction of a strategy map is vital in understanding an organization's strategic direction. Jassbi et al. (2011) define it as a tool for establishing the links between the strategic objectives of various perspectives within the Balanced Scorecard, representing the corresponding cause-and-effect relationships. Identifying these causal links is a human-driven process that combines knowledge, experience, and managerial preferences.

In the pursuit of constructing strategy maps, various methods have been developed to structure individuals' knowledge and establish these relationships. These methods aim to reduce judgment ambiguities and account for the real-world intricacies and interdependencies among criteria. It's worth noting that while some, like Kunc (2008), incorporate systems design, others rely on a quantitative approach (Chen and Tzeng, 2015). Nevertheless, it remains challenging to assert that a strategy map derived through mathematical tools possesses a conceptual meaning for managers or fully aligns with their understanding of the business (Moraga et al., 2020).

When organization's strategy fails to incorporate all essential elements on the strategy map template, it can be considered flawed. Commonly observed omissions include the absence of links between internal process metrics and a customer value proposition, undefined goals for fostering innovation, and vague objectives regarding employee skills, motivation, and the role of information technology (Kaplan et al., 2004). Notably, various organizations and

consultants have customized the balanced scorecard to align with their perspective priorities. This adaptation often involves expanding the original four perspectives proposed by Kaplan and Norton to include five or six, acknowledging the significance of aspects like information management, environmental impact, and innovation (Evans, 2013).

The strategy map framework offers a valuable perspective on how intangible assets, such as human, information, and organizational capital, can be visualized as assets that ultimately translate into cash - the most liquid of assets - by driving increased sales and reduced expenditures. This concept of strategic readiness mirrors the idea of liquidity (Kaplan et al., 2004). Just as in the case of a flawed strategy highlighted in the previous chapter the same elements apply here, the level of strategic readiness signifies how swiftly intangible assets can contribute to cash generation.

The following diagram, represented in Figure 3, illustrates an exemplification of the Balanced Scorecard strategy map featuring four perspectives, commencing with the Financial Perspective. This perspective is identified as the paramount objective for profit-maximizing enterprises. The map serves as a tool for executives to discern the precise human, informational, and organizational capital necessitated by the strategy (Kaplan et al., 2004).

Financial objectives typically center around profitability, quantified, for instance, by metrics such as operating income and return on investment. The overarching financial objective is unequivocally aimed at sustaining growth in shareholder value. The long arrow from the Internal Perspective illustrates the correlation regarding this ultimate objective. Consequently, the financial component of the strategy should encompass both long-term growth and short-term productivity dimensions. The simultaneous equilibrium of these two forces serves as the guiding principle for the subsequent components of the strategy map. The figure illustrates these different dimensions included in the section and their correlation with other components. (Kaplan et al., 2004).

In the Customer perspective, managers define the target customer segments in which the business unit operates and define the performance measures for customers within these targeted segments. Upon identifying its target customers, the organization can then establish the objectives and metrics for the value proposition it aims to offer. The value proposition should clarify what the organization intends to provide to its customers better or differently than its competitors (Kaplan et al., 2004).

The internal processes and learning and growth perspectives reveal how the strategy will be executed. The organization oversees its internal processes and the development of human, informational, and organizational capital to deliver the differentiated value proposition of the strategy. Exceptional performance in these two perspectives propels the strategy forward. Internal processes fulfill two pivotal components of an organization's strategy: they generate

and deliver the value proposition for customers, and they enhance processes and minimize costs for the productivity component within the financial perspective. Arrow from the Operations Management Processes to the Improve Cost structure and the arrows from the Processes to the Customer perspective in the figure illustrate the stated correlation between these components. (Kaplan et al., 2004).

The fourth perspective, learning and growth, outlines the organization's intangible assets and their significance in strategy. It consists of Human, Information and Organization capital. While all organizations endeavor to cultivate their people, technology, and culture, many fail to align these intangible assets with their strategies. The key to establishing this alignment lies in granularity, necessitating a shift beyond generalities such as "develop our people" or "live our core values" and concentrating on specific competencies and qualities required by the critical internal processes of the strategy (Kaplan et al., 2004).

Once the objectives and targets have been defined, it becomes imperative to operationalize them to realize the desired outcomes. A set of Action Programs, often denoted as strategic initiatives, should be implemented. These action plans, which outline and allocate resources for the strategic initiatives, ought to be aligned with the strategic themes and perceived as an integrated bundle of investments rather than a collection of independent projects. The segment within the figure encompassing Strategic Job Families, Strategic IT Portfolio, and Organization Change agenda symbolizes these strategic themes with existing independent business cases (Kaplan et al., 2004).

Every organization tailor the strategy map to align with its unique set of strategic objectives. Typically, this customization entails the inclusion of twenty to thirty measures within the associated Balanced Scorecard. While this quantity may seem substantial, the strategy map clarifies how the multitude of measures on a meticulously constructed Balanced Scorecard serves as the instrumentation for a single strategy (Kaplan et al., 2004).

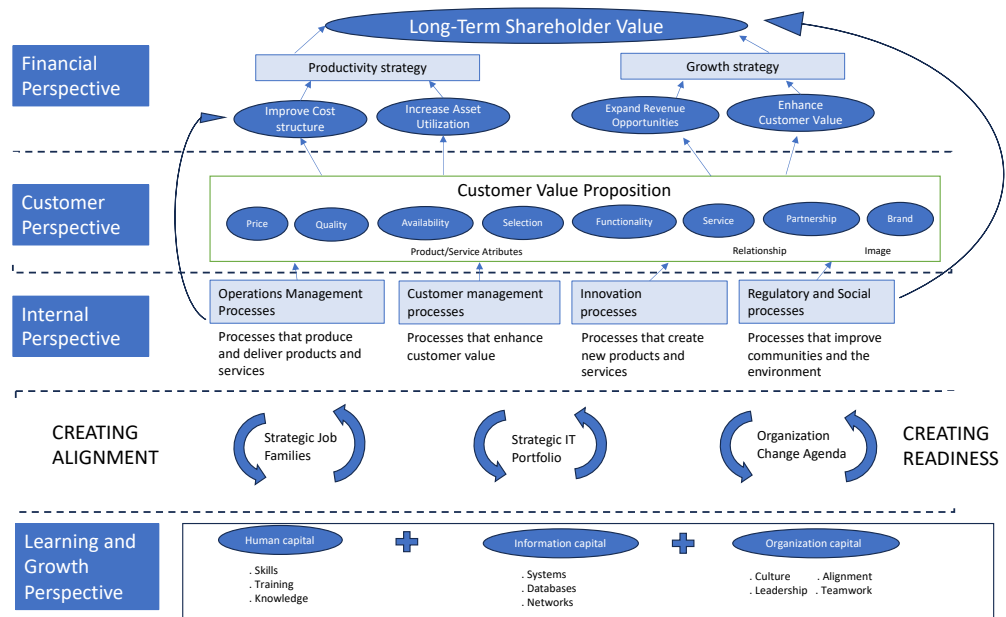


Figure 3: Strategy map: Intangible Assets Must Be Aligned with the Strategy to Create Value (Kaplan et al., 2004, 200).

2.3.2 OKR methodology

The letters OKR come from Objectives and Key Results. Andy Grove defined OKR method in his management manual, High Output Management (Grove, 1983). The book was the result of Grove's own experience working in Intel, where the organization had to change fast and adapt to market changes to succeed in their business. John Doerr's Measure what matters (2018) brought the method to the awareness of a larger audience. John Doerr explain OKR as "A management methodology that helps to ensure that the organization focuses efforts on the same important issues throughout the organization" (Doerr, 2018).

A successful MBO (Management by Objectives) system hinges on addressing two fundamental questions: firstly, "Where do I want to go?" which pertains to the objective, and secondly, "How will I pace myself to see if I am getting there?" This seemingly straightforward second question sparked the OKRs (Objectives and Key Results) movement, introducing the concept of "key results" linked to objectives. (Niven et al., 2016)

According to Doerr (2018), objectives should be significant, concrete, action-oriented, and ideally inspirational. When well-crafted and effectively deployed, objectives act as a defense against vague thinking and execution. On the other hand, "KEY RESULTS" outline how to attain the objective. Effective key results are specific, time-bound, ambitious yet attainable, and, most importantly, measurable and verifiable. "OKRs are meant to bring you out of your comfort zone" (den Haak, 2021). When you establish ambitious goals using OKRs, the key results associated with them should propel you into what is often referred to as the "learning zone." This zone is characterized by the aspirational nature of the goals, which are intentionally set as challenging targets that may not be easy to attain. It's important for this environment to feel somewhat uncomfortable because it represents uncharted territory. (den Haak 2021)

Andy Grove further reinforces the significance of setting clear objectives, stating that a few well-chosen objectives convey a distinct message about priorities, guiding what to embrace ("yes") and what to discard ("no"). He recommends that companies, teams, and individuals should typically link each objective to five or fewer key results (Doerr, 2018). Notably, the focus in employing OKRs is not to create a master checklist of tasks to complete. Rather, the model serves the purpose of identifying the most critical business objectives and evaluating accountability through quantitative key results. This underscores the strategic wisdom that discerning what not to pursue is as vital as determining what to pursue. In this context, discipline is key in deciding what objectives make the final cut (Niven et al., 2016).

All the key results should aim for achieving the objective. If this is not true, then it is not an OKR. In the Table 1 example on OKR quality levels.

Weak	Average	Strong
<p>Objective: Win the Indy 500.</p> <p>Key result: Increase lap speed</p> <p>Key result: Reduce pit stop time.</p>	<p>Objective: Win the Indy 500.</p> <p>Key result: Increase average lap speed by 2 percent.</p> <p>Key result: Reduce average pit stop time by one second</p>	<p>Objective: Win the Indy 500.</p> <p>Key result: Increase average lap speed by 2 percent.</p> <p>Key result: Test at wind tunnel ten times.</p> <p>Key result: Reduce average pit stop time by one second.</p> <p>Key result: Reduce pit stop errors by 50 percent.</p> <p>Key result: Practice pit stops one hour per day.</p>

Table 1: An OKR Quality Continuum (Doerr, 2018, 55).

The implementation of OKRs involves a systematic four-step process. Initially, it entails setting goals, encompassing organization, department, and employee objectives on various time-scales, such as monthly, quarterly, or annually. The choice of timeframe, like quarterly objectives in a dynamic market, often yields superior performance compared to annual goals due to the increased sense of urgency and productivity it fosters. It's imperative for companies to tailor their OKR schedules to their unique business contexts. (Hao & Yu-Ling, 2018)

The next step is to define the key results corresponding to each objective. Key results serve as quantifiable indicators to assess the fulfillment of specific target requirements by the end of the period. (Hao & Yu-Ling, 2018)

Subsequently, the third step involves putting the established plan into action. This phase is where the real work happens, and efforts are directed toward achieving the designated goals. (Hao & Yu-Ling, 2018)

Lastly, the fourth step focuses on regular feedback. During each evaluation cycle, targets' completion is rigorously assessed, and timely feedback is provided. Based on these evaluation results, adjustments are made, and the OKR implementation plan for the subsequent cycle is determined, ensuring an ongoing cycle of improvement and goal attainment. (Hao & Yu-Ling, 2018)

In addition to these steps, a successful OKR plan includes specific actions like providing OKRs education, developing or confirming the mission, vision, and strategy, creating corporate-level objectives and key results, presenting OKRs to the organization, monitoring OKRs throughout the quarter, and reporting results at the end of the period. These additional actions ensure a comprehensive and effective OKR implementation. (Niven et al., 2016)

2.3.3 8 Steps process

Making a strategy loses its point if it can't be implemented. Kotter and Cohen (2002) emphasize that the key to success lies in focusing less on formal activities such as strategy, structure, or systems. These are important, but the central aspect of success involves effectively demonstrating the issues at hand and providing clear solutions to address them. Change becomes feasible when we are able to change how people behave. Understanding feelings plays a significant part in this.

Kotter's eight-phase model provides a structured approach for organizations to establish the necessary conditions to initiate the change process and garner support from employees for the envisioned transformation. It notably places significant emphasis on the leadership's role in guiding change. (Kotter 2007)

Leadership plays a pivotal role in shaping the future, aligning individuals with a shared vision, and motivating them to overcome obstacles (Kotter 2012). In many instances, senior executives find themselves immobilized by the potential negative outcomes. They express concerns about senior employees becoming defensive, a drop in morale, events spiraling out of control, the potential jeopardization of short-term business results, declining stock value, and the fear of being held responsible for creating a crisis. (Kotter 2007)

This paralysis within senior management often arises from an imbalance between the number of managers and leaders within an organization. Management's primary responsibility is to mitigate risk and maintain the current operational system. On the other hand, change inherently demands the creation of a new system, which, in turn, necessitates leadership. Typically, the initial phase of a renewal process remains stagnant until enough genuine leaders are either promoted or brought into senior-level roles. (Kotter 2007)

Transformations frequently find their starting point and progress effectively when an organization is led by a new head who is a competent leader and recognizes the need for significant change. When the scope of renewal encompasses the entire organization, the CEO plays a pivotal role. In cases where change is required within a specific division, the division general manager assumes a central position. In situations where these individuals are not new leaders, exceptional leaders, or advocates of change, the first phase of the process can present substantial challenges. (Kotter 2007)

This significance is particularly heightened in business domains characterized by constant and rapid change. According to Kotter's model, the transformative journey unfolds across eight distinct phases. Commencing with the creation of a sense of urgency, driven by potential crises and opportunities, the process proceeds with the formation of a coalition comprising individuals possessing the necessary credibility to lead the transformation. Following this, a well-defined vision is articulated and communicated to individuals empowered to remove obstacles in their path. Actively pursuing visible short-term successes helps fortify belief in this strategic vision. Subsequent adjustments are implemented and consolidated to sustain the growing momentum. (Kotter, 2012)

The initial four steps in this transformation process are geared towards unfreezing a rigid status quo, acknowledging the inherent difficulty of change. Phases five to seven introduce a multitude of new practices, while the final stage embeds the changes in the corporate culture, ensuring their enduring impact. (Kotter, 2012)

It is important to follow the steps and not skip them. Skipping steps can jeopardize the change process. The process can become artificial, it can lose the momentum if step 1 is not done initially. Creating the feeling of urgency doesn't mean moving hasty. Every phase should be covered with enough time. The main goal is common understanding and standing by the vision and made strategy. If the leaders do not understand where the organization is aiming for with the change it is very hard for them to get rest of the people in the organization onboard with the change. (Kotter, 2012) As stated this is a process not an event. To achieve results demands long term commitment.

The figure 4 represents Kotter's summary on the steps producing successful change.

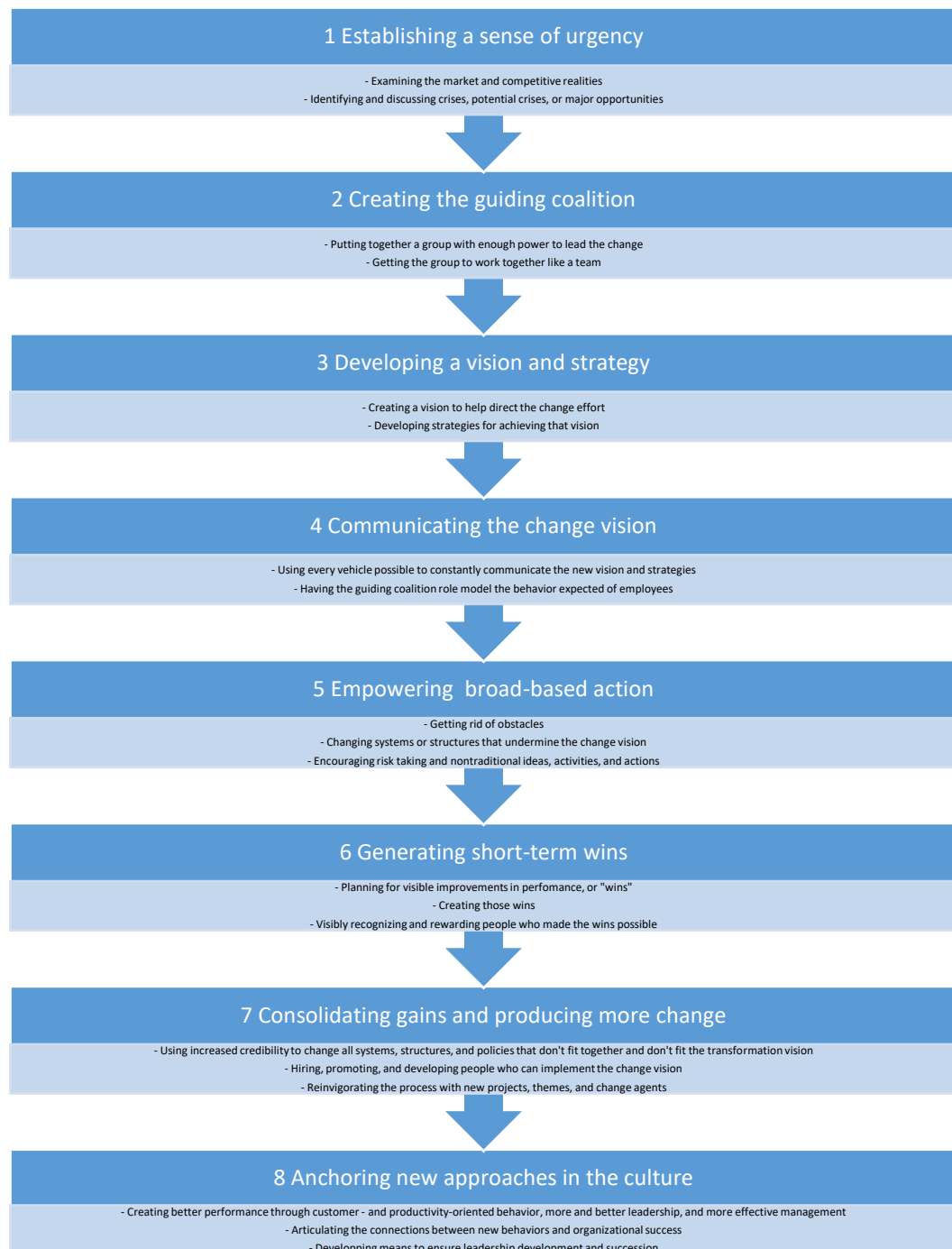


Figure 4: The eight-stage process of creating major change. (Kotter, 2012, 23).

2.3.4 Learning Organization

In today's dynamic and fiercely competitive landscape, the necessity for companies to transform into learning organizations is increasingly evident (Sarder, 2016). The forces of globalization, evolving economies, advanced technology, heightened competition, novel products

and services, and the convergence of diverse disciplines exert significant pressure for adaptation. In the face of these changes, there is an increased potential for rewards for those who possess foresight. Organizations should engage in continuous learning to effectively prepare for these dynamic shifts and shape a world that optimally enhances their chances of success (Sessa et al., 2006). These organizations distinguish themselves by placing a paramount emphasis on comprehensive learning that permeates every level of the hierarchy. This extends beyond the mere availability of courses and online programs for employees to address performance gaps; it encompasses integration into all aspects of the organization, influencing decision-making, problem-solving, information dissemination, organizational structure, and even physical workspace layout (Sarder, 2016).

The shift towards learning organizations aligns with the widely shared view that in fast-paced and competitive environments, all organizations should cultivate the competence of organizational learning (Hamel and Prahalad, 1994; Nonaka, 1991; Senge, 1992). Easterby-Smith and Araujo (1999) make a critical distinction between organizational learning, which primarily focuses on observing and analyzing learning processes at the individual and collective levels within organizations, and the learning organization literature. The latter follows an action-oriented approach, employing specific diagnostic and evaluative tools to identify, promote, and assess the quality of learning processes within organizations (McGill et al., 1993; Nonaka, 1991; Senge, 1992; Ulrich et al., 1993). This approach centers on individual and group outcomes, including production, rewards, and methodologies such as dialogue and systems analysis. (Armstrong et al., 2003)

Furthermore, Huysman (1999) summarizes various definitions of a learning organization, describing it as an organizational form that facilitates the learning of its members, resulting in positive outcomes like innovation, efficiency, better alignment with the environment, and a competitive advantage. Finger and Brand (1999) conceptualize the learning organization as a strategic objective, akin to goals like increased profitability or enhanced customer satisfaction. (Armstrong et al., 2003)

In this work we use Sarder's (2016) framework for building a learning organization. Figure 5 illustrates the construction of the framework, commencing with the cultivation of a conducive culture. The establishment of a learning culture is paramount, necessitating the presence of adept leaders who embody the principles they support. These leaders need to cultivate teams comprised of individuals with receptive minds, willing to engage in constructive dissent. Supportive behaviors, such as collaboration, experimentation, and risk-taking, underpin this cultural transformation. Leaders within learning organizations acknowledge that investment in learning is indispensable, requiring adequate resource allocation (Sarder, 2016).

Moving forward in the framework, Learning Plan serves as the channel for translating vision into tangible outcomes. It entails defining objectives within defined timeframes at organizational, team, and individual levels. The understanding on why learning is needed is spread through the whole organization, facilitated by competency models that pinpoint existing proficiencies and areas for development regarding strategic objectives. Tailored learning methodologies address competency gaps, acknowledging the diversity of learner needs. Assessment mechanisms measure the efficacy of learning initiatives, assessing their value proposition for both the organization and individuals (Sarder, 2016).

Third and final section, Learning operations oversee the procedural aspects to ensure goal attainment, with designated individuals responsible for execution. Managing this entails curating a vast repository of content, necessitating meticulous organization and maintenance. Delivery modes should align with organizational and learner requirements, with careful selection of technological tools to diminish unnecessary expenses. Centralized administrative and marketing functions streamline operations, optimizing resource allocation and ensuring adherence to procedural standards (Sarder, 2016).

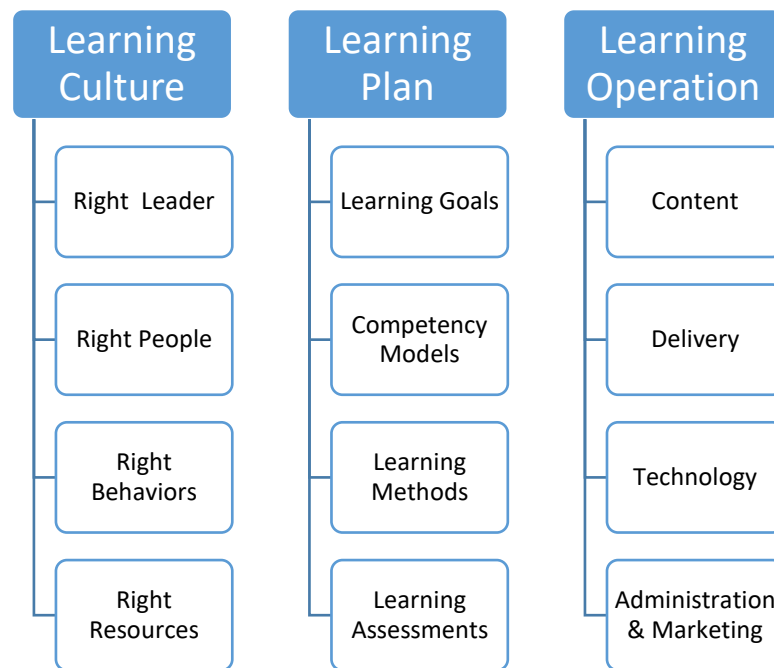


Figure 5: Sarder Framework: Building the Learning Organization (Sarder, 2016, 29).

At the organizational level, the demonstration of learning is observable through shifts in elements such as vision, strategy, policies, regulations, structure, and products or services. Proactive management of learning is crucial for individuals, groups, and organizations, emphasizing the acquisition of necessary skills and knowledge to enhance current work performance and prepare for future challenges. Relying on explicit directives for learning is not practical, as such guidance may never materialize (Sessa et al., 2006).

Garvin et al. (2006) present their three Building blocks approach, which has the same basic principle as the Sarder's Framework (2016) used in this work. Three fundamental factors crucial for organizational learning and adaptability have been identified, collectively referred to as the building blocks of the learning organization. These factors include a supportive learning environment, concrete learning processes and practices, and leadership behavior that provides reinforcement. While each block, along with its discrete subcomponents, is essential to the overall framework, they operate independently and can be measured separately (Garvin et al., 2008). These two tools with slightly different approaches help in understanding how the organization is functioning as a learning organization.

To establish a culture of continuous learning, it is vital to assess your current practices to identify strengths and areas for improvement. Evaluate the characteristics of a learning organization that are already embedded in your organizational framework. Decide whether a complete overhaul is necessary and contemplate the adjustments needed in leadership, personnel, behaviors, and resources to align with your envisioned learning culture. Conducting a comprehensive assessment is pivotal in understanding the necessary changes. Utilize tools such as questionnaires, surveys, and focus groups to gather insights from individuals across all levels of the organization, including frontline staff, senior management, as well as input from customers, vendors, and other stakeholders. This diverse range of perspectives contributes to forming a valid and accurate representation of the current situation. (Sarder, 2016)

After understanding the status, the next steps are to come up with ideas how to develop the organization. To bring your vision of a learning organization into fruition rather than being overshadowed by seemingly more urgent priorities, a comprehensive learning plan is indispensable. This plan should involve an overarching organizational learning strategy, individualized learning plans for each team, and specific learning plans for every employee. Comparable to an itinerary for a journey, this plan serves as the foundation for your learning and development initiatives by clearly delineating your destination and the path to attain it. (Sarder, 2016)

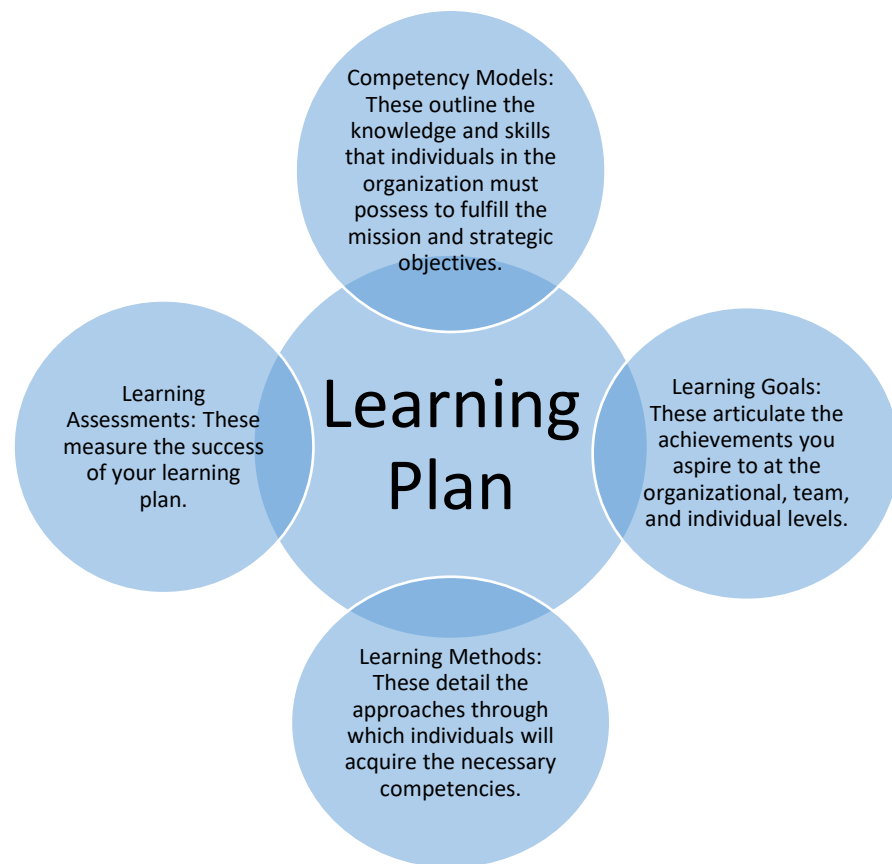


Figure 6: A learning plan comprises four vital components: Modified from (Sarder, 2016).

Implementing an organization-wide learning plan is a multifaceted process that follows careful planning. The implementation phase involves numerous tasks and engages a significant number of individuals, requiring extensive information and substantial technological resources. Without proper supervision and efficient systems, the learning operation is at risk of becoming fragmented, redundant, inefficient, and disconnected from the organization's mission, values, business needs, and strategic goals. Even with allocated resources, a well-designed learning plan may not yield meaningful results in such instances. To ensure success, it is crucial to establish a comprehensive system for managing the learning operation. (Sarder, 2016)

Moreover, continuous learning is essential for groups at any organizational level, especially as they play an increasingly vital role in making crucial decisions for the organization. Working effectively in groups is not an inherent skill, necessitating a learning process for members to transform from individuals into a cohesive unit with shared goals and a mutual understanding of methods to achieve those goals. This learning journey encompasses structuring the group, effective communication, conducting work processes, decision-making, and implementing decisions. In the dynamic organizational context, groups need to remain adaptable, ready to restructure themselves, adjust decisions, and update plans as needed. (Sessa et al., 2006)

Among a long list of key factors, the implemented learning system enables you to:

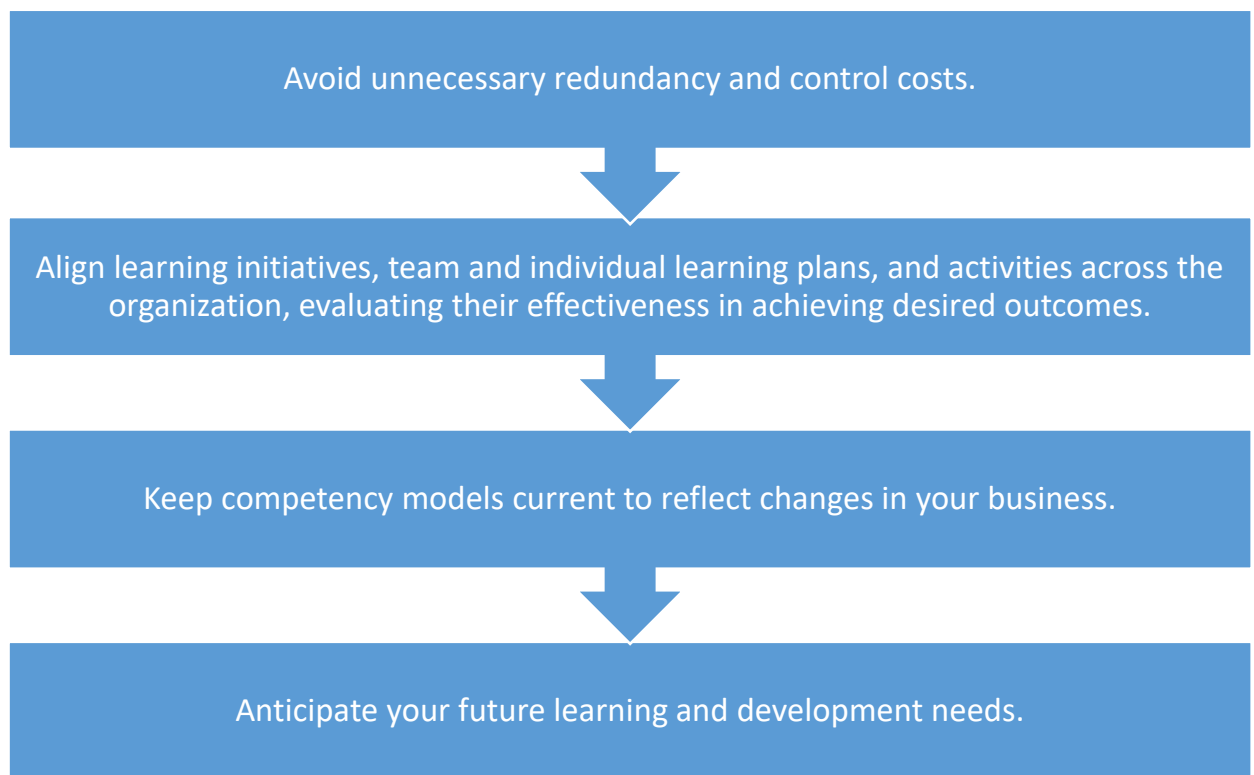


Figure 7: Implemented learning system enables to: Modified from (Sarder, 2016).

To effectively manage your learning operation, you can employ four broad functions to structure the work. These functions are Content, Delivery, Technology and Administration & Marketing. Content forms the core of your learning operation. Given the substantial volume of content involved in organizational learning—such as curricula, course materials, assessments, tests, competency models, employee performance and development plans, and evaluations—it is crucial to organize and manage this content efficiently. This ensures easy access and updates, preventing resource wastage and maintaining the smooth operation of your learning organization. (Sarder, 2016)

In the contemporary landscape, virtual workshops and seminars enable group learning regardless of geographical location. Learning is increasingly being delivered through various digital formats like e-learning, video, webcasts, podcasts, and massive open online courses (MOOCs). This not only reduces costs but also expands the reach of your learning initiatives, providing employees with flexible access to learning resources whenever and wherever needed. Over a few generations, Technology has transformed the way we work, with learning system technologies offering benefits beyond administrative streamlining, encompassing curriculum storage and the delivery of e-learning programs. Today's technologies foster collaboration by facilitating the efficient sharing of knowledge throughout the organization. (Sarder, 2016)

The administrative and marketing function plays a crucial role in ensuring that all tasks related to managing the learning operation are executed accurately, efficiently, and cost-effectively. Establishing systems and processes for this function is essential to streamline operations. (Sarder, 2016)

Building a learning organization does not occur merely by having the concept or support from senior leaders, and it certainly does not happen overnight. It requires sustained, long-term commitment, a reservoir of patience, meticulous strategic planning, and a consistent allocation of resources. You need to cultivate a culture of learning, develop comprehensive learning strategies, and establish a structured system for overseeing your day-to-day operations. (Sarder, 2016)

2.3.5 Ecosystem strategy

A software ecosystem denotes a collective of actors functioning as a cohesive unit within a shared market for software and services, engaging in relationships supported by a common technological platform or market. This engagement involves the exchange of information, resources, and artifacts (van den Berk et al. 2010). In the broader context, a fundamental distinction arises between traditional and contemporary economies. The former, characterized as an industrial economy, thrived on economies of scale, whereas the latter, an information economy, is fueled by the economics of networks (Lansiti & Levien, 2004).

Ecosystems, especially those purposefully crafted, are gaining prominence. In fact, in an increasing number of industries, the concept of the firm and even the industry has become less relevant for strategic analysis. Instead, our attention should be directed toward the competition among digitally empowered, purposefully designed ecosystems that transcend the conventional boundaries of industries. These ecosystems offer intricate and customizable combinations of products and services. When it comes to designing or participating in such ecosystems, traditional strategy frameworks provide limited guidance. A firm-centered framework is insufficient; instead, an ecosystem-focused framework should address five crucial questions.

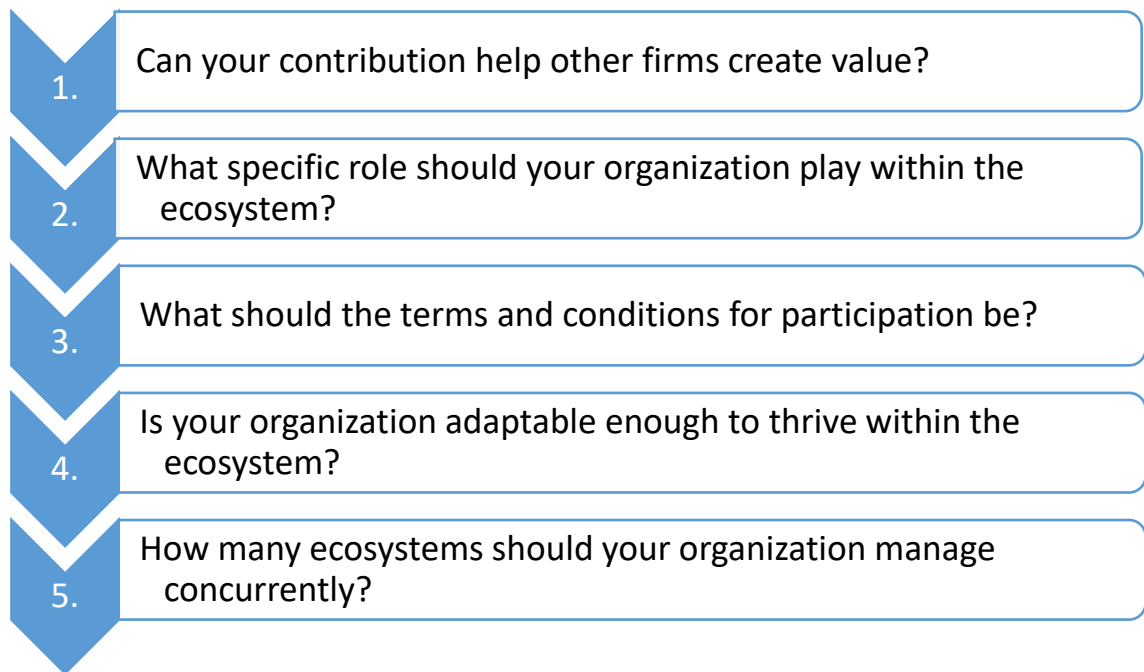


Figure 8: Five crucial questions: Modified from (Jacobides, 2019).

The formulation of a firm's strategy, whether explicit or implied, becomes evident through its operational decisions, which achieve optimal overall performance when aligned with the organization's environment. In a networked context, these decisions should be influenced by the structure and dynamics of the business ecosystem, necessitating harmony with the chosen role and cultivated capabilities of the firm. (Lansiti & Levien, 2004)

The upcoming Wal-Mart example will show how ecosystem strategy can be used to thrive in the firm's selected field. For an extended period, Kmart and Wal-Mart stood as the prominent figures in the U.S. retail industry, sharing commonalities that extended beyond stylistic differences for most consumers and industry professionals. However, a significant shift occurred when Kmart filed for Chapter 11 protection in January 2002, while Wal-Mart continued to prosper as the most successful retailer in history. What distinguishes Wal-Mart's success is not merely a matter of style but a unique approach to creating, managing, and evolving a powerful business ecosystem. (Lansiti & Levien, 2004)

Examining Wal-Mart's relationship with its extensive network of business partners reveals a distinctive driver of its success. Wal-Mart strategically harnessed its capacity to gather consumer information to coordinate the distributed assets of its expansive network of suppliers. This intricate network, akin to a single vast operation comprising thousands of companies, was meticulously organized through a combination of technology, capabilities, and policies. The result was a collective force that efficiently supplied customers with the products they needed at the right time and at the lowest feasible cost. This strategy proved exceptionally

effective, yielding significant advantages in cost, operating margin, and sales per square foot—a gap that Wal-Mart not only maintained but also expanded over time. (Lansiti & Levien, 2004)

Wal-Mart strategically embraced real-time demand tracking and took a distinctive approach by sharing this information with its supplier network. The introduction of Retail Link, a system that remains unrivaled in delivering the most precise real-time sales information in the industry, became a pivotal move for Wal-Mart. Through the dissemination of software and hardware, Wal-Mart equipped its network partners with the tools and technological components needed to integrate Retail Link seamlessly into their respective supply chains. This not only enhanced the impact of the consumer information provided but also empowered thousands of individual firms to partake in the value created by Wal-Mart's information infrastructure. As a result, these firms developed their own technology and business processes, effectively leveraging Wal-Mart's information assets. (Lansiti & Levien, 2004)

Fundamentally, Wal-Mart recognizes that its destiny is intertwined with that of other members in the business network. Instead of predominantly concentrating on internal capabilities, Wal-Mart places significant emphasis on the collective attributes of the business networks it engages with, treating them more akin to organic ecosystems rather than conventional supply chain partners. They comprehend the influence they individually wield on the overall health of their own performance. Ultimately, Wal-Mart achieved success by assuming the role of a keystone within its respective ecosystem. Term keystone characterizes a behavior pattern that not only enhances the overall performance of an ecosystem but, in the process, elevates individual performance as well. (Lansiti & Levien, 2004)

Whether organization occupies a central position in a business ecosystem or concentrates on a specific niche, the formulation and implementation of strategy depend on grasping three fundamental aspects of competition in a networked environment. The first pillar is architecture, determining how companies delineate boundaries between technologies, products, and organizations. The second pillar is integration, elucidating how organizations collaborate across these delineated boundaries, sharing capabilities and technological components. The third pillar is market management, influencing how organizations conduct transactions across these boundaries, navigating the intricate market dynamics that govern business networks. (Lansiti & Levien, 2004)

2.4 Digitalization

Digitalization, recognized as a pivotal trend reshaping both society and business in the foreseeable and distant future, is poised to have a profound impact comparable to the industrial revolution. The ongoing digital transformation, spanning decades and influencing various sectors, has seen early pioneers in the telecom industry leading the way, while the automotive

sector is currently embarking on its digitalization journey. This transformative process signifies a fundamental departure from traditional emphases on hardware and products, pivoting towards software, services, and potentially disruptive business models. This shift introduces a transformative landscape for numerous companies navigating intense competition. For those seeking to enhance their utilization of software and services, deciphering available options, and determining necessary actions poses a significant challenge. (Parviainen et al. 2017; Fitzgerald et al. 2017)

A consensus has arisen, highlighting the necessity for companies to invest not only in cutting-edge information technologies but also in discarding outdated management practices and entrenched organizational cultures. To harness the opportunities offered by digital data, software, and digital ecosystems, companies should cultivate a 'digital culture' and embrace new agile processes. Common sentiment in popular business literature suggests that substantial changes are underway, and companies unwilling or unable to pursue digital transformation run the risk of obsolescence. (Schildt, 2020)

While some researchers and practitioners may observe similarities between Business Process Reengineering (BPR) and Digital Transformation (DT), there are also notable distinctions. Hammer and Champy (1993) defined BPR as the rethinking and reengineering of business processes with the aim of reducing costs and enhancing products and services. Although there are parallels between BPR and DT, significant differences exist. BPR mainly concentrates on automating rule-based systems, which are characterized as processes with clearly assigned rule-based (algorithmic) procedures automated by technology. In contrast, the primary objectives of DT revolve around acquiring new data and utilizing this data to reimagine old, rule-based processes.

The data-centric approach of DT provides an opportunity to acquire fresh insights and subsequently reimagine business models and operations. For instance, Airbnb shifted its focus from processes to data, offering an alternative to hotels through part-time landlords who lease their properties in desirable locations on a short-term basis. This data-driven approach transformed the traditional, rule-based processes in the hotel industry, creating unique value for guests. (Bendor-Samuel, 2017)

2.4.1 Defining the concept

Digital transformation encompasses changes in work methodologies, roles, and business offerings produced by the adoption of digital technologies within an organization or its operational environment. This transformation manifests at various levels, including the process level, where new digital tools are adopted, and processes are streamlined by reducing manual steps; at the organizational level, where new services are introduced, obsolete practices are discarded, and existing services are presented in novel ways; at the business domain level,

leading to changes in roles and value chains within ecosystems; and at the societal level, contributing to shifts in societal structures, such as the nature of work and means of influencing decision-making. (Parviainen et al. 2017)

While the terms digital transformation and digitalization may carry some vagueness, they signify a purposeful effort to establish structures and workflows within organization. This initiative empowers the organization to leverage real-time data and computer algorithms, with the goal of improving efficiency, facilitating interactions with stakeholders, and fostering the creation of innovative products and services. (Schildt, 2020)

The profound impact of emerging information technologies on companies lies in their advanced capability to capture extensive streams of digital data, subsequently utilized for automating, coordinating, and optimizing business processes. This increased collection and utilization of digital data are made possible by the current affordability of data transfer and storage, a significant shift from a decade ago. Complementing these advancements, innovations in machine learning and artificial intelligence (AI) provide tools to discern patterns from data, enabling the creation of intelligent automation adaptable to evolving contexts. (Schildt, 2020)

In contrast to early business information systems, contemporary systems are highly interconnected and integrated, utilizing data flows to coordinate diverse processes across organizational boundaries. Advanced algorithms empower companies to build smart automation, optimizing complex processes in real time. Unlike the original notion of reducing complexity, digital technologies now enable companies to efficiently manage ever-greater complexity. Platforms like Facebook exemplify this by leveraging historical data to generate a unique mix of content for each user with every access, marking the ongoing digital transformation characterized by the integration of software systems and an increase in complexity. (Schildt, 2020)

2.4.2 Defining different maturity levels

The concept of digital maturity encompasses organization's response to shifts within the digital landscape, its integration of digital advancements into operational processes, and the cultivation of digital competencies among its workforce. However, this definition, while comprehensive, remains broad in scope. Given the novelty of this term, a universally accepted, precise definition characterizing the essence of digital maturity has yet to emerge. (Aslanova & Kulichkina, 2020)

Maturity, in a broader sense, is defined as an organization's capacity to respond effectively to its environment through proficient management practices. Scott and Bruce (1987) explain maturity within an organizational context as a reflection of the suitability of its measurement and management practices concerning its strategic objectives and responses to environmental

changes. In a more pragmatic perspective, Rosemann and de Bruin (2005) view maturity as a metric for evaluating an organization's capabilities within a specific discipline. Organization's response to its external environment is typically a learned response rather than an instinctive one. It's important to note that an organization's maturity is not necessarily correlated with its age (Thorstein et al. 2020).

Aslanova & Kulichkina (2020) present an option for classifying companies in different maturity levels. The classification of companies according to their level of digital maturity is a multi-faceted process, represented through three key scales: the digitalization strategy, the extent of the organization's digitalization, and its readiness for digital transformation. Based on these three scales, four distinct levels of digital maturity are delineated: "beginners," "catching-ups," "off-track," and "leaders."

"Beginners" are organizations that lack a digital transformation strategy; they might collect and analyze information about it, or in some cases, have no intentions of developing one at all. Such companies typically embody a traditional organizational structure, making it challenging for them to adapt to changes in business processes. Management might not be geared towards modernization, and employees often lack the necessary skills to engage with contemporary technologies. Additionally, their technical infrastructure may not be conducive to digitalization. (Aslanova & Kulichkina, 2020)

"Catching-ups" are organizations that recognize the need for a digital transformation strategy but have not yet developed one. They understand the necessity of change and are prepared for it, and both management and employees share this vision. Furthermore, they either possess the essential technical equipment or are prepared to acquire it. (Aslanova & Kulichkina, 2020)

"Off-track" organizations have a digitalization strategy in place but encounter difficulties in its execution. Management is eager to evolve the organization in line with the demands of the digital age, yet various obstacles hinder the path to successful digitalization. These challenges are often related to human resources, technological infrastructure, data digitization, and more. (Aslanova & Kulichkina, 2020)

"Leaders" represent organizations with a digitalization strategy in place and a proven track record of successful implementation. Typically, these are modernized companies with a business model tailored to the digital age. Their management embodies forward-thinking leadership that drives the organization towards success. These companies have the necessary technical foundation, and their employees possess the essential skills and competencies to engage with it effectively. (Aslanova & Kulichkina, 2020)

To achieve the highest level of digital maturity, organizations should establish a comprehensive digitalization strategy complete with key performance indicators (KPIs) to gauge its implementation. The absence of such a strategy poses risks, potentially leading to ineffective decisions that could adversely affect the organization. Furthermore, reaching the highest level of digital maturity necessitates the presence of the required infrastructure, structures, and units to facilitate the process of digital transformation. A pivotal component in attaining maximum digital maturity is the human factor, encompassing the willingness of both management and staff, in addition to the essential skills and competencies required for the organization's digitalization. Hence, optimizing these various aspects is the pathway to achieving digital maturity. (Aslanova & Kulichkina, 2020)

The classification by Aslanova & Kulichkina is easily understandable and clear, but to bring and aspect from a more common and widely used way of conducting the assessment The Digital Maturity Assessment (DMA) tool by the European Digital Innovation Hubs (EDIHs) is introduced next. EDIHs serve as comprehensive support centers established to assist companies in addressing digital challenges and enhancing their competitiveness.

Digital maturity assessment is established through a questionnaire, inquiring companies about their approach and capabilities in several categories: Intelligence, Connectivity, Flexibility, Automation, Sustainability, Services, Social. The questionnaire includes for example the following multiple answer questions;” In which of the following business areas has your enterprise already invested in digitalization and in which ones does it plan to in the future? Which of the following digital technologies and solutions are already used by your enterprise? How does your enterprise make use of digital technologies to contribute to environmental sustainability?” (Kalpaka, 2023). Additionally, the evaluation will encompass the market maturity of innovations via the "Market Maturity Indicator" and the potential for market creation of specific innovations, assessed using the "Market Creation Potential Indicator" within the framework of the Innovation Radar. (Kalpaka, 2023)

EDIHs uses a three-year timeline; It starts by determining the base digital maturity level before EDIHs gets involved with the organization. During the timeline the DMA is filled three times by the organization; 6 months before EDIHs presence, 1 year after the first DMA and 2 years after. During the period EDIHs observes the organization to understand the DMA growth curve.

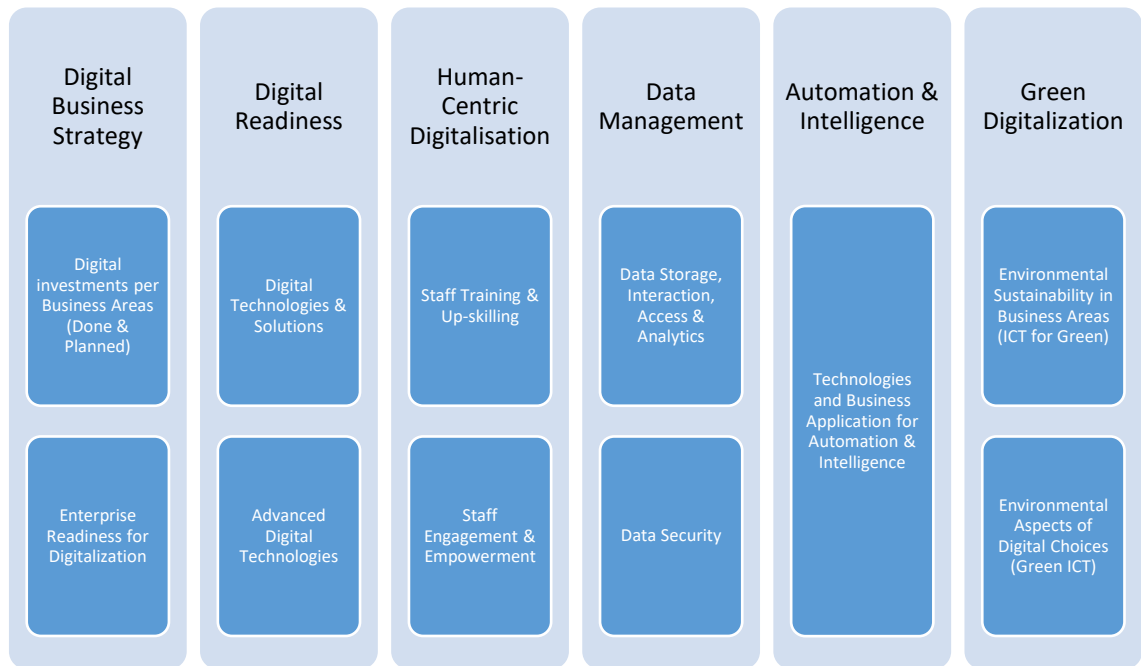


Figure 9: EDIHs DMA Framework for SMEs (Kalpaka, 2023, 13).

2.4.3 Roadmapping

The roadmapping technique is suggested as a valuable tool for helping companies navigate through unpredictable and turbulent business environments. It offers a structured approach for both monitoring the external landscape and evaluating the progress of individual technologies, including those that might disrupt the status quo. While technology roadmaps may seem straightforward in their presentation, their creation involves substantial complexities, primarily due to their broad scope, encompassing a multitude of intricate conceptual elements and human dynamics. (Phaal et al., 2004)

A comprehensive plan for accomplishing a goal is crafted. To begin with, it necessitates a meticulous evaluation of the disparities between the present state and the desired objective. In the context of internal efficiency objectives, this entails a thorough scrutiny of existing processes and technology against the goal, pinpointing the requisite modifications. When the aim revolves around external opportunities, the focus shifts to defining the tasks essential for developing offerings for a new customer or segment. This involves identifying the competencies required, developmental work, and potential alterations to the current offerings. In the case of disruptive change objectives, the analysis encompasses the identification of current competencies and offerings that can be leveraged in the new context, along with the identification of any missing elements. (Parviainen et al., 2017)

After clearly defining the gaps, the subsequent step involves outlining actions to bridge these disparities. Actions for objectives associated with enhancing internal efficiency may include

the adoption of new technologies, like IT tools, optimizing existing processes, or reconfiguring them to make the most of digital opportunities. This goes beyond mere digitization, encompassing the definition of functionalities that optimize the utilization of digital opportunities. The reevaluation and updating of key performance indicators (KPIs) to better align with new business objectives are also part of the process. (Parviainen et al. 2017)

For goals linked to external opportunities and disruptive changes, actions may include defining and developing novel offerings, acquiring new competencies, analyzing potential markets, and redistributing internal resources. (Parviainen et al. 2017)

Once actions are identified, their feasibility is thoroughly analyzed and prioritized. Feasibility evaluation entails conducting a cost-benefit analysis, assessing their impact on existing practices, offerings, and resources, as well as a risk assessment and an evaluation of constraints. Common costs related to digitalization encompass the technology required, staff training and support, and the maintenance of digital data. As digitalization implies change, the general expenses linked to altering work practices are applicable. (Parviainen et al. 2017)

A part of the feasibility analysis may involve conducting trials and prototypes of potential solutions to gain a deeper understanding of the required actions. After prioritizing actions, their interdependencies and the viewpoints of relevant stakeholders are taken into consideration. The organization's change management capacity is also considered to ensure the correct pace of implementation. Ultimately, the prioritized actions are consolidated into a comprehensive roadmap, delineating their order, significance, and assigning responsibilities for execution. (Parviainen et al. 2017)

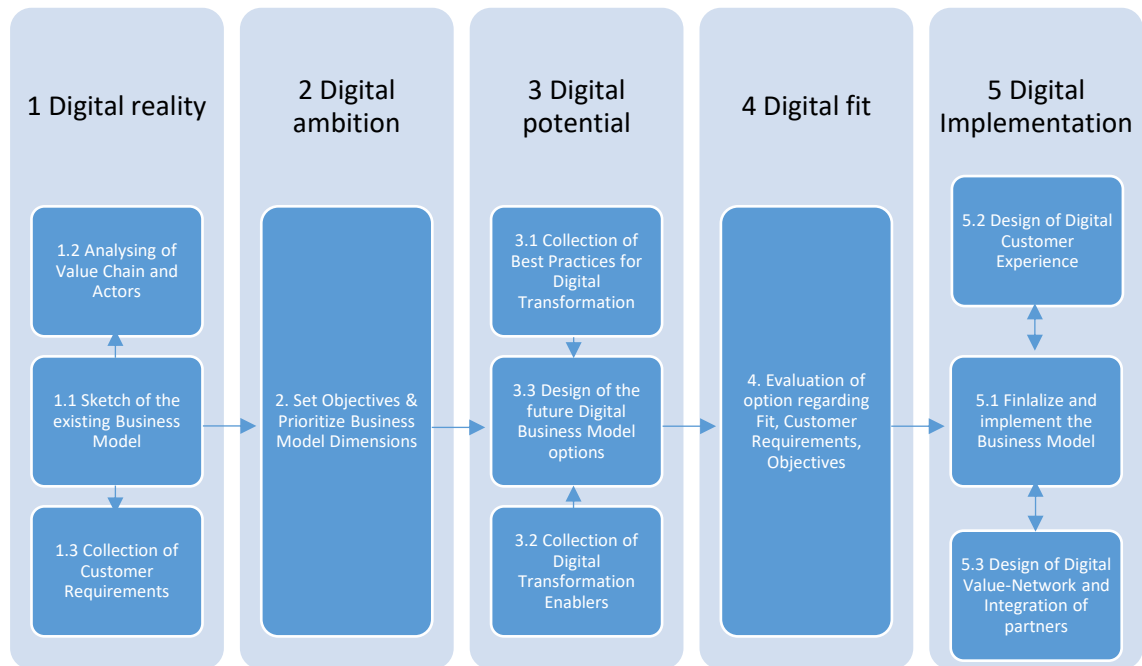


Figure 10: Roadmap for Digital Transformation (DT): (Schallmo et al., 2016, 23).

2.5 Summary

This chapter concentrates on the main insights collected from the theory section. Starting with the Strategy Map. This visual guide, introduced by Evans (2013), facilitates the creation of value by connecting strategic objectives and promoting organizational alignment. Failure to integrate essential elements on the strategy map template, as highlighted by Kaplan et al. (2004), results in a flawed strategy.

Objectives and Key Results (OKR) are used to contribute to organizational clarity, as described by Niven et al. (2016), OKRs provide strategy tools for companies to answer fundamental questions about their direction and progress. Well-crafted objectives are specific, time-bound, ambitious yet achievable and measurable. It is recommended to select a few well-chosen objectives linked to five or fewer key results, fostering a "learning zone" where companies challenge their abilities (Doerr, 2018). OKR implementation involves a four-step

process: setting a time scale, defining key results, putting the plan into action, and continuous evaluation and feedback.

The implementation of a created strategy requires people's support for success. Leadership, particularly the role of senior executives and CEOs, plays a pivotal role in shaping the future, aligning individuals with a shared vision, and overcoming obstacles (Kotter, 2012). However, concerns about potential negative outcomes often immobilize senior executives, including fears of defensive reactions from senior employees, declining morale, events spiraling out of control (Kotter, 2007). The transformative journey, delineated by Kotter (2012), unfolds across eight phases, emphasizing the importance of following each step to avoid jeopardizing the change process. These steps are 1. Establishing a sense of urgency, 2. Creating the guiding coalition, 3. Developing a vision and strategy, 4. Communicating the change vision, 5. Empowering broad-based action, 6. Generating short-term wins, 7. Consolidating gains and producing more change and finally 8. Anchoring new approaches in the culture.

In the contemporary competitive landscape, the transformation into learning organizations is crucial (Sarder, 2016). Such organizations prioritize comprehensive learning throughout all levels, impacting decision-making, problem-solving, information dissemination, organizational structure, and physical workspace layout. To establish a culture of continuous learning, organizations should assess current practices, identify strengths and areas for improvement, and develop a comprehensive learning plan. This plan should include an overarching organizational learning strategy, individualized plans for each team, and specific plans for every employee (Sarder, 2016).

For organization working in software industry the concept of a software ecosystem becomes as an increasingly important factor. The concept, explained by van den Berk et al. (2010), refers to a collective of actors operating as a cohesive unit within a shared market for software and services. Traditional and contemporary economies differ fundamentally, with the latter, an information economy, relying on the economics of networks (Lansiti & Levien, 2004). Purposefully crafted ecosystems are gaining prominence, challenging traditional firm-centered frameworks.

Whether occupying a central position or focusing on a niche, companies competing in a networked environment need to grasp three fundamental aspects: architecture, determining boundaries; integration, addressing collaboration across these boundaries; and market management, navigating transactions and market dynamics (Lansiti & Levien, 2004). This understanding is essential for formulating and implementing effective strategies within networked ecosystems. Committed, educated workforce with a vision gives the possibility for organization to succeed in the new way of working.

Connected to software ecosystems, Digitalization in general is reshaping society and business. The ongoing digital transformation, spanning various sectors, signifies a shift from traditional hardware/product emphasis to software, services, and potentially disruptive business models. Digital Transformation aims at acquiring new data to reimagine old, rule-based processes. Airbnb's example on the shift from processes to data, exemplifies the data-centric approach, which is transforming traditional industries.

While going through the digitalization journey it is important for the organization to understand their current Digital maturity level. Digital maturity involves organization's response to digital shifts, integration of digital advancements, and the development of digital competencies. Aslanova & Kulichkina (2020) propose four digital maturity levels - "beginners," "catching-ups," "off-track," and "leaders" based on digitalization strategy, extent, and readiness for transformation. Achieving Highest Maturity Requires a comprehensive digitalization strategy with KPIs, infrastructure, structures, and units for digital transformation. Human factors, including management and staff willingness and essential skills, are crucial.

There are several available Digital Maturity Assessments. The European Digital Innovations Hubs assessment is used as an example for describing what is involved with the assessment and what kind of timeline is used for following the growth development curve.

Finally, Roadmapping is suggested as a valuable tool for navigating unpredictable business environments, evaluating progress, and managing disruptive technologies. It involves evaluating disparities between present and desired states, defining tasks for external opportunities or disruptive changes, outlining actions, conducting feasibility analysis, and prioritizing actions.

The change process demands time and dedication from the companies. In many cases the leadership will need to educate themselves before and during the change process to be able to help the organization through change. Using different strategic tools will give the organization a wider view on the change and decrease the potential amount of knowledge gaps. As said already change is a journey not an event.

3 Research methodology

Methodology refers to the framework or set of decisions and procedures that govern a study, making it understandable to others, and is open to scrutiny, critique, and replication or adaptation in different contexts. In this context, the term methods relate to the techniques used by qualitative researchers to collect data within the defined framework of the study established by its methodology (Lapan, et al., 2011).

The research methodology employed in this study is qualitative research. “We define qualitative research as an iterative process in which improved understanding to the scientific community is achieved by making new significant distinctions resulting from getting closer to the phenomenon studied. (Aspers, et al., 2019)” The selected approach allows the research flexibility in both data gathering and analysis. The primary goal is to identify topics lifted by participants in a research study, aiming to reveal a range of perspectives and highlight those predominant among the study participants. Unlike quantitative researchers, those engaged in qualitative research are content with offering detailed descriptions and explanations tailored to a specific setting. This purpose aligns with qualitative research’s focus on variation and individual experiences. (Lincoln, 2021)

This research aims to give answers to the following research question; How to develop digitalization strategy for software organization? Throughout the research, the objective is to attain a more profound comprehension of the subject by examining the following sub-research questions; Why does the organization need a digitalization strategy? How to understand the digitalization maturity of the organization? How to proceed with the development project? How to implement the strategy in practice?

3.1 Qualitative Research method

Qualitative research is inherently guided by theory. The extent to which theory influences the initiation and direction of data collection varies depending on the researcher’s preferred scientific paradigm. Researchers should possess a well-defined understanding of their data collection methods and tools, along with a clear rationale for their selection, as well as a plan for organizing, managing, analyzing, and integrating the collected data within the framework of their methodology. This understanding is crucial as research typically begins with a theoretical framework that serves as the foundation for testing. In this context, the selection of instruments is predetermined based on the components outlined within the theoretical model. In qualitative research, a conceptual model acts as the theoretical starting point, providing a visual representation of the study’s conceptual trajectory. This model, portrayed as a diagram, defines the primary research domains anticipated to be explored in the study, informed by initial assessments and existing literature. (Lapan, et al., 2011)

Grounded theory method is used in this research for shaping data collection and analysis. Grounded theory prioritizes understanding people's actions and the meanings behind them, including intentions, stated explanations, and implicit assumptions. While the focus is typically on actions and processes, grounded theory strategies can also be applied to investigate other phenomena. Theory approaches methodological strategies flexibly, adapting them according to the engagement with data collection and analysis. (Lapan, et al., 2011).

Interview was selected as the method for gathering data. The conceptual model described earlier was chosen for this study as a base for constructing the interview questions. This model allows the researcher to combine the gathered theoretical and personal knowledge and with this identify the most important topics to be studied (Lapan, et al., 2011). At this point the decision on where and who to study, and the sampling plan was made. The next chapter will describe the used method in more detailed manner.

3.1.1 Interviews

Semistructured interviews aim to gather comparable data from a broader range of participants, typically ranging from twelve to fifteen individuals, but usually not exceeding ninety (Lapan, et al., 2011). In this research data was gathered through interviews with eight employees from Organization X, representing various roles within the organization. The interviews were conducted via Teams, recorded, and transcribed automatically, ranging from 34 minutes to 1 hour and 8 minutes each. Six interviewees received the questions beforehand, while two were given the questions at the start due to an oversight by the interviewer.

Before commencing the interviews, participants were queried about their receipt and familiarity with the questions. Subsequently, the recording began, and participants were briefed once more on the main research objective; How to develop digitalization strategy for software organization, and the recording process before the interview initiation. The interview comprised 26 open-ended questions, generated based on the theoretical themes. Four questions, namely those addressing technology maps, the significance of authentic leadership, impact assessment, and the use of DMA, were optional and not posed to all interviewees. The 26 interview questions are included to the thesis as Appendix 1.

The interview initiated with inquiries about strategy, exploring the interviewees' understanding and definition of the term. Topics included the role of resources, business professionals, and stakeholders. Following this, questions delved into strategic tools, probing whether the organization utilized tools like strategy maps to communicate and align strategic goals, and if these goals were linked to key results. Individual questions covered leadership's role and the organization's approach to learning, aiming to grasp how change is managed and supported by leadership.

In the third section, the interview shifted to the organization's perception of the software ecosystem and its role in the industry. Questions continued to explore digital transformation, examining how the organization views it, their perspective on the data-centric approach, and their definition of digital maturity. Additionally, interviewees were asked about factors influencing their organization's digital maturity level.

3.2 Data collection procedures

Photo and video cameras along with digital recorders serve as valuable tools for capturing live scenarios and conducting in-depth interviews. When using these methods, the researcher should be sensitive to possibility that not all the interviewees agree to be filmed. Researcher should always ask the permission before taking a photo or filming (Lapan, et al., 2011). In this research the interviews were, conducted through Teams, were recorded, and automatically transcribed. The interviewees were informed on the matter before the start and permission was asked. The objective of these interviews was to comprehend the rationale behind the organization's need for a digitalization strategy, examining how the organization navigates strategic decision-making and evaluating the existing digital maturity level. To fulfill this goal, all information obtained from the interviews was systematically gathered into an Excel sheet.

When conducting qualitative research an analytic summary serves as an intermediate report detailing the findings resulting from a focused analysis of a particular coding category. This entails extracting all data segments coded under the designated category. The subsequent analytic report organizes these findings by differentiating between category and exploring the diverse dimensions within each category. By synthesizing the characteristics, the summary clarifies both commonalities and differences, providing a comprehensive overview of the subject matter (Lapan, et al., 2011).

In this research with the help of ChatGPT, the answers to individual questions were summarized, with meticulous care taken to cleanse the answer data of any identifiable information before employing ChatGPT for the initial summarization process. The initial summarizations were checked through by the researcher by reading through the individual answers and comparing the summarizations to them. Only after verifying the accuracy and usability of the summaries, they were used as part of the analysis. After the verification the summaries were gathered into a separate Excel sheet. Subsequently, five main themes were detected by the researcher from the summarized answers, and data were collected under these identified themes. Under the five main themes several sub-themes were found that had similarities across the five main themes. Table 2 lists the found main themes and sub-themes.

Main Themes	Sub-Themes
Understanding and Formulation of the Strategy	Unified Vision, Role of Technology, Utilization of Data, Stakeholders, Objectives
Considerations and Tools in Development	Unified Vision, Role of Technology, Utilization of Data
Leadership and Communication in the Organization	Unified Vision, Objectives, Roles
Information Flow in the Organization Generally	Stakeholders unified Vision, Values, Role of Technology
Personnel	Development and values, Processes and Tools, Goals

Table 2: Main themes and sub-themes from the interviews.

3.3 Data Results

The analysis of qualitative data involves a systematic process of categorizing ideas, themes, topics, activities, types of individuals, and other relevant categories important to the investigation. The researcher studies and presents the diversity within each code category, establishes connections among code categories, verifies these connections using additional examples, and subsequently clarifies and interprets them. (Lapan, et al., 2011)

In this chapter, we will explore the identified concepts, main themes, and sub-themes. In the concepts there is indication with (+) if the concept has a positive effect on the theme and (-) if it is negative. Some concepts have both indications (+/-) due to the varying scope of the concept. There are overlapping sub-themes in the different main themes. These sub-themes are covered with theme specific angle in the different main themes giving the deeper understanding of their effect.

The following sections will present the findings gathered from these topics. The chapter commences with an examination of the Understanding and Formulation of the Strategy, revealing the roles played by a Unified Vision, Technology, Utilization of data, Stakeholders, and objectives within this framework.

Subsequently, the discussion progresses to Considerations and Tools in Development, encompassing a reiteration of the significance of a Unified Vision, the Role of Technology, and

Utilization of data. This segment delves into the challenges and opportunities inherent in strategic development. The third overarching theme pertains to Leadership and Communication within the organization, where sub-themes delve into the roles of a Unified Vision, Objectives, and Leadership during periods of change. The emphasis lies on recognizing the importance of effective communication from leadership during organizational transformations and understanding diverse leadership levels within the organization.

Moving forward, the fourth main theme centers on Information Flow in the organization, emphasizing the stakeholder-centric Unified Vision. This theme addresses communication strategies and collaboration with stakeholders, with a sub-theme dedicated to Values, underscoring the significance of fostering transparency within the organization. Additionally, the role of technology as a platform for disseminating information is explored.

The fifth main theme focuses on Personnel, initiating with Development and values, exploring how development is supported, and encouraging personnel to assume new roles within the organization. A sub-theme, Processes and Tools, follows, examining the consideration or lack thereof for personnel in relation to existing software and tools. This section concludes by addressing Goals, emphasizing the necessity of providing continuous development opportunities for employees and establishing pathways for growth in a dynamic organizational landscape.

3.3.1 Understanding and Formulation of the Strategy

Unified vision

Through the conducted interviews, a distinct pattern emerges wherein the vision and mission serve as guiding forces influencing the day-to-day operations of the organization. These guiding principles serve not only to facilitate decision-making but also to empower individuals, emphasizing the importance of a clear and straightforward mission. One interviewee indicates that, "the creative team is painting a large canvas, but they usually leave the details to be defined by the individual." Another interviewee points out the guiding force for not standing still but instead moving forward, "sometimes try to get a bit of thinking outside the box, you know, so you can kind of stay with it."

All the interviewees indicate that the vision and mission are not merely seen as static statements; instead, they are envisioned as dynamic sources of inspiration capable of resonating with the emotions of employees. One interviewee describes the functionality of the organization mission in the following manner, "the good thing about it is that, well, it's very simple and understandable. In the end, if I do things or engage in dialogue or talk with a colleague, it guides, in fact, all of us or provides an opportunity to guide decision-making, make choices in our everyday lives." Not all the interviewees think that the current mission and vision are

inspiring enough. One interviewee states the following, “now, they are clear, but maybe they are not inspiring enough.”

Strategy is fundamentally perceived as a meticulously crafted action plan designed to achieve specific business objectives. It encompasses a predetermined path or map that guides the organization towards a predefined destination. Furthermore, according to the interview material, it is a plan established and adhered to by the organization’s leadership. The leadership team is described by one of the interviewees as the captain of a ship, responsible for implementing the organization’s goals and strategy. Strategy in general described by one interviewee, “It basically tells what kind of game is desired to be played. We know what we focus on, what we do, and maybe how not to do that.” Another interviewee goes as far as stating that in their team the mission is, “tattooed on the lower back.”

Concepts	Main Themes	Sub-Themes
<p>A plan predetermined and adhered to by the management. (+)</p> <p>A living playbook that updates in different situations. (+)</p> <p>Brings clarity, focus, and peace of mind to the activities within the organization. (+)</p> <p>Vision and mission create a common direction and set the standard. (+)</p> <p>Helps make choices and rule out certain alternatives. (+)</p>	<p>Understanding and Formulation of the Strategy</p>	<p>Unified Vision</p>

Table 3: Understanding and Formulation of the Strategy, Unified Vision.

Role of technology

The role of technology in strategy making is pointed out in the interviews, focusing on its impact on resource management, budgeting, and addressing challenges and opportunities in strategic integration. All the interviewees that gave answers to these questions addressed the listed topics in some level.

When looking at the technological goals, based on the answers the organization aims to be a technological frontrunner, leveraging data for business model innovation and ensuring a continuous digital transformation. One interviewee from the leadership level sums up the goal in the following manner, “we are constantly developing our product and adopting advanced tools, aiming to be at the forefront. This is definitely an aspiration.”

Several responses addressed the internal technology of the organization and its fundamental operations. One interviewee from the leadership level describes the factors affecting technological decision making in the following manner, “If there isn’t a common view of what problem we are solving, then it becomes challenging to achieve that. It’s challenging to figure out what needs to be integrated or what role this technology plays, how it should be implemented, or in what way it could support our strategy. Ultimately, it probably comes back to the same thing. When we know what we are doing, this isn’t challenging, but if we can’t discuss it or don’t understand it well enough to build a case, then it becomes challenging.”

There was a limited depth in the responses concerning auxiliary technology. The ones that address the topic indicate that there is several different software currently in use for conducting everyday work. Here a comment on the topic from one of the service expert interviewees, “so into the software, into Excel, into my own Excel, and what else, then into a third software, and then a calling tool. So, I have, like, probably 4 or 5 different places where I make notes.”

When discussing the impact of information systems in the organization's business behavior one interviewee from the operational side gives the following comment, "It probably affects most here on our end, especially in support, how to make that system work, you know. Is there a lot of manual work or does the system do it automatically? That affects the size of the staff." Another interviewee representing the leadership raises the following question, "but the fact that I'm not sure is whether we are utilizing the software we have chosen to use enough?" Based on the interviews, it is evident that recognizing essential technological requirements can pose a challenge.

Concepts	Main Themes	Sub-Themes
<p>Affects resource management, and their efficient use is important. (-)</p> <p>Identifying critical technological needs can be a challenge. (-)</p> <p>A common understanding is needed regarding the problems that technologies aim to solve. (-)</p>	<p>Understanding and Formulation of the Strategy</p>	<p>Role of Technology</p>

Table 4: Understanding and Formulation of the Strategy, Role of Technology.

Utilization of Data

The digital transformation emphasizes a data-centric approach, offering opportunities for gaining new insights. The organization utilizes data to reimagine business models and operations, employing prototypes and customer-centric strategies. The role of data is recognized by all the interviewees in supporting decision-making and identifying novel opportunities.

Even though large amount of data is collected, there is an acknowledgment by majority of the interviewees that the significance and potential of data may have been underestimated. Here is a summary of one interviewees view: the participant recognizes the utilization of data in their setting, underscoring its significance in revealing insights. Nevertheless, data may not be fully exploited, stressing the importance of broader scrutiny, and dedicating additional resources to optimize the effective utilization of data. Based on the interview material the data utilization gap has been identified and actions to better the situation are in process.

Concepts	Main Themes	Sub-Themes
Used in developing business models and planning strategy. (+/-) The significance and potential may have been underestimated. (-)	Understanding and Formulation of the Strategy	Utilization of Data

Table 5: Understanding and Formulation of the Strategy, Utilization of Data.

Stakeholders

Stakeholders play a crucial role in the evaluation and decision-making of strategic alternatives. The organization encourages dialogue and regular interaction with key stakeholders, such as customers and partners, highlighting the importance of understanding their needs and integrating them into the strategic decision-making process. Additionally, there is recognition by the interviewees of the need to leverage both internal and external expertise in the strategic process, with an emphasis on involving stakeholders in strategic product development. There is uncertainty about the practical implementation of interaction, as indicated by the following statement: “Certainly, I hear in discussions that, like, well, there’s a desire to involve various stakeholders more broadly, but, well, I can’t say how that happens in practice. Like, how much those stakeholders are involved”.

Concepts	Main Themes	Sub-Themes
Dialogue helps to understand stakeholder needs and integrate them into strategic decision-making. (+/-)	Understanding and Formulation of the Strategy	Stakeholders
Involving stakeholders in strategic product development an area for improvement. (-)		

Table 6: Understanding and Formulation of the Strategy, Stakeholders.

Objectives

The organization tests the effectiveness of its objectives by understanding the role of resources in implementing its strategy. At the core of the strategy is a transparent comprehension of various resources, encompassing financial, human, tangible, and intangible assets. The strategy is anticipated to play a guiding role in directing resource allocation towards critical areas, underlining the significance of efficiency in spending. The acknowledgment of the influence of information systems on resource management is evident, emphasizing the importance of utilizing technological resources effectively.

The interviewees emphasize assessing the suitability of goals and the practical implementation of the strategy. Concerns have been expressed based on the collected interview data regarding the visibility of goals, especially in the context of comprehensive growth. A service expert interviewee pointed out a perception of divergent goals within the organization, stating, "I sense that our employees have different goals than our management team." On the

other hand, interviewee from the leadership described the clarity of objectives in the following manner, “To some extent, and almost perfectly when it comes to numbers, but then there's the pathway of how the numbers transform into reality, so that might not be as well established yet”.

Recognizing the strategic importance, a systematic linkage between goals and results is considered indispensable. The role of strategy as a tool for achieving goals is acknowledged, particularly in the domains of growth and technological development.

Concepts	Main Themes	Sub-Themes
<p>How the organization directly links its goals to results. (+/-)</p> <p>Must guide resources to be directed towards essential targets. (+/-)</p> <p>Means to achieve goals, especially in terms of growth and technological development. (+/-)</p> <p>Systematic management approach and monitoring the achievement of goals are crucial. (-)</p> <p>Unity among different departments of the organization is needed for decision-making. (-)</p>	<p>Understanding and Formulation of the Strategy</p>	<p>Objectives</p>

Table 7: Understanding and Formulation of the Strategy, Objectives.

3.3.2 Considerations and Tools in Development

Unified Vision

From the research conducted it is detected that a transparent and collectively shared vision cultivates a unified understanding of the basic reasons for work in the organization, particularly within teams. The core vision of the organization is clear to all the interviewees. This shared understanding serves in the organization as an encouragement for employees to formulate innovative solutions and break free from conventional boundaries.

Acknowledgment is extended to the impact of information systems on resource management. Emphasis from the gathered interview material is placed on the effective utilization of technological resources, aiming for a result where technology is seamlessly integrated into operations for optimal resource use. Challenges and opportunities linked to the integration of technologies into strategies are pointed out and examined. The absence of a shared vision is recognized as a current obstacle, underscoring the necessity for clear responsibility in integration. Despite these challenges, there is optimism about the potential benefits of integrating technologies, particularly CRM systems, to positively influence business growth.

There is involvement of external facilitators in the strategic process. This external perspective contributes to objectivity and the generation of new ideas, underscoring the importance of diverse inputs in shaping a unified vision. Effective leadership is considered crucial for creating an environment favorable to achieving goals. This involves both individual and team leadership, serving as the bedrock for the organization's capacity to realize unseen objectives and embark on innovative endeavors.

Concepts	Main Themes	Sub-Themes
<p>Various factors are considered in software development and productization. (+/-)</p> <p>Thinking outside the box. (+)</p> <p>Implementation issues can significantly impact business behavior. (-)</p> <p>In an ideal world, integration, especially CRM systems, offer significant opportunities. (+/-)</p> <p>Lack of comprehensive technological understanding and the need to comprehend external opportunities and technological diversity. (-)</p> <p>The right kind of leadership lays the foundation for achieving unseen goals and do innovative things. (+/-)</p>	<p>Considerations and Tools in Development</p>	<p>Unified Vision</p>

Table 8: Considerations and Tools in Development, Unified Vision.

Role of Technology

The importance of investments in the selection and development of information systems is lifted by some of the interviewees. They suggest that without adequate focus and resources on choosing and developing information systems, the life of the business unit could be more challenging. One interviewee describes the current situation and future goal in the following manner "So, we have various systems with software and different databases in them. We collect data, and there's that. Also, then, well, certain integrations and such. It's like, if you think about how, it affects business behavior when considering, for instance, if we have many different systems, how do we get them into one, how can we make them as seamless as possible?" Interviewees point out that currently there is no technology map in use that would give a holistic view for the whole organization on the strategy.

There is a recognition by the interviewees of opportunities presented by AI to enhance operations and increase efficiency. This indicates an awareness of technology's potential to positively impact various aspects of the organization, aligning with growth and development goals. Information systems enable the effective utilization of data across different units within the organization. This has a significant impact on areas such as sales, marketing, and decision-making, underlining the transformative role of technology in shaping business practices. Interviewee representing the leadership brings the following example regarding the utilization of information systems, "At least, I have encountered when defining the types of information systems needed, how to integrate them, and the process of implementation. There are opportunities, of course, that when information system development, for example, occurs, it enables many things and a certain kind of automation naturally. It has been seen that if we hadn't done anything in the selection of information systems or the development of our own software, our business unit's life would probably be entirely different, and the team would likely be twice as large."

The challenges related to the interpretation of technology as a system developed internally and the lack of a comprehensive understanding of external possibilities and technological diversity are acknowledged by majority of the interviewees. This underscores the importance of a holistic approach to technology for effective development.

The interviewees point out a lack of significant benefits from the use of technology in organizational learning. Only one of the interviewees brings an example how technology is used in the learning path for partners. The absence of tools and methods for assessing and documenting learning through technology suggests a need for further integration and optimization in this aspect. Part of the organization faces challenges in understanding and embracing digital transformation. This is reflected in uncertainties regarding how the organization perceives and incorporates digital change into its developmental work.

Concepts	Main Themes	Sub-Themes
<p>Technology map not in use. (-)</p> <p>Technology is interpreted as a system developed by the organization itself. (-)</p> <p>Investments in the selection and development of information systems. (+/-)</p> <p>AI streamlines operations and enhances efficiency. (+/-)</p> <p>Lack of tools and methods to assess and document learning through technology. (-)</p> <p>Challenges in understanding and embracing digital transformation. (-)</p>	<p>Considerations and Tools in Development</p>	<p>Role of technology</p>

Table 9: Considerations and Tools in Development, Role of technology.

Utilization of Data

Based on the interviewees the AI team assumes a central role in shaping the functions and business models of the organization. Leveraging data analysis, particularly with the assistance of AI, proves instrumental in generating fresh insights and cultivating a forward-looking technological vision.

The organization relies on data as a cornerstone for decision-making, striving to extensively harness it in the continuous development of robust business models. Despite possessing a considerable amount of data. There is added need to allocate resources specifically towards the analysis and utilization of this data.

Regarding digital maturity, various interviewees position the organization as “leaders” in their own software but highlight the position of “catch-ups” in terms of adopting digital tools and utilizing data in day-to-day operations. Challenges related to internal digitalization and handling manual workloads are emphasized as current hurdles. These challenges underscore the immediate necessity to tackle issues such as underutilized data, improving digital

practices, and optimizing internal software and work processes. When inquired if the organization has conducted a digital maturity assessment, none of the interviewees knew if this type of assessment had been conducted for the organization.

In essence, data emerges as a key player in the decision-making processes, technological evolution, and overall business advancement within the organization. This is evident in its proactive efforts to embrace digital practices while acknowledging and working towards overcoming associated challenges. Regarding software ecosystem majority of the interviewees were not familiar with the concept. The ones that were familiar indicated the organization is more on the traditional approach where they are looking more in their internal needs and aspirations than looking at the larger market environment and their part in the larger picture.

Concepts	Main Themes	Sub-Themes
<p>The AI team plays a significant role. (+)</p> <p>Data analysis, with AI, helps generate new insights and develop a technological vision. (+)</p> <p>Data is used to support decision-making. (+/-)</p> <p>Increasing resources for data analysis and utilization is necessary. (-)</p> <p>Challenges in internal digitalization and the amount of manual work. (-)</p> <p>No digital maturity assessment. (-)</p> <p>The need to develop internal software and work processes. (-)</p> <p>Software ecosystem not a familiar concept. (-)</p>	<p>Considerations and Tools in Development</p>	<p>Utilization of data</p>

Table 10: Considerations and Tools in Development, Utilization of data.

3.3.3 Leadership and Communication in the Organization

Unified Vision

The interviews lift some level of challenges in the decision-making process in the leadership, if not handled adeptly, can result in confusion and uncertainty rippling throughout the organization. A notable consequence of this challenge is the potential for employees to perceive a lack of information or understanding regarding the underlying rationale of decisions made. One interviewee commented that there is a tendency to bring big packages of information and goals to the employees once or twice a year. Then the communication from the leadership stops until again a large amount of information is distributed at once.

In the absence of a technology map, which was identified when discussing the strategic tools, interviewees have lifted the challenge in lack of dialog and ways of communicating inside the organization regarding the technology goals and what technology covers. The utilization of technology in learning could be bettered with additional internal communication and understanding.

Additional concern is the identified communication gap within the leadership team and between managers and the broader workforce. This communication gap poses challenge, potentially rendering the leadership detached from the day-to-day realities of the workforce. One of the service expert interviewees underscores a tendency from the leadership to focus excessively on numerical metrics, raising concerns about a potential disconnect between leadership and the ground-level operations.

A further aspect of organizational dynamics highlighted in the interviews is the organization's reactive stance in assessing changes. The interviews emphasize the need for a more proactive approach in navigating shifts and transformations. Comment from a service expert interview, "well, I feel too often it goes like that, that if there's a change, it's quite rapid. And then you don't catch up until by the time it has happened or moved forward, it happens somehow in a blink of an eye." A member of the leadership addresses the difference with individuals regarding the need for grasping change, "one must have sufficient patience to endure uncertainty over time so that the change gets exactly the time it needs. Let's consider, for instance, changes related to individuals. How long does it take to quickly go through that dialogue to know that, hey, this is the good situation we should aim for, but then those people need a different amount of time to adapt to that situation."

Notably, differing opinions emerged from the interview answers on digital transformation within and outside the leadership team this can be as a challenge when forming a unified vision for the organization's future.

Concepts	Main Themes	Sub-Themes
<p>Ambiguity and confusion in the decision-making process. (-)</p> <p>Employees may experience a lack of information or understanding about the background of decisions. (-)</p> <p>The need for increased participation and open communication. (-)</p> <p>Concern that the personnel do not feel heard or involved in goal setting. (-)</p> <p>Leaders may face challenges in understanding practical work and its technological needs. (-)</p> <p>Leadership's distancing from everyday work raises concerns. (-)</p> <p>Focuses too much on numbers. (-)</p> <p>Changes may be fast-paced, and the staff may not have time to keep up with the pace of change. (-)</p> <p>Change is viewed more reactively. (-)</p> <p>Different opinions and perspectives on digital transformation. (-)</p>	<p>Leadership and Communication in the Organization</p>	<p>Unified Vision</p>

Table 11: Leadership and Communication in the Organization, Unified Vision.

Objectives

There's an observed concern that the field, or the general staff, might feel unheard or excluded from goal setting. Discussions and decisions at the leadership level significantly impact how goals are understood and implemented on the ground. Some indication from the

interviews is lifted on challenges such as self-interest pursuit and lack of collaboration within the organization. Departmental boundaries and leaders focusing on individual tasks rather than shared objectives are pointed as potential obstacles.

The topic of different goals between employees and leadership is addressed again when discussing communication inside the organization. The goals are not communicated clearly enough, and this leads to uncertainty. The use of numerical data is suggested specifically by one of the interviewees to ensure clarity in goal setting and communication in the future.

Concepts	Main Themes	Sub-Themes
<p>Employees may have different goals than the leadership. (-)</p> <p>There may be barriers between departments. (-)</p> <p>Leaders may focus more on their own tasks than on common goals. (-)</p> <p>Numerical data usage for clarifying objectives. (+/-)</p>	<p>Leadership and Communication in the Organization</p>	<p>Objectives</p>

Table 12: Leadership and Communication in the Organization, Objectives.

Roles

Leaders are given significant responsibility for implementing change processes. One of the interviewees representing the leadership sums their role in change process in the following manner, "Yes, it is thought this way, that it is like totally central. Everything ultimately starts from good leadership, and behind that, there is then having the right person. There is a person who can lead themselves, and through being able to lead oneself and being able to lead team members, it begins to develop. The entire organizational culture, that, in general, we can do things that are not visible today, which are some goals pursued now. I think that is absolutely crucial. If we succeed in that, then everything is possible. If we don't invest, if we are not humble or willing to develop in leadership, then there are no conditions to go anywhere."

Another interviewee representing the leadership points out the different level roles inside the leadership, "But yes, I feel that we. Especially identify those among the leaders. Those roles

that are really significant when we talk about times of change. Who has the big or the biggest impact on it, so even if we have leadership team, there are certain roles that really stand out from there, and then the rest of the leadership team supports those individuals."

From the worker level interviews one of the interviewees pointed out that the importance of the leaderships role in change is not always seen, "I myself feel that it's not necessarily seen, seen exactly that role where the situation, how significant it is, like in my opinion, how crucial it is."

Based on the answers there is different level of leadership roles inside the organization. The upper management is seen as the creative leaders, while lower-level leadership is seen as technical, dealing with practical challenges. One of the interviewees points out a potential challenge between the different levels of leadership, "So when the other one does that grass-roots level, they have to witness it. The challenges in a completely different way. The challenges of implementation, compared to someone who just comes to look, perhaps at the numbers, or observes from the sidelines."

One interviewee from the lower-level leadership gives view on the current status of leadership role, "I feel that we have both leadership and managerial roles, but sometimes they cross paths. We might have a person who manages a few people. If there are a few people in their team, then we are on a journey to recognize what leadership means, what the role is, and what it isn't. The leadership and managerial roles are sometimes seen as the same, and it's somewhat natural at the moment. It's alive. It changes, and we are undoubtedly moving towards constantly understanding that. You can't lead everything; you lead what belongs to me, and someone else leads what belongs to them." The interviewee sums up their view with the following, "the clarity of roles is essential to succeed in initiating any change."

Concepts	Main Themes	Sub-Themes
Leaders given significant responsibility for the implementation of the change process. (+/-)	Leadership and Communication in the Organization	Roles
Different roles inside leadership. (+)		

Table 13: Leadership and Communication in the Organization, Roles.

3.3.4 Information Flow in the Organization Generally

Stakeholders and unified vision

The communication framework within the leadership is evolving, and members are currently expressing their crucial issues within the group, fostering discussions on these topics. There is an increased focus on relevant discussions within the leadership. The similar development has not yet reached the same structure level communication with employees, partners, or customers.

Person representing the leadership comments on the communication and collaboration with stakeholders in the following manner, “I feel that this kind of involvement should be elevated to a whole new level. It definitely needs to be taken to the next level because it specifically brings that collaboration into the triangle, helping our growth narratives as well. If we're too much on our own here, then probably something in some sort of direction might be done. So, involvement is crucial.” A different interviewee from the leadership team mentions that there is ongoing development in establishing more structured communication with lower-level employees. They are currently undergoing the initial deployment phase. The interviewee notes, “For the first time, the implementation of new strategy occurred. And, well, it's kind of great that individuals were involved in it, and we went through it with them.”

One interviewee highlights weekly meetings as effective means of communication within the organization, "problems that are noticed are brought out through that channel, and then they are worked on for improvement." The meetings focus on technology, addressing daily challenges, and enhancing both workflow and software utilization. Another interviewee points out organization monthly meetings where information is presented for the whole organization.

Concepts	Main Themes	Sub-Themes
<p>Ensure that essential information flows efficiently. (-)</p> <p>Customer involvement brings valuable ideas and perspectives. (+/-)</p> <p>Aligning common goals and communicating them to stakeholders is essential. (+/-)</p> <p>Recognizing the need for information flow and swift response to changes. (+)</p>	Information Flow in the Organization Generally	Stakeholders and unified vision

Table 14: Information Flow in the Organization Generally, Stakeholders and unified vision.

Values

From the interviews the value of openness in the communication is detected. It is not always effective but from the answers this goal for reaching to openness can be seen. When asked how organization ensures that leaders share a common understanding of the vision and strategy behind the change initiative? one interviewee gave this simplified answer, "through open communication, it's kind of like keeping everyone up to date on everything." Another interviewee gives the following view, "I believe these one pagers and, various, what emerges in different aspects of strategy as documents, well, at least they help in ensuring that people are on the same page and have a shared situational awareness." Even when answering to this question that was originally related to the leaders several of the interviewees answered in a way that covered the whole organization not just the leadership.

Reaching for openness is seen also in the communication regarding development. One service specialist interviewee gives the following comment when discussing what measures are taken to ensure sufficient time and commitment to the implementation of the change? "A lot of

changes come, like, things that don't work or require further development, so then the feedback and, seeking feedback to further develop it. It's not like it's just thrown on the table and that's it. Instead, feedback is constantly received and used to enhance it. We try to develop our development further, constantly seeking improvement opportunities.”

Concepts	Main Themes	Sub-Themes
<p>Openness creates space for ideas and participation. (+)</p> <p>Leaders are expected to set the direction through their actions and be open to their subordinates. (+)</p> <p>Use strategy documents, one-pagers, and other documents to create a shared situational awareness. (+)</p> <p>Strives to be agile and flexible, especially in technological development. (+)</p>	Information Flow in the Organization Generally	Values

Table 15: Information Flow in the Organization Generally, Values.

Role of Technology

At present, there is no platform where strategic objectives or materials pertaining to the strategy selection process are readily accessible to the entire organization. This lack of a central channel hinders the ability to engage in discussions about the chosen strategies and their status. The same lack of visibility is with the technology map, and this has a direct impact on the possibility to discuss the topics related to technology.

Concepts	Main Themes	Sub-Themes
<p>Need for an internal information-sharing system. (-)</p> <p>No existing technology map. (-)</p>	Information Flow in the Organization Generally	Role of Technology

Table 16: Information Flow in the Organization Generally, Role of Technology.

3.3.5 Personnel

Development and values

One interviewee describes the culture of the organization in the following manner, “the atmosphere or culture has been such that you can try and, like, do something. If a task hasn’t been done, just go ahead and do it or give it a try. Not everyone necessarily receives formal training, and someone is not guiding there all the time. But then, like at its best, someone dares to try something a bit beyond their expertise and realizes either they really like it, or they become adept at it or something else, because they dared to experiment a little.” In the strategy part the interviewees were asked how vision and mission are seen in guiding and inspiring employees. One team leader interviewee described the used method, “the way to try to guide and inspire employees, is to encounter people as individuals.” The same interviewee describes the ability to bring development ideas forward inside the organization, “here, you can easily share development ideas, and they do feel like they are genuinely considered and reviewed to see if they are good.”

In certain instances, the open environment fostering employees to transition into new positions and grow can yield adverse outcomes if not managed appropriately. A service expert illustrates a scenario where employees are placed in new roles within the organization, and over time, “an employee has been working in that specific role for so long that it’s practically either burned out or its interest has been completely killed.” Another specialist interviewee describes the challenge of sufficient time and clarity in transitions between roles, “perhaps such planning and a certain contiguity about it. I, myself, when I was in a situation involved in change, would have sometimes appreciated that.”

A team leader points out that the organization is putting effort in educating the people that have supervisory roles to secure a good working environment for employees, “that’s why we invest in supervisor work. Like the training we had recently, through that, we specifically invest in supervisor work to ensure a pleasant work environment for everyone, so that everyone enjoys their work.”

Concepts	Main Themes	Sub-Themes
<p>Crucial to meet employees as individuals. (+)</p> <p>A person moving into the discomfort zone has led to the development of organizational practices. (+)</p> <p>The ability to translate one’s own learning for the benefit of the organization. (+/-)</p> <p>Employees are seen as a key resource, and leaders are expected to interact with their subordinates and be open to new ideas. (+/-)</p> <p>A challenge could be burning out the staff. (-)</p> <p>Necessary to support the continuous development of individuals and teams. (+/-)</p>	Personnel	Development and values

Table 17: Personnel, Development and values.

Processes and Tools

When talking about software in use a person representing the leadership indicates that the current software has not considered the employees in the needed level. It is not allowing the most efficient working level for the different departments.

From the interviews it is indicated that the usage of several different software and insufficient communication between different departments can start burdening the employees. As

already described earlier one service expert opens a typical working situation,” so into the software, into Excel, into my own Excel, and what else, then into a third software, and then a calling tool. So, I have, like, probably 4 or 5 different places where I make notes.”

Concepts	Main Themes	Sub-Themes
<p>Acknowledges limited knowledge and resources for leveraging technology. (-)</p> <p>Limitations in tools and potential deficiencies in terms of time and expertise. (-)</p> <p>Information flow is a key part of enhancing mutual understanding. (-)</p>	<p>Personnel</p>	<p>Processes and Tools</p>

Table 18: Personnel, Processes and Tools.

Goals

Working in a growth organization means that processes are developing, and, in some cases, it might cause discomfort in some employees. Person representing the leadership describes the feelings related to these types of situations and how they are handled, “when moving towards something new, such as streamlining the strategy and letting go of certain aspects, individuals might have to approach things in a new way or let go of what they’re accustomed to. This can generate a kind of resistance to change, but resistance can always be overcome with justification. Then, when the individual gets the opportunity to implement the changes, they practically realize that, hey, this was a good thing.”

According to a member of the leadership the organization wants to provide development opportunities to the people, but in many cases the ball is in the employee's hands, and they need to make the first move to start change, "we do try to provide doors, so open that and you can get on the path where you can start learning. But at the same time, we utilize them very little." There is no clear structured path that can be utilized for all employees that want to develop for example their digital maturity level.

Concepts	Main Themes	Sub-Themes
<p>Planning and patience are crucial, especially in changes related to individuals. (+/-)</p> <p>It is recognized that not everyone reacts in the same way to change, and efforts are made to respond to different needs. (+/-)</p> <p>There is no concrete plan or practice for the development of essential skills. (-)</p> <p>Aim is to provide opportunities for employees to learn and develop, but the practical implementation and support vary. (+/-)</p>	Personnel	Goals

Table 19: Personnel, Goals.

4 Discussion and Conclusion

Analyzing the interviews gave an opportunity to see a partial picture of the development journey of a growth organization in the platform industry. Getting the views on strategy, tools in use, communication, and organization culture from employees in different roles inside the organization.

In the following section we will cover the Analysis of the findings where the main resolutions are lifted from the research. The following sub-sections will give deeper insight on the findings within the specific theoretical parts. After the analysis part we will cover the limitations regarding the research. The section will end with the Recommendations for future actions, with suggestions on how the organization should proceed with their digitalization journey.

4.1 Analysis of the findings

The primary objective of this thesis was to scrutinize the development of a digitalization strategy tailored for a software organization.

The research posed a central inquiry:

Why does the organization need a digitalization strategy?

- The response to this question surfaced from the analysis of interview data, aligning with relevant theoretical insights.
 - A digitalization strategy proves indispensable for the Organization X, serving to increase its understanding of business operations and facilitate subsequent developmental activities.
 - The central role of data in shaping future business initiatives cannot be overstressed. The predominant challenge lies in the scattering of operational data across diverse sources, coupled with an inadequate data and information flow between departments, thereby increasing operational obstacles.
 - This dilemma not only hinders leadership's capacity to evaluate operational efficiency but also complicates budgetary planning for anticipated workforce requirements.
 - The realization of rapid business growth, business development and the sustained continuation of operational excellence emerge as challenging tasks in the absence of a well-defined digitalization strategy.
- The Organization X's focus on enhancing its core software product appears to be at the expense of neglecting the significance of auxiliary software. There exists a lack of consensus on the primary digitalization plan within the organization.

Regarding the "how" of digitalization, the Organization X should initially grasp its current processes before embarking on future development. Digitalization is not a mere substitution of existing processes into a digital format; it necessitates a profound understanding of why these processes exist.

The subsequent section explores deeper into the insights, offering a detailed analysis of the interview findings and their alignment with the theoretical framework of the thesis.

4.1.1 Context and Decision-Making including Key questions for Strategic options

The center of this thesis theoretical framework emphasizes the need for understanding the business and aligning strategic options with organizational goals. In the theory section we covered one of the key terms used in strategy literature, Strategic management, it is used in organizations as a vehicle for achieving and sustaining superior performance. Clear vision and mission play vital roles in achieving the set goals. Vision plays a vital part in the management, it aims to inspire and guide the organization's employees, inviting them to envision the organization's future potential and fostering a framework for ethical conduct. While mission encapsulates the organization's fundamental identity. (Hoskisson, et al. 2004)

Organization X is actualizing many aspects of the strategic management on the same lines as our thesis theory describes. The interviews reveal a defined core strategy for Organization X, complete with a stated vision and mission. Based on the interviews the mission serves as a guiding principle for employees, providing clarity in their actions and decisions. The interviewees express a clear understanding of the basic product, and there is evident development effort being invested in it. Different stakeholders of Organization X are involved in the development process to prove the feasibility. It is acknowledged that additional improvement in Organization X is needed in the different stakeholder involvement to gain better results in the service development.

Regarding the envisioned future the picture is not clear to all the employees of Organization X. In terms of growth goals, a knowledge gap emerges between leadership and lower-level employees, manifesting as two distinct sets of strategic goals. Additional possible strategic management gap detected from the interviews is that Organization X maintains a sharp focus on its core software product, aspiring to be a technological frontrunner. But for Organization X to be able to grow and maintain their position in the market they need to be aware of the larger picture not just focusing on their own software.

According to theory to transcend conventional industry boundaries, an organization should possess three pivotal elements and conceptualize its strategy as a sequential progression over time. These three factors encompass: 1) harnessing network effects through a platform-

oriented approach, 2) establishing an AI-enabled learning loop, and 3) actively leveraging human intelligence, insights, and creativity. (Ojanperä, 2016)

Mirroring the above theory to the data gathered from the interviews there is still work to be done if Organization X wants to transcend conventional industry boundaries. Organization X is slowly harnessing the network effects through their platform-oriented approach, but it is still based mainly on the identified obvious internal business objectives. Opening the scope and understanding the network effect better would enable Organization X even larger scope of opportunities for service. Data actively plays a role in the development process, but there is a recognition of potential underutilization due to a lack of deeper understanding.

Organization X is investing actively to the AI-enabled learning loop in their core business. Therefore, there isn't a visible gap regarding the core business, but when looking at the auxiliary software and AI possibilities there the journey has not started. Challenges arise as the interviews suggest that auxiliary software crucial for business operations and development lacks sufficient attention. This raises concerns about Organization X's comprehensive grasp of digital transformation, with potential difficulties in identifying critical technological needs. Before starting to investigate AI in the auxiliary software there needs to be more understanding on Organization X's current processes. After status is known development and utilization of AI can be planned.

Organization X possess an open culture for sharing development ideas, which is declared in the interviews, but there is a lack of structure in the way the insights and creativity could be utilized. Leading back to the unclarities in future visioning. The question arises; How could Organization X take advantage more of the intelligent power they have with their stakeholders?

4.1.2 Strategic tools

When planning a strategy, the selected tools play a pivotal role in structuring. A strategic choice proves suitable when it genuinely aligns with the organization's capacity to attain its strategic goals. Feasibility characterizes a strategic option if it is practically achievable. Should an option demand resources like capital that are currently inaccessible, human expertise challenging to procure, or scarce intellectual assets, it's more likely to fall short of meeting the feasibility criteria. (Campbell et al. 2004)

There are number of tools that can help managers to run through the evaluation and selection stage to determine the best feasible options. In this thesis Strategy Map, OKR methodology, 8 Steps process, Learning Organization and Ecosystem strategy were selected as the tools for research and finding the feasibility of them as tools to Organization X.

We begin with the findings on Strategy Map. Based on our theory section the lack of a comprehensive strategy description not only inhibits effective communication among executives and employees but also obstructs the establishment of organizational alignment (Kaplan et al., 2004). To address these issues, the strategy map serves as a visual guide for creating value by connecting strategic objectives through causal relationships denoted by arrows, ultimately facilitating organizational alignment with the strategy (Evans, 2013).

Taking the above statement and comparing it to the information gathered from the interviews, Organization X has yet to incorporate strategy maps into their strategic planning, therefore hindering effective communication of strategic objectives throughout the organization. This was visible in the interviews, with leaders having own strategic goals. Additional notion was that employees indicated that leaders distributed strategical information biannually and during the time between there was no communication. This effects the utilization of the human capital at hand. Employees contribute in the best possible manner in Organization X but if the path to future vision is not clear their contribution will be sub-optimal. Understanding the relationship between different objectives can also be suboptimal in Organization X due to the lack of mapping.

While there have been recent developments in this area in Organization X, the efforts have not been fully implemented, preventing widespread access to the created strategic documents. The absence of a technology map is particularly impacting strategic decision-making and planning. Organization X lacks a clearly defined path, with a predominant focus on Organization X's core software and neglect of auxiliary software, as highlighted in the previous chapter. Although information about a strategic path may exist, it is not visible to all members of Organization X, making it challenging for the leadership to navigate and address key questions regarding strategic options. There is no clear indication on who is leading the development of auxiliary software usage in Organization X.

Drafting strategic maps by leaders of different business units could be a start to the process in Organization X, but it is central that after the initial draft communication and co-operation starts with the leaders. This way a common understanding on the path and linkages between different objectives starts building. With the initial mapping gaps regarding ownership could also be identified in Organization X.

The next tool in scope was OKR Methodology. The letters OKR come from Objectives and Key Results. A successful MBO (Management by Objectives) system hinges on addressing two fundamental questions: firstly, "Where do I want to go?" which pertains to the objective, and secondly, "How will I pace myself to see if I am getting there?" (Niven et al., 2016) Organization X is adopting the OKR Methodology in their business development, which will enhance clarity regarding set objectives throughout the entire organization. The quarterly objectives and key

results will create structure and visibility on the ongoing projects of Organization X. This implementation aims to reduce suspicions lifted in the interviews of certain leaders of Organization X pursuing personal ambitions, and it will also result in more frequent communication through quarterly objectives and key results. Connecting these objectives to the larger future visioning strategic maps would be recommended for Organization X. Then Organization X would be able to visualize how the different OKR's are playing part in the strategy.

Kotter's eight-stage process (Kotter, 2012), introduced in the theoretical framework, serves as a valuable tool for implementing the formulated strategy, specifically influencing employee engagement, and securing their commitment. The incorporation of such a tool in the strategy implementation would yield significant benefits for Organization X. Devotion to the delineated steps in the process ensures that adequate time is allocated for fostering a unified vision of change, and effective communication with stakeholders of Organization X is guaranteed throughout the entire process.

The application of the eight-stage approach, coupled with the Objectives and Key Results (OKR) methodology, offers a potential remedy for identified challenges in Organization X. The interviews underscore confusion concerning decision-making at all organizational levels. The utilization of the eight-stage process promises the establishment of a guiding coalition, uniting key stakeholders to collaborate and drive necessary changes forward in Organization X.

Furthermore, the adoption of this process ensures the allocation of sufficient time for the development and communication of the vision and strategy. Currently, employees of Organization X express a lack of comprehension regarding the rationales behind decisions. As already stated in this section large volumes of information are shared with employees biannually, after which communication on change efforts ceases until the next comprehensive information update. This imbalanced approach contributes to a perception among some employees that changes occur in Organization X at a challenging pace, fostering confusion and a sense of reactivity rather than proactivity. The apparent overemphasis on numeric goals in Organization X raises concerns among employees. The simultaneous use of strategy maps, aligning various objectives, would address these concerns in Organization X by enhancing information availability and visualization. A clearer understanding of the organizational direction becomes more accessible, fostering increased employee commitment in Organization X in many instances.

The final tool under examination is the concept of a Learning Organization. Although the interviews with Organization X encompassed discussions on the ecosystem strategy, it became apparent that this concept was too unfamiliar for the interviewees. Consequently, no applicable findings related to this topic are illustrated at this occasion.

Concerning Learning Organizations the theory section states the following, the intensifying forces of globalization, evolving economies, advanced technology, heightened competition,

novel products and services, and the convergence of diverse disciplines apply substantial pressure for adaptation (Sessa et al., 2006). To effectively navigate these dynamic shifts and enhance the likelihood of success, organizations need to engage in continuous learning (Sarder, 2016).

Based on the research Organization X endorses continuous learning and facilitates opportunities for role transitions, but there is an absence of an established learning plan guiding employees along a predetermined path for acquiring necessary skills and knowledge. The interviewees point out a lack of significant benefits from the use of technology in organizational learning. The absence of tools and methods for assessing and documenting learning through technology suggests a need for further integration and optimization in this aspect for Organization X.

Although managerial competencies are continuously emphasized in Organization X, there lacks a structured development plan for managerial positions. Over the years, individuals actively seeking development have obtained new positions and acquired new skills in Organization X, indicating a supportive learning environment. However, the absence of a proactive learning plan for promotion hinders employees from being adequately prepared for more challenging roles inside Organization X. This has in some cases lead to burning out the employee faced with a more challenging role.

Working effectively in groups is not an inherent skill but requires a learning process for members to transform from individuals into a cohesive unit with shared goals and a mutual understanding of methods to achieve those goals (Sessa et al., 2006). The theory in mind concerns emerge from interviews in Organization X about the possibility that the general staff may feel unheard or excluded from goal setting. Discussions and decisions at the leadership level significantly influence how goals are understood in Organization X and implemented on the ground. Challenges such as self-interest pursuit and a lack of collaboration within Organization X are underlined, with potential obstacles identified in departmental boundaries and leaders focusing on individual tasks rather than shared objectives. The research underscores the need for Organization X to enhance its skills in working effectively in groups.

In the dynamic organizational context, groups should remain adaptable, ready to restructure themselves, adjust decisions, and update plans as needed (Sessa et al., 2006). Interviews conducted in Organization X indicate a positive inclination towards this adaptive mentality within Organization X. Leadership and managerial roles are sometimes perceived as interchangeable, reflecting a dynamic understanding that evolves over time. The realization in Organization X that one cannot lead everything, and that leadership is specific to designated domains is recognized, marking a progressive shift towards a constantly evolving organizational mindset.

4.1.3 Digitalization

When addressing questions about digitalization, it became evident that many interviewees in Organization X viewed it primarily in the context of developing their own software and for instance how AI enhances the improvement of the core software, benefiting various stakeholders. The broader aspect represented in the theory section regarding the need for organizations to invest not only in cutting-edge information technologies but also in discarding outmoded management practices and entrenched cultures to be able to develop a ‘digital culture’ (Schildt, 2020) was not lifted by these interviewees. A slightly broader view of digitalization was highlighted by interviewees in operational services of Organization X, who recognized the importance of a functional information system environment to avoid excessive personnel expenses associated with manual work.

The aim for digital transformation and digitalization is to establish structures and workflows within an organization. This initiative empowers the organization to leverage real-time data and computer algorithms, with the goal of improving efficiency, facilitating interactions with stakeholders, and fostering the creation of innovative products and services (Schildt, 2020). In the research Organization X, there is an understanding of the power of data, but based on the interviews it is not facilitated in a way that it can be utilized efficiently. Therefore, despite possessing a considerable amount of data. There is further need for allocating resources specifically towards the analysis and utilization of this data in Organization X.

The interviews also revealed a lack of concrete understanding of Organization X’s digital maturity level. When asked about the maturity level, none of the interviewees were aware of any official assessments conducted. Regarding digital maturity, various interviewees position Organization X as “leaders” in their own software but highlight the position of “catch-ups” in terms of adopting digital tools and utilizing data in day-to-day operations. Challenges related to internal digitalization and handling manual workloads are emphasized as current hurdles for Organization X.

Mirroring the gathered interview material from Organization X including all the questions asked from the interviewees to the used theory on Digital Maturity, Organization X is filling many criteria’s for “Catching-ups”. These are organizations that recognize the need for a digital transformation strategy but have not yet developed one. They understand the necessity of change and are prepared for it, and both management and employees share this vision. Furthermore, they either possess the essential technical equipment or are prepared to acquire it. (Aslanova & Kulichkina, 2020)

When asked about their understanding of Software Ecosystems, most interviewees found the concept unfamiliar, suggesting that Organization X may have focused more on a firm-centered

framework. Alternatively, it indicates that communication about an ecosystem-focused framework has not been clearly conveyed within Organization X.

4.2 Limitations

There are certain limitations in this thesis that should be noticed. The number of interviewees was limited to eight. With only eight interviewees, the insights obtained are partial, and based on the gathered information, it is apparent that additional interviews would be necessary to achieve a more comprehensive understanding of the entire scenario. There was lack of interviewee presence from the technology side of the organization due to scheduling challenges, but the good amount of leadership interviewees secured that the interview material included all the strategically important technology related information. For gathering more insight to the technology side additional interviews from selected people should be conducted.

The questioning was open ended which made it difficult getting quantitate information on how many addressed the exact point in similar way. That is why for instance the indication majority is used or individual comments from the interviewees are lifted to clarify the made point. Despite these limitations, it can be stated that even with just eight interviews, a significant amount of valuable insight was acquired.

The next step in the research would be conducting a mapping on the different processes inside the Organization X. This was not done during the study, because of its large scope. With this mapping we would gain more insight on the status on processes. How are they handled and what their functions are. As said the purpose in digitalization is not to transform all processes as they are to digital forms but to develop the processes and information flows to better answer the actual needs. In this research we were only able to get the initial understanding why Organization X needs a digitalization strategy the actual strategy development was not done.

4.3 Recommendations for future actions

As mentioned in the introduction, the development of a concrete digitalization strategy would enhance the organization's comprehension of its business, aiding in the identification of potential bottlenecks that might impede the pace of business growth.

Based on the research findings, the organization is progressing in structuring its strategic efforts, primarily focusing on the development of business objectives, core software, and related actions to facilitate growth in software and service offerings. However, auxiliary information systems crucial for efficient operational work are not receiving equivalent attention. This inconsistency may be credited to the absence of strategic maps that could underline

potential gaps. Using a tailored strategy map to align with the organizations unique set of strategic objectives would clarify how the multitude of measures come together into a single strategy.

Regarding the digitalization journey my recommendation to the organization is to adopt the Roadmapping technique, as outlined in the theory section 2.4.3. This, coupled with a digital maturity assessment, can provide a clearer understanding of the current state of digitalization, enabling the prioritization of development needs in processes and auxiliary software. Additionally, the organization should clarify who holds the responsibility for overseeing the overall digitalization journey, as the research did not identify a dedicated person looking at the entire picture.

Implementing a digitalization plan demands substantial time and effort, emphasizing the need for effective communication and dedication within the organization. Currently, the understanding of strategic objectives is suboptimal. Utilizing tools such as the eight-stage approach could enhance the success of implementing and anchoring change in the organization.

For future research, suggestion is that the organization's leadership research deeper into the concept of the software ecosystem.

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6 Figures

Figure 1: Theoretical Framework

Figure 2: Questions for determining the actions business should pursue. Modified from (Campbell et al., 2004).

Figure 3: Strategy map: Intangible Assets Must Be Aligned with the Strategy to Create Value (Kaplan et al., 2004, 200).

Figure 4: The eight-stage process of creating major change. (Kotter, 2012, 23).

Figure 5: Sarder Framework: Building the Learning Organization (Sarder, 2016, 29).

Figure 6: A learning plan comprises four vital components: Modified from (Sarder, 2016).

Figure 7: Implemented learning system enables to: Modified from (Sarder, 2016).

Figure 8: Five crucial questions: Modified from (Jacobides, 2019).

Figure 9: EDIHs DMA Framework for SMEs (Kalpaka, 2023, 13).

Figure 10: Roadmap for Digital Transformation (DT): (Schallmo et al., 2016, 23).

7 Tables

Table 1: An OKR Quality Continuum (Doerr, 2018, 55).

Table 2 Main themes and sub-themes from the interviews.

Table 3: Understanding and Formulation of the Strategy, Unified Vision.

Table 4: Understanding and Formulation of the Strategy, Role of Technology.

Table 5: Understanding and Formulation of the Strategy, Utilization of Data.

Table 6: Understanding and Formulation of the Strategy, Stakeholders.

Table 7: Understanding and Formulation of the Strategy, Objectives.

Table 8: Considerations and Tools in Development, Unified Vision.

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Table 11: Leadership and Communication in the Organization, Unified Vision.

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Table 14: Information Flow in the Organization Generally, Stakeholders and unified vision.

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Table 17: Personnel, Development and values.

Table 18: Personnel, Processes and Tools.

Table 19: Personnel, Goals.

8 Appendix 1. Interview questions

1. Definition of Strategy:
 - How do you understand and define the term "strategy"?
2. Understanding Strategic Decision-Making:
 - How does your organization approach continuous decision-making processes from the perspective of growth and development?
3. Vision and Mission:
 - How do you perceive the organization's vision, including its mission, in guiding and inspiring employees?
4. Resource-Based Strategy:
 - What role do you see organizational resources (financial, human, tangible, and intangible assets) playing in the implementation of strategy?
5. Role of Business Professionals:
 - How have you observed the impact of information systems on your organization and its business behavior?
 - What challenges and opportunities do you see leaders facing in integrating technologies into your strategies?
6. Evaluation of Strategic Alternatives:
 - When considering strategic alternatives, how does your organization assess their suitability for your business?
7. Stakeholder Engagement and Acceptance:
 - How does your organization involve key stakeholders in evaluating and deciding on strategic alternatives?
8. Application of Strategic Tools - Strategy Map:
 - Has your organization used strategy maps or similar tools to communicate and align strategic goals?
 - If yes, how do you see the role of strategy maps in creating value and aligning the organization with the overall plan?
 - How does your organization approach the creation of technology maps, and what challenges and opportunities have you encountered in this process?
9. Goal and Key Result Setting:
 - How does your organization ensure that its objectives are significant, concrete, action-oriented, and inspiring?
10. Creating an Uncomfortable "Learning Zone":
 - Can you share situations where the discomfort of the "learning zone" has led to significant progress or learning in your organization?
11. Linking Goals to Key Results:
 - The recommendation is to link identified goals to a maximum of five key results. How does your organization decide on this linkage, and what aspects are taken into consideration?
12. Ensuring Continuous Development:
 - How does your organization ensure continuous development and goal achievement?
 - How do various stakeholders participate in the implementation?
13. Understanding the Role of Leadership:
 - How does your organization perceive the role of leadership in the change process?
14. Management vs. Leadership at the Managerial Level in Change Initiatives:
 - How does your organization distinguish between managerial and leadership roles, especially in the context of change initiatives?
15. Significance of Authentic Leadership:
 - How does your organization identify and promote authentic leaders, especially during significant periods of change?
16. Challenges and Opportunities of Change:

- How does your organization address challenges and opportunities related to change, and what measures are taken to ensure sufficient time and commitment in implementing change?
17. Importance of Common Understanding:
- How does your organization ensure that leaders share a common understanding of the vision and strategy behind a change initiative?
18. Impact Assessment and Embedding Changes:
- How does your organization assess the impacts of changes, and what measures are taken to ensure the sustainability of changes in the organization culture?
19. Evaluation:
- How does your organization currently assess its learning practices, and what methods or tools are used for this purpose?
20. Technology in Learning:
- How does your organization leverage technology, and what benefits have been observed?
21. Understanding Ecosystem Strategy:
- How does your organization perceive the concept of a software ecosystem, and what role does it play in your industry?
22. Understanding Digital Transformation:
- How does your organization view ongoing digital transformation?
23. Data-Centric Approach in Digital Transformation:
- A data-centric approach in digital transformation provides opportunities for new insights. How has your organization used data to reimagine business models and operations?
24. Digital Maturity Levels:
- Among the four digital maturity levels (beginners, catch-ups, off-track, leaders), where does your organization currently stand, and what factors influence this position?
25. Human Role in Digital Maturity Level:
- How does your organization optimize the human role, including management and staff willingness and skill development, on the journey toward a digital maturity level?
26. Use of DMA for SMEs:
- If applicable, has your organization used the Digital Maturity Assessment (DMA) tool for assessing digital maturity levels?