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Employee Barriers that Impact the Implementation of New Ways of Working in an Innovation Ecosystem

A Case Study of a Finnish Multinational Corporation

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ABSTRACT:

The research on innovation ecosystems have received increasing interest in the past decade. In addition, value creation in the arrangement of innovation ecosystems has gained popularity. Innovation ecosystems are initiated for value co-creation and consist of a variety of actors that are interdependent and interconnected. However, the temporary initial stage of innovation ecosystem creation is still a rather under-researched. Moreover, innovation ecosystems from the perspective of individuals have not yet received adequate attention. Change in organizations is nothing new, yet companies face challenges when new kinds of changes are implemented. The study examines a single case, which is an organization that has initiated the change of establishing an innovation ecosystem. Therefore, the study examines the research gap on innovation ecosystems in the initial phase of creation from an employee perspective. More specifically, the study explores the barriers that employees face in this specific change process, and why. A qualitative research method was chosen for the study and the empirical data was collected by conducting ten semi-structured interviews from the employee point of view. The study followed an abductive research approach and was conducted cross-sectionally. The findings reveal that the main barrier point in the change is in the knowledge stage, which represents the information, training and education on how to actually change. The findings indicate that the barrier is related to factors, such as an unclear understanding of the new way of working, skills and behaviors. Also, the barrier exists due to lack of accessible information on, for example, processes, techniques, systems, tools, roles and responsibilities. Lack of resources, such as facilitators and trainers, is also an impacting factor. The underlying reasons, for this barrier point, are a lack of personalized information and a lack of consolidated information. Other barriers were also discovered in the findings, but they were of a smaller scale.

KEYWORDS: innovation ecosystems, organizational changes, change management, resistance to change, AKDAR change management model

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Abbreviations

EVP	Ecosystem Value Proposition
HRM	Human Resource Management
IPR	Intellectual Property Rights
MNC	Multinational Corporation
NGO	Non-governmental organization
R&D	Research and Development
SME	Small and Medium-Sized Enterprise

1 Introduction

The aim of this master's thesis is to examine the barriers that employees face in the process of initiating and organizing the start of an innovation ecosystem within a multinational corporation. Change management is a well known phenomenon, yet companies still face challenges when implementing new types of change initiatives. Moreover, this specific strategic change initiative of starting an innovation ecosystem has received little attention previously in the strategy and management literature. In this chapter, the background and justification of the study are discussed, then the research purpose, question and objectives are explained. Afterwards, the delimitations and key concepts are presented. The structure of the thesis is outlined at the end of the chapter.

1.1 Background of the Study

A new buzzword surfaced in the beginning of 1990s, namely, globalization. Economic barriers of trade and investment became gradually less relevant when governments started to dismantle them. When regulations and restrictions between national borders started to decrease, new opportunities for international business increased. (Pucik, Evans, Björkman, & Morris, 2017, p. 6) Globalization is one of the most distinct trends that intensifies competition worldwide, and it has enabled dramatic advances in information and communication technologies and new organizational forms (Entrekin & Scott-Ladd, 2014). Due to the intensified global competition multinational corporations must change the way they are doing business around the world to stay competitive, and this includes the way they manage their own employees (Pucik et al., 2017, p. 8).

A challenge for global companies today is to respond rapidly to changes in the environment, such as strategic opportunities and threats (Pucik et al., 2017, p. 297). It is one thing to agree on the need for organizational change, but implementing it is another matter. Implementing a change requires both a thorough analysis of the situation and building acceptance around the decision. Managers tend to focus more on what needs to be done and less on how to actually do it, namely, building acceptance inside the organization. (Pucik et al., 2017, p. 299)

Change barriers and resistance against change cannot be completely avoided and therefore building and managing acceptance of change is not an easy task. This is especially challenging in large companies that have been successful in the past, because the company culture and traditions have been formed by past success. (Pucik et al., 2017, p. 301) One of the leading factors why change transformations fail is due to the employees' resistance to the change (Maurer, 1996, p. 56; Galbraith, 2018), and when employees do not understand why organizational change is happening it is likely to result in employee resistance. (Galbraith, 2018)

Challenges when implementing change can be linked to getting employees out of their comfort zone, not having a clear vision, or not communicating the vision appropriately (Kotter, 1995). New situations and changes in the organization are putting pressure on employees to adapt and develop, which can lead to resistance and barriers that the employees must overcome. Resistance to change does not have to be all negative, if the nature of the resistance is diagnosed it can instead be utilized for improvement of the change process (Waddell & Sohal, 1998, p. 546).

In the past decade, another buzzword that has emerged and received increasing interest in the strategy and management literature is the term ecosystem. This term has been popularly used as a new way to describe the competitive environment. (Jacobides, Cennamo, & Gawer, 2018, p. 2256) The term business ecosystem, which is borrowed from the biology field, first appeared in the strategy and management field in the work of Moore (1993), but the concept has been booming in the last few years (Jacobides et al., 2018, p. 2256). Also, innovation has become a more significant method for economic growth due to the growth of information communication technologies and globalization (Mercan & Göktaş, 2011, p. 103). Moreover, the term innovation ecosystem, built on the business ecosystem literature, has received increasing attention (Adner, 2006), and according to Adner (2017, p. 56) interdependent value creation in the arrangement of innovation ecosystems will gain popularity and importance in the coming years.

There has also been critique raised on the usage of the term innovation ecosystem. Oh, Phillips, Park and Lee (2016) claim that adding "eco-" to the term innovation systems

brings very little additional value, and at present the literature on innovation ecosystem and innovation systems seem to be identical. The analogy to biological ecosystems is seen as flawed, since biological ecosystems are evolved, while innovation ecosystems are designed. However, the concept of innovation ecosystems brings some useful contributions, but these contributions does not rely on the "eco" prefix. (Oh et al., 2016, pp. 2-4)

Ritala & Almpantopoulou (2017, p. 39) point out that currently there is no general consensus on a definition, boundaries, or scope of the concept of innovation ecosystem. However, given the interest and rapid growth of the concept, it seems beneficial to bring more clarity to it. Furthermore, it is pointed out that borrowing terms from biology can be useful for research in other fields, and the borrowed terms do not always have to be fully replicated to bring value. (Ritala & Almpantopoulou, 2017, p. 39) For example, Moore (1993) used the analogy between natural ecosystem and business ecosystem to explain the interdependency between ecosystem actors and how they co-evolve over time.

1.2 Justification for the Study

Even though change management has been studied extensively over past decades, companies still face challenges when implementing changes in new and unfamiliar situations. Many researchers have the opinion that more often than not change efforts fail (Kotter, 1995; Maurer, 1996; LaClair & Rao, 2002; Maurer, 2010). A study conducted of change programs in 40 organizations, in banking, health, and utility sectors, found that 58 percent of the organizations failed to meet their objectives. Furthermore, companies with the lowest return on their investments also has inadequate change management capabilities. (LaClair & Rao, 2002) Another study found that only 47 percent of the employees involved in change initiatives in their organization felt that their needs were considered in the process, and only 29 percent felt that the needs of all employees were taken into account (Rosenberg & Mosca, 2011). This indicates that a greater focus on the individuals in the change process could be beneficial.

There is a strong foundation of research related to change management (Kotter, 1996; Hiatt, 2006; Carnall, 2007; Murthy, 2007; Hiatt & Creasey, 2012; Pucik et al., 2017) and resistance to change (Waddell & Sohal, 1998; LaClair & Rao, 2002; Pardo del Val & Fuentes, 2003; Ford, Ford & D'Amelio, 2008; Ford & Ford, 2010; Rosenberg & Mosca, 2011; Burke & Barron, 2014), which will provide a base for achieving the purpose of this study. One of the earlier models of change was the three-stage change model by Kurt Lewin in 1947. The three stages are called unfreezing, moving, and refreezing. (Carnall, 2007, p. 70) This model inspired and set the foundation for other researchers, for example, the research of Kotter (1996). Kotter's eight-stage model is one of the most popular models for managing change (Carnall, 2007, p. 70) and the stages are: "establishing a sense of urgency, creating a guiding coalition, developing a vision and strategy, communicating the change vision, empowering employees for broad-based action, generating short term wins, consolidating gains and producing more change, and anchoring new approaches in the culture." (Kotter, 1996).

Lewin's three-stage model is seen as simple and effective, especially for project teams and large organizations. However, a disadvantage is that the model does not provide any detail on how to deal with the human side of the change. On the other hand, Kotter's model includes the human aspect of change, but mainly from a top-down managerial approach where employees have little opportunity to provide input. (Galli, 2018, pp. 128-129)

Another model for change is the ADKAR change management model. This model focuses on the people aspect of change, and ADKAR is an acronym for the stages that an individual has to pass through for the change to be successful. The stages are awareness, desire, knowledge, ability, and reinforcement. (Hiatt, 2006; Hiatt & Creasey, 2012). The advantage of this model is that the focus lies on the employees (Galli, 2018, p. 129). The ADKAR model will be utilized as a base for this study, since it will aid in identifying where the employee barrier points in the change lie. This model is also appropriate to use in the study since it focuses on individual change in organizations rather than just high-level organizational change.

The ADKAR model have been applied in several contexts. For example, Kazmi and Naaranoja (2013) used the ADKAR change management model to determine the employee barrier points for a health care change initiative in northern Finland. Furthermore, a recent study was conducted by Al-Alawi, Abdulmohsen, Al-Malki, and Mehrotra (2019) on educational institutions in the public sector in Bahrain with the aim of identifying barriers to change management. In this study the ADKAR change management model was used as a basis for their research. It was chosen because it distinguishes the different parts of the change process, which makes it easier to identify where the barrier points are. (Al-Alawi et al., 2019, p. 112) Another study was conducted by Kliewe, Davey and Baaken (2013) where the ADKAR change management model was applied on a successful innovation program in a large enterprise in Australia. However, ADKAR has not been applied in the setting of an innovation ecosystem.

In the literature on ecosystems in the strategy and management field, several types of ecosystems have been present. These types of ecosystems are business ecosystems, knowledge ecosystems, platform ecosystems, and innovation ecosystems (Valkokari, 2015; Jacobides et al., 2018; Gomes, Facin, Salerno, & Ikenami, 2016; Autio & Thomas, 2014). Distinctions are made between business ecosystems, knowledge ecosystems, and innovation ecosystems. The focus of business ecosystems is to create present customer value, knowledge ecosystem focus on creating new knowledge, and innovation ecosystems focus on the integration of the two, namely, exploring new knowledge and exploiting that knowledge for value co-creation in the ecosystem. (Valkokari, 2015, p. 20) Gomes et al. (2016, pp. 31-45) also makes a similar distinction between business ecosystems and innovation ecosystem, where the former focuses on capturing value and the latter more on creating value.

Jacobides et. al. (2018, p. 2257) distinguishes a stream of the management litterature which focuses on platform ecosystems, where different actors gather and organize themselves around a platform. The platform can take the form of shared or open-source technologies (Jacobides et al., 2018), but also physical places where collaborators can connect face-to-face (Ketonen-Oksi & Valkokari, 2019). Innovative platforms should be

collaborative, where internal and external parties can co-create and merge ideas that bring shared- and organizational value. (Lee, Olson, & Trimi, 2012, p. 829)

Autio and Thomas (2014, p. 205) point out that the innovation ecosystem construct is different from networks and clusters, since innovation ecosystems include both actors from the production side and user side. Furthermore, clusters have a regional focus and are usually defined by a specific geographical location. Innovation ecosystems on the other hand are not bound by a geographical location (Dedehayir, Mäkinen, & Ortt, 2016). Moreover, innovation ecosystems can be distinguished from value chains and supply chains in the sense that they includes both vertical and horizontal relationships between actors (Autio & Thomas, 2014, p. 206). Vertical connections are the ones between seller and buyer, while horizontal connections are those relationships between organizations that provide similar services, uses comparable technologies and utilizes similar suppliers (Mercan & Göktaş, 2011, p. 107).

Innovation ecosystems have received increasing attention in the past decade, and researchers have looked at, among other things, innovation strategies for innovation ecosystems (Adner, 2006), value creation in innovation ecosystems (Adner & Kapoor, 2010), elements of innovation ecosystems (Mercan & Göktaş, 2011), and how to utilize the advantage of partners in ecosystems (Williamson & De Meyer, 2012). Furthermore, success factors that support the implementation of innovation ecosystems (Durst & Poutanen, 2013), roles during the birth of an innovation ecosystem, (Dedehayir, Mäkinen, & Ortt, 2016), and why ecosystems emerge (Jacobides et al., 2018) have also been researched topics. How to collaborate with multiple partners (Davis, 2016), collaboration strategies between research organizations and firms (Schroth & Häußermann, 2018), and how companies handle both competition and cooperation (Hannah & Eisenhardt, 2018) are also recently researched topics in the innovation ecosystem setting. Other researched topics are, how to map, analyze and design innovation ecosystems (Talmar, Walrave, Podoyntsyna, Holmström, & Romme, 2018), the construct of ecosystems and the implications for ecosystem strategy (Adner, 2017), and value co-creation in innovation ecosystems (Ketonen-Oksi & Valkokari, 2019).

The initial stage of innovation ecosystem creation has received little attention in the literature, since practitioners and researchers tend to make the assumption that ecosystems exist already. Therefore, the temporary initial phase is still rather under researched. (Valkokari, 2015, p. 22; Autio & Thomas, 2014, p. 219) Some researchers have addressed the initial phase of the creation of innovation ecosystems. For example, Dedehayir et al. (2016) looked at the different actor roles in the birth stage of an innovation ecosystem and Hannah & Eisenhardt (2018) addressed cooperation and competition in emerging ecosystems. Yet, there is a clear research gap with regard to the initial stage of innovation ecosystem creation.

Durst & Poutanen (2013, p. 36) point out that that innovation ecosystems from a people perspective is an area that needs more consideration and development. Innovation ecosystems consist of a variety of actors that have different attitudes, expectations and objectives. Therefore, a deeper understanding of the implementation of innovation ecosystem from the point of view of individuals would be beneficial (Durst & Poutanen, 2013, pp. 36-37). Furthermore, the ADKAR change management model has not yet been applied in the innovation ecosystem setting as already mentioned earlier. Therefore, a clear research gap is present in the literature on innovation ecosystems in the initial phase from the perspective of individuals.

1.3 Research Purpose, Question and Objectives

This study aims to increase the knowledge regarding innovation ecosystems in their initial stage of creation, from the perspective of individuals. Moreover, the purpose of this study is to identify the barriers employees face when new ways of working are implemented in the workplace, and more specifically in the situation where employees need to work with multiple collaborators in an innovation ecosystem. This results in the following research question:

“What are the employee barriers that impact the implementation of new ways of working in an innovation ecosystem, and why?”

Research objectives are set in order to provide a direction of the study and to show how the research process will be structured. The research objectives help to operationalize the research question and purpose of the study. (Saunders, Lewis, & Thornhill, 2019, p. 45) The following empirical research objectives have been set for this study:

1. *To identify where the most significant change barriers for the employees lie in the change process.*
2. *To identify the underlying reasons that hinders the employees progress in the change process.*

1.4 Delimitations

This study is a single case study of a large multinational corporation (MNC) that is headquartered in Finland. A single case study is appropriate when the nature of the case is unique, typical or critical (Saunders et al., 2019, p. 199). Single case studies cannot be used to make statistical generalizations. However, the purpose of conducting a case study is rather to generalize and expand on existing theories. (Yin, 2014, p. 21) In this case study, the situation of the organization is rather unique in the specific research context of a Finnish MNC, namely, initiating and organizing the start of an innovation ecosystem. It would have been interesting to investigate the perspective of other kinds of partners and collaborators in the innovation ecosystem, such as start-ups or SMEs. Nevertheless, the study has been limited to a single case study due to reasons of manageability, accessibility of data and the time constraint of a master's thesis.

This study focuses on the perspective of individual employees, and the business side of the change will not be the focus of the study. The ADKAR change management model (Hiatt, 2006; Hiatt & Creasey, 2012) was chosen as a base for this study, since it focuses on five stages of individual change: 1) awareness, 2) desire, 3) knowledge, 4) ability, and 5) reinforcement. Furthermore, the lifecycle of an innovation ecosystem can be divided into four phases: birth, expansion, leadership, and self-renewal or death (Moore, 1993; Dedehayir et al., 2016). This study will focus on the first phase, birth, since the case company is only in the beginning of initiating and organizing the innovation ecosystem.

The data collection method chosen for this study is semi-structured interviews. Where a qualitative research strategy is used by conducting in-dept or semi-structured interviews, a limitation is that such a study cannot be used to make statistical generalizations about the whole population (Saunders et al., 2019, p. 451). However, semi-structured interviews provide more in-dept information compared to data collection through questionnaires. Moreover, semi-structured interviews can be used to describe the relationship between variables (Saunders et al., 2019, p. 443). In this study, it will aid in answering the research question by explaining the relationship between employee barriers and the reason why these barriers are present.

1.5 Key Concepts

The key concepts used in this thesis include change barriers, resistance to change, organizational change, change management, innovation ecosystem, and multinational corporation. The concepts will be defined and explained in this subchapter.

According to the Cambridge University Press (n.d.), barrier is defined as: “anything used or acting to block someone from going somewhere or from doing something, or to block something from happening.” Another way of defining barrier is “something that prevents something else from happening or makes it more difficult” (Cambridge University Press, n.d.). In this thesis, the focus will be specifically on *change barriers*, and a barrier to change is when something blocks an individual from embracing a specific change. An individual can reach different barrier points during the change process, which can occur in the awareness stage, desire stage, knowledge stage, ability stage, or the reinforcement stage (Hiatt, 2006).

Resistance to change, on the other hand, has been defined as the action taken by people when a change is perceived as a threat to them (Burke & Barron, 2014, p. 117). Change resistance has also been viewed as a negative attitude towards a change, including the affective dimension, the behavioural dimension, and the cognitive dimension. The affective element defines how an individual feel about the change, the behavioural element describes how an individual acts as a response to the change, and the cognitive

element is how the individual thinks about the change. (Oreg, 2006, p. 76) Although resistance to change has been viewed as a negative phenomenon, it can influence the outcomes of a change in both a negative or positive way (Waddell & Sohal, 1998, p. 547). Lastly, resistance to change can act as a strong barrier to change, but all barriers to change do not have to take the form of resistance.

Change Management entails managing the process of a change, with the help of a set of tools, processes and mechanisms, in order to achieve a more beneficial result in the end (Murthy, 2007; Kotter, 2012; Hiatt & Creasey, 2012). On the one hand, change management is said to be connected to the implementation of large-scale changes, such as changes in organizational structures, business processes, information technology or job assignments. Also, the purpose of change management is to reduce costs and risks. (Murthy, 2007, p. 22) On the other hand, Hiatt and Creasy (2012, p. 9) point out that change management can be used to manage the human side of a change, by transitioning individuals from the current state to a new desired future state with the purpose of achieving the expected results. The perspective of transitioning people through the change process will be the definition used in this thesis.

Innovation Ecosystems have been defined and described in various ways. Currently there is no consensus on a single definition of innovation ecosystems. Gomes et al. (2016, p. 45) maintain that innovation ecosystems are initiated for the co-creation of value and consists of actors that are interdependent and interconnected. Moreover, ecosystems are evolving communities that consist of relationships between actors that are built on collaboration and trust (Gobble, 2014; Autio & Thomas, 2014). Also, innovation ecosystem can be seen as collaborative agreements where firms can combine their specific offers into one solution towards the customer (Adner, 2006). In addition, innovation ecosystems can be seen as a structure where a multilateral group of partners conduct activities guided by a specific value proposition (Adner, 2017, pp. 42-43). This last definition will be the definition followed in this thesis.

Multinational corporation, abbreviated as MNC, is a corporation that delivers services or produces goods in more than one country. MNCs have their headquarters usually in one

country (the home country) and operates in other countries (the host countries). MNCs can also be called multinational enterprise, international corporation, or just multinational. (European Commission, 2019) In this study the term multinational corporation will be used.

1.6 Structure of the Thesis

The *first chapter* of this research consists of the introduction. In the introduction, the reader is introduced to the background of the study and the justification for choosing this specific focus area. The research purpose, question, and objectives of this study are also explained in this chapter. Then, the delimitations and key concepts are presented in order to explain the scope that will be studied. Lastly, the structure of the study is outlined.

The second and third chapter present the results of the in-dept literature review. These chapters introduce the reader to the different theoretical concepts included in the study and helps the reader to gain an understanding of the chosen concepts. The second chapter focuses on organizational change, characteristics of change management, and the ADKAR change management model. The third chapter explores the characteristics of innovation ecosystems and research conducted in the innovation ecosystem setting.

The fourth chapter presents the research methodology of this study. The research philosophy, research approach, research design and methods are presented and discussed in this chapter. Also, sampling, data collection and data analysis are explained thoroughly to improve the transparency of the research. Lastly, the trustworthiness and the ethics of the study are discussed.

The fifth chapter is the findings and discussion chapter. This chapter includes the description, analysis and evaluation of the empirical material. The empirical findings are presented and connected to previously discussed theoretical frameworks and concepts.

The sixth chapter is the conclusion of the research. In this chapter, a summary of the finding is presented. Then, the theoretical contributions and the managerial implications

is discussed. Finally, limitations of the study are discussed and suggestions for further research are made.

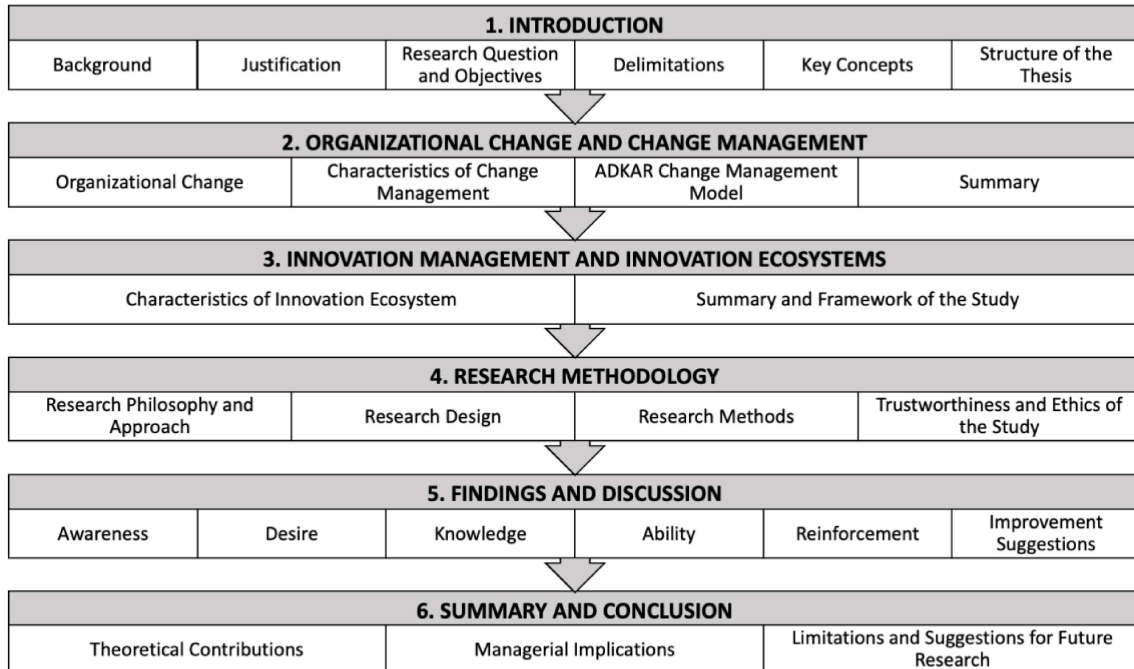


Figure 1 Structure of the study

2 Organizational Change and Change Management

This chapter first discusses and defines organizational change and its implications. Then, key characteristics of change management are presented, followed by a presentation of the ADKAR change management model together with the contributions of other researchers. Finally, a summary of the literature will conclude the chapter.

2.1 Organizational Change

Change is something that happens every day, but it is not the every-day changes that usually catches the attention of those in charge in an organization. In organizations there must be a certain level of change to push stakeholders and leaders to take action. (Mills, Mills & Dye, 2009, p. 4) Changes in the business environment have always been occurring, but according to Hiatt and Creasey (2012, p. 7), the saturation of change is at its peak. Organizational changes have a certain degree of impact on the way people think about their organization. The changes may affect people's jobs and the way people perform those jobs. (Mills et al., 2009, pp. 4, 9)

A simple definition of organizational change is "new ways of organizing and working" (Dawson, 2002, p. 16). However, this definition does not provide any scope or scale of the change that occurs and can range from an individual's decision to change their own way of working to an organization-wide change (Dawson, 2002, p. 16). Organizational change is defined by Mills et al. (2009) as "an alteration of a core aspect of an organization's operation." (p. 4). Core aspects in this definition refers to technology, culture, structure, leadership, goals, or the personnel of an organization (Mills et al., 2009, p. 4), and the definition refers to changes on a larger scale in an organization. Examples of large scale organisational changes are restructurings, leadership transitions, regulatory changes, or merger and acquisitions (Galbrait, 2018). What is important when it comes to organizational change is how its impact is acknowledged inside the organization. The scale of the organizational change is of less importance. (Mills et al., 2009, pp. 4,9)

Companies are continuously changing and re-inventing themselves by adapting to new market trends, solving problems that occur, and taking advantage of opportunities that arise. In reality, it is not the company that is changing, but rather the individual people in the company. (Prosci Inc., 2019a) This means that individual change is required for organizational change, and organizational results are the aggregate outcome of individual change (Hiatt & Creasey, 2012, pp. 4, 7).

2.2 Characteristics of Change Management

The concept of organizational change has now been addressed, but how do organizations manage these types of changes? There are various definitions of change management and these can be seen from different perspectives. For example, from an organizational perspective, a project perspective or an individual perspective. The following definition is a general definition that can apply to changes on any level or situation:

The world basically uses change management, which is a set of processes and a set of tools and a set of mechanisms that are designed to make sure that when you do try to make some changes, A, it doesn't get out of control, and B, the number of problems associated with it... doesn't happen. (Kotter, 2012)

According to Murthy (2007), "change management is managing the process of implementing major changes in information technology, business processes, organisational structures and job assignments to reduce the risks and costs of change and optimise its benefits." (p. 22). This is another definition of change management that focuses on the perspective of business and the organization in general. An alternate definition that focuses to a greater extent on the individual and project point of view of change management is provided by Hiatt and Creasey (2012):

Change management is the application of processes and tools to manage the people side of the change from a current state to a new future state so that the desired results of the change (and expected return on investment) are achieved. (p. 9).

What all these definitions have in common is that change management is managing the process of a change in order to reach a more beneficial result. According to Pucik et al.

(2017, p. 300) effective change management can have a considerable positive effect, because when financial markets judge the value of a corporation, they look mainly on how well a company has managed to implement their plans and strategies. Also, studies show that organizations' ability to implement strategy is a highly valuable intangible capability (Pucik et al., 2017, p. 300). Furthermore, companies that have high change management capabilities are likely to outperform their competitors by three and a half times (Galbraith, 2018). Moreover, executives know that the employee's ability to embrace change is crucial in the implementation phase, and employees can determine the success or failure of a change (LaClair & Rao, 2002).

There are several aspects related to change that are beneficial to acknowledge, since they will have an impact on how effective the change management activities will be. The aspects are change management formula, change is a process, senders and receivers, comfort and resistance to change, role of leaders in the change process, value systems, and size and type of change. (Hiatt & Creasey, 2012, p. 15) These aspects are presented in the following sections.

2.2.1 Change Management Formula

Change management requires both quality of the recommended change and acceptance of the decision by the people (Pucik et al., 2017, p. 300). It is not enough to design a high-quality solution if employees do not use it, or carefully design an action plan if employees do not follow it. Results can only be achieved if employees change their behaviors and work processes accordingly. Therefore, managers must remember that employees do not automatically use a new technical solution or platform just because its ready and available. Hence, it is important to understand how well the change has been embraced by the affected employees. This explains why change management has an important role, since it creates a structure for managing the people side of change. Finding the correct answer to a problem is not sufficient to implement change effectively, and do not help much in mitigating resistance. (Hiatt & Creasey, 2012, pp. 30-40)

The organisational challenges of change management are illustrated in figure 2. 'Q' represents the quality of analytic, business, and economic thinking in the company that leads to a recommended change of action or solution. 'A' stand for acceptance of the proposed change and symbolizes the people processes, while 'E' represents the effectiveness of change. All of the elements in the formula must be in place for a successful change. (Pucik et al., p. 300) This means that if 'Q' is high, but 'A' is zero, the change will not be effective. This study focuses on 'A' in the formula, which is related to the people side of the change. This means that 'A' is also where employee resistance and employee barriers to implement the change happens.

$$\mathbf{Q \times A = E}$$

Figure 2. Formula for change management (Pucik et al., 2017)

2.2.2 Change is a Process

Change is not a single event and cannot be treated as one announcement or a single meeting (Hiatt & Creasey, 2012, p. 33). The lessons learned from the more effective change efforts is that change is a process with certain steps to be taken, and these steps usually require a considerable amount of time (Kotter, 1995). Also, the sponsors that advocate the change should not just be visible at a single point in time and then disappear. Instead, they must be present and active throughout the whole process of the change. Another aspect to take into consideration is that individuals change at different pace. Therefore, an organization cannot treat their employees as a uniform mass that change at the same speed, or even expect the employees to change at all. For large organizations that are spread out geographically, it may happen that individuals find out about the change at different points in time, and this can further extend the change process. (Hiatt & Creasey, 2012, pp. 33-37) This indicates that models for individual change are needed together with organizational change management models.

For a change process to be successful, the business aspect of the change and the employees change process should match. Namely, the individual change and the phases

of the change initiative should progress simultaneously as illustrated in figure 3. (Hiatt & Creasey, 2012, p. 37)

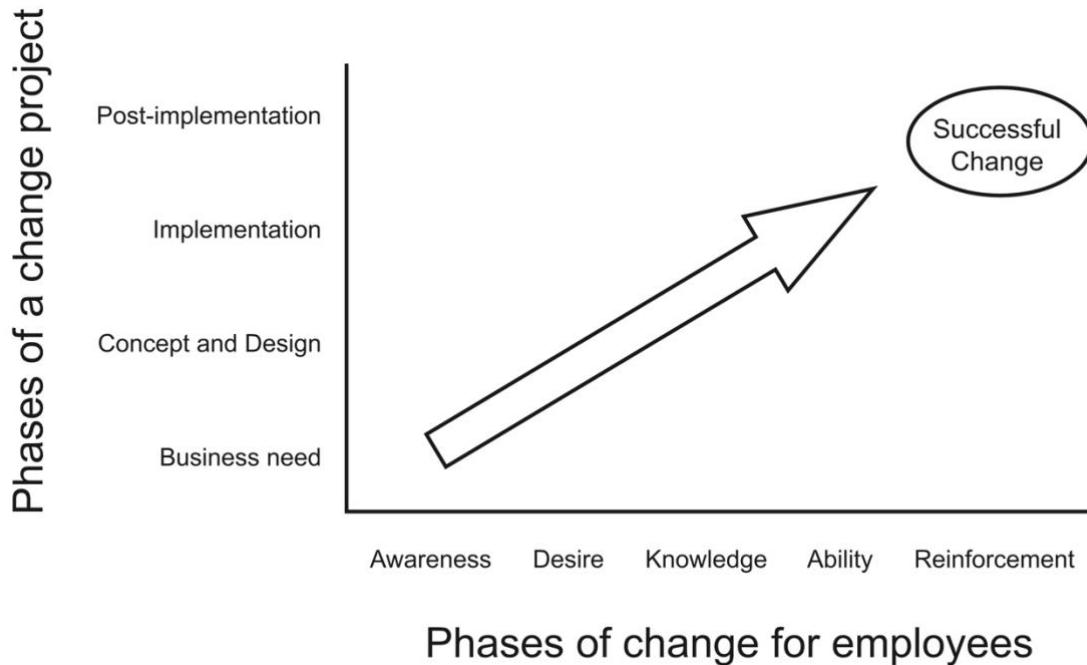


Figure 3. Alignment of ADKAR with business change (Hiatt & Creasey, 2012)

The business aspect of the change initiative can be divided into the following steps: identification of a business need, definition of project scope and objectives, designing the solution, developing the new systems and processes, and implementing the solutions in the organization. (Prosci Inc., 2019b, pp. 6-7) The phases of change for the employees can be found in the ADKAR Model, namely, the stages of awareness, desire, knowledge, ability and reinforcement (Hiatt, 2006). This model is described in-depth in chapter 2.3.

Another model that focuses on the individual's emotional responses during the change is the model of the change transition process. The foundation for this model was provided by Kubler-Ross (1969). It was later developed into the change transition process by Beer, Eisenstat and Spector (1990). This model proposes that during times of change the feelings and moods of individuals vary, which also affect their behaviors. These

moods and feelings are illustrated in figure 4. The figure also indicates how self-esteem and performance can vary over time. (Burke & Barron, 2014, p. 124)

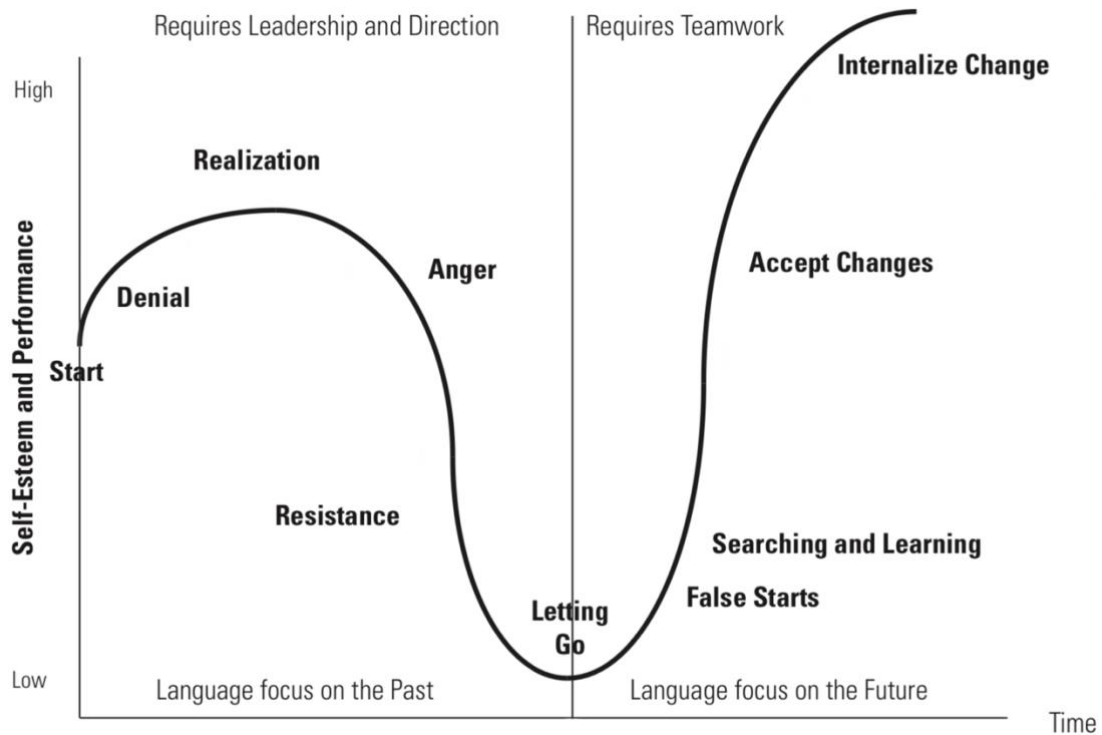


Figure 4. The change transition process (Adapted from Burke & Barron, 2014)

First, the individual is made aware of the change and the process *starts*. Then performance and self-esteem increase and the individual progresses from *denial* to *realization*. After the realization of the personal implications of the change, emotions such as *anger* can occur which can be translated into *resistance*. In the first part of the change, the language is focused on the past and it can take time to reach the point of *letting go*. Then the individual starts to look forward and start dealing with the change by *searching* for ways to cope and *learn* new skills. When the individual's performance and self-esteem start to improve, it can lead to *acceptance* and *internalization* of the change. (Burke & Barron, 2014, p. 124)

In conclusion, change must be treated as a process that takes time, and change management activities must be adapted to the different stage in the process. Also, for

the change process to be effective, individual change should be aligned with the business change. Lastly, individuals go through a process of emotional responses related to the change and these emotions can explain the actions of individuals in times of change.

2.2.3 Senders and Receivers

All changes can be seen from the point of view of the sender or the receiver. The sender is a person that gives information of a change and the receivers are the people that receives information of a change (Hiatt & Creasey, 2012, p. 16). The change process consists of two components, namely, leaders and followers. The leaders send out signals that change is needed and the followers receive those signals. Without followers the change will not be successful because the leaders cannot manage everything on their own. (Carnall, 2007, p. 64) Senders and leaders refer to the same element, and receivers and followers as well. In this study, the terms senders and receivers are used.

In the beginning, it is common that the senders and the receivers are not in dialogue and the message is one-sided. (Hiatt & Creasey, 2012, p. 16) The interpretation of a situation, that is seen from the perspective of the receiver, might not align with the intention of the organization or even the perspective of other individuals. (Burke & Barron, 2014, p. 118) In this stage, the sender may focus on the business issues and the need for the change, while the receiver processes the personal risks and implications related to the change. (Hiatt & Creasey, 2012, p. 16)

Managers and change agents must understand that what the senders mean and the receivers interpret are not always consistent (Burke & Barron, 2014; Hiatt & Creasey, 2012). To bridge the gap, managers must be clear when communicating and listen to the employees to understand how the message is received. Communication about a change is effective when the receivers have internalized the message and can start the change process. (Hiatt & Creasey, 2012, p. 19)

2.2.4 Comfort and Resistance to Change

“Resistance remains to this day a complex, multi-faceted phenomenon that continues to affect the outcomes of change, both negatively and positively.” Waddell & Sohal (1998, p. 547)

There is no consensus on one common definition for the concept of resistance to change in the literature. Resistance have been talked about in several ways, such as criticism, workarounds, push-back and ‘not buying in’ (Ford & Ford, 2010). Nevertheless, there have been attempts at defining resistance and Oreg (2006) suggest the definition of resistance as “a tridimensional (negative) attitude towards change, which includes affective, behavioural and cognitive components.” (p. 76). The affective element considers the persons feelings about a change, the cognitive element considers how a person thinks about change, and the behavioural element considers how a person acts as a response to a change (Oreg, 2006, p. 76). According to Burke and Barron (2014), resistance is “The action taken by individuals and teams when they perceive that a change that is occurring is a threat to them” (p. 117).

Resistance can also be defined from the point of view of the observer, rather than it being an objective phenomenon (Ford et al., 2008; Ford & Ford, 2010). This means that resistance to change depends on, for example, a managers’ own point of view on what resistance is. It could be anything from an eye roll to openly displayed sabotage. Simply, it depends on what that manager or change agent concerned views as resistance. (Ford & Ford, 2010, p. 25) Moreover, resistance can come in many forms. For example, it can be individual, organized, active, passive, aggressive, timid, concealed, or openly displayed. (Burke and Barron, 2014, p. 117)

The concept of change resistance has been viewed dominantly as a negative phenomenon in the literature, but some researchers have brought the positive sides of resistance to light (Waddell & Sohal, 1998; Ford et al., 2008). Maurer (1996) said that: “Resistance keeps people in the organization from attaching themselves to every boneheaded idea that comes down the pike.” (p. 57) Utility can also be found in

resistance and individuals do not resist change as such, but they resist the potential outcomes and uncertainties in connection to the change. Therefore, resistance can shed light on aspects of the change that is inaccurate or not thought through properly (Waddell & Sohal, 1998, p. 545). In addition, resistance could be viewed as a resource in the change process. For example, resistance can keep the discussion of the change initiative alive, it can be viewed as a form of engagement that in some cases requires highly commitment individuals, and if the resistance is addressed properly by the change agents it can strengthen the commitment to the change. (Ford et al., 2008, pp. 368-370)

New changes in an organization aim at bringing benefits, but when employees have to move from something well-known and comfortable towards something unfamiliar, feelings of confusion, distrust (Burke & Barron, 2014, p. 119), uncertainty, and worry can occur (Hiatt & Creasey, 2012, p. 20; Maurer, 1996, p. 58). In addition, the envisioned future state of the change is not usually clearly defined, and employees can be fearful of what is to come (Hiatt & Creasey, 2012, p. 20). Resistance to change occurs when individuals perceive a potential threat, even if the threat is not real (Dawson, 2002, p. 19; Burke & Barron, 2014, p. 118). Hence, the perception of a threat is enough for individuals to change their behaviors (Burke & Barron, 2014, p. 118).

So, what are the underlying factors that make individuals resist change? There are several factors that can contribute to change resistance, for example, the individual's personal situation or the organizations history and culture related to previously implemented, or failed, change initiatives (Hiatt & Creasey, 2012, pp. 20-22). These factors along with other reasons for resistance will be discussed in-dept in chapter 2.3.

To build commitment around a change one must first know what is potentially blocking it (Maurer, 1996, p. 60) and the people in charge of a change should assume that resistance is a natural and legitimate response when change occurring. Also, it is essential to support employees through change and be prepared to manage resistance. (Hiatt & Creasey, 2012, pp. 20-22; Ford & Ford, 2010, p. 35)

2.2.5 Role of Leaders in the Change Process

It is a common understanding that a person, or a group of people, is needed to enable and make decisions about change. For example, leadership is needed to establish a vision, to solve problems, and to guide us in the right direction. Leaders are present everywhere in our community, such as in families, companies and governments (Hiatt & Creasey, 2012, pp. 22-23). In the change management literature, a person leading change has been titled, change champion (Kotter, 1995), change agent (Maurer, 1996, p. 57), change leader, or just sponsor (Hiatt & Creasey, 2012).

For change to be implemented successfully there should be an active leader to advocate the change. Visible and active leadership, or sponsorship, is one factor for successful change that is mentioned most frequently in change management literature (Kotter, 1996; Hiatt, 2006; Hiatt & Creasey, 2012; Pucik et al., 2017). The role of the change leader is to be active and present throughout the process, to create alignment between the business leaders, and to communicate the need for the change directly with the employees (Hiatt & Creasey, 2012, p. 23).

2.2.6 Value Systems

There has been a shift in organizational culture and values over the past five decades. Organizations used to be more hierarchical and values such as predictability, control, and consistency were in the center. Also, the decision-making approach was mainly top-down. Then a shift occurred in the value systems due to new business improvement initiatives, such as organizational development and total quality management. These types of initiatives passed on new values to employees, such as empowerment, accountability and continuous improvement. (Hiatt & Creasey, 2012, pp. 25-26)

These values have improved productivity and the ability to adapt to customer needs faster. However, these values have also led to a more complex process when change needs to be implemented. Now, employees are more likely to question the decision from the top and resist change that they do not agree with. Therefore, change management is needed now more than ever. Nowadays, organizations have a more diverse workforce

that originate from various cultures due to globalization. The culture factor further impact how employees react to change. (Hiatt & Creasey, 2012, pp. 26-28) In conclusion, value systems and culture have an impact on the employee's reaction to a proposed change.

2.2.7 Size and Type of Change

All changes are unique and the amount of change management efforts needed depend on the size and type of change (Hiatt & Creasey, 2012, p. 28). Change can be placed on a continuum, ranging from low-scope to high-scope changes (Pardo del Val & Fuentes, 2003, p. 148). On the low-scope side it can be called an incremental (Hiatt & Creasey, 2012) or an evolutionary change (Pardo del Val & Fuentes, 2003; Pucik et al., 2017). High scope changes can be called radical (Hiatt & Creasey, 2012; Pucik et al., 2017) or strategic change (Pardo del Val & Fuentes, 2003). Evolutionary change and radical change are the terms that will be used in this paper.

In the case of evolutionary change, the process of changing happens gradually and over a longer period of time. These types of changes are not usually driven by crisis or an immediate need for improvement, but the focus is to improve performance in general or the change is happening due to an anticipated future challenge. (Hiatt & Creasey, 2012, pp. 28-29; Pucik et al., 2017, p. 302) In the case of radical change, there is a dramatic and immediate change required that normally happens over a short period of time. The reason for these types of changes could be a crisis where the survival of the organization is in danger or there is a significant opportunity present that requires immediate action. (Hiatt & Creasey, 2012, pp. 29; Pucik et al., 2017, p. 302) Examples of radical changes could be regulatory changes, mergers and acquisitions, or business process reengineering. (Hiatt & Creasey, 2012, p. 29)

For evolutionary change employees can change gradually, while for radical change employees are required to change faster. Also, for radical changes employees has to move further away from their comfort zone to a state that is uncertain to a greater extent. Therefore, evolutionary change requires less change management and radical change

requires more. (Hiatt & Creasey, 2012, pp. 29-30) This is also supported in the research conducted by Pardo del Val and Fuentes (2003, p. 152), which shows that resistance to change is more powerful in radical changes than in evolutionary ones. This also indicates that change management is needed to a higher extent in radical changes since resistance is higher.

To conclude, change management must be tailored to fit the type, size, and context of a particular change to be most effective. Also, it is important to keep in mind that real changes are not usually purely evolutionary or radical, but can also be a mixture of both (Pardo del Val & Fuentes, 2003, p. 148).

2.3 ADKAR Change Management Model

The ADKAR model is a change management framework that aids in understanding, managing, and facilitating change for individuals. Every letter in the model represents milestones that each person must reach for the change to be successful and sustained. The milestones are *awareness*, *desire*, *knowledge*, *ability* and *reinforcement* (figure 5). These should be achieved in sequence for a successful change. (Hiatt, 2006; Hiatt & Creasey, 2012, pp. 45-58) The structure of this chapter will follow the stages of the ADKAR change management model, but other researchers' contributions will be added to supplement the framework.

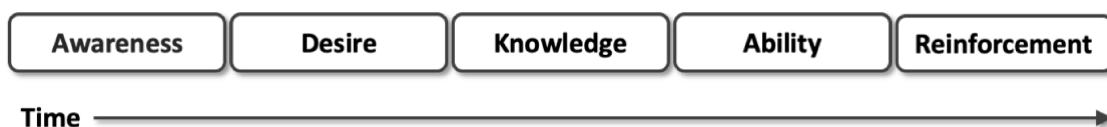


Figure 5. ADKAR change elements (Hiatt & Creasey, 2012)

2.3.1 Awareness

The first milestone is *awareness*. This milestone symbolizes a person's understanding of the change that is happening. Not only the understanding that the change is happening, but more importantly the nature of the change, why the change is occurring, and what the potential risks are if the change does not occur. This element of the ADKAR model

includes information on the reason for the change, namely, what are the external and internal drivers for the change. Another important aspect of the awareness milestone is for people to understand “*what’s in it for me?*” (Hiatt, 2006). If individuals cannot answer this question or if they do not understand the organization’s intention for the proposed change, resistance is likely to occur (Rosenberg & Mosca, 2011, p. 141; Burke & Barron, 2014, p. 119). A survey done on over half a million employees in the U.S indicated that one third did not understand why the changes were happening (Galbraith, 2018). This indicates a large awareness gap that should be addressed in the early stages of a change.

Building awareness is not just a matter of successful communication, but there are multiple factors that can act as barriers to achieving the awareness milestone. The factors affecting a person’s perception of the need for change can be comfort with the current state, the individual’s perception of problems, the trustworthiness of the sender, rumors and misinformation, and debatable reasons for the change. (Hiatt, 2006)

Employees that *strongly support the current state* may at first deny or doubt the reasons for the change, this is the first factor that can impact awareness building. Employees that have invested strongly in the current state with money, time, or effort are more likely to want to maintain the status quo. A typical response could be “*If it’s not broke, don’t fix it*”. (Hiatt, 2006) At times, executives underestimate the effort it takes to bring people out of their comfort zones (Kotter, 1995) and when there is fear of losing something of value it is more likely that resistance will occur (Burke & Barron, 2014, p. 119). Rosenberg and Mosca (2011, p. 141) point out that a major factor for resisting change depends on the persons mindset and attitude towards the change. Therefore, the reaction to the communication in the awareness stage and the resistance that a person expresses is strongly related to the persons perspective on the current situation. (Hiatt, 2006)

The second factor that may affect the viewpoint on the need for change in the awareness stage is related to *how an individual internalizes new information*, and their *cognitive style*. Every individual have their own way of perceiving and resolving problems, and this implies that broad communications alone may not always be enough to create awareness around a specific change. (Hiatt, 2006) Rosenberg and Mosca (2011, p. 143)

also present a similar standpoint, namely, in order to mitigate the personal factors for resisting change it is essential for management to conduct personal communication, in addition to formal communication methods. Finally, some employees may be more aware of changes deriving from inside the organisation, while some are more perceptive to external factors driving change decisions (Hiatt, 2006).

The third factor that influences how a person internalizes a message is the *senders credibility and trustworthiness*. Depending on how respected and trusted the sender is, the receiver of the message will either view the sender as credible or unreliable. In a workplace setting, employees have certain expectations when it comes to change communications. For example, if it is a message communicating why a change is occurring employees expect it to come from top management, while if it is a message that informs how a change will impact an employee personally, it is expected to come from a direct manager or supervisor. (Hiatt, 2006)

A fourth factor that could impact the effectiveness of the awareness stage is the presence of *rumors and misinformation*. Incorrect information circulating in the background may create barriers to establish awareness of the change. For instance, if managers have concealed information, employees are more likely to hear false information from rumours. It could be challenging for an employee to determine what information is correct and what is not. In the end, it could lead to more work for the manager to correct false information than it would have been telling the correct information from the beginning. (Hiatt, 2006)

The fifth factor in the awareness stage that could have an impact is if the *reasons for the change is debatable*. This factor is closely depending on if the change is happening due to external or internal circumstances. External circumstances, such as new regulations that require compliance or declining revenues in the marketplace are observable and rather difficult reasons to argue against (Hiatt, 2006). Declining business results can be positive, in the sense that it catches peoples attention (Kotter, 1995). In these instances, the risk of not changing could be fines for not complying with the law, lay offs, or perhaps even bankruptcy. The internal reasons for change may not always be as observable and

obvious as the external ones. The internal reasons for change may be completely valid, such as effectivising operations or creating wider collaborations between different groups in the organisation. However, internal reasons for change can be more easily debated than external reasons, and if a reason is debatable it takes longer time to build awareness. (Hiatt, 2006) Longer awareness building presents a barrier to implementing the change, and the change process is extended.

2.3.2 Desire

The second milestone of the ADKAR model is *desire*. This second step of creating desire to change can be initiated after initial awareness has been built. The individual's decision to participate in the ongoing change happens in this stage of the process. Executives and managers cannot decide that individuals should to support the change, but they can still influence the decision. Factors that can influence a person's desire to be a part of the change initiative are the change initiatives' nature, organizational history and context in implementing change, the employee's personal circumstances, and the individual's personal motivators and values. (Hiatt, 2006) The factors that influences a person's decision to support the change can also naturally act as barriers that prevents an individual to embrace the change.

The desire to support and be a part of change is depending on the *nature of the change*, which is an influencing factor in the desire stage of the model. When the nature of the change is assessed questions, such as "*What is the change?*", "*How will the change impact me?*", and "*What's in it for me?*" will arise. If a person obtains the answers to these questions, he or she can conclude if the change will be a threat or opportunity. (Hiatt, 2006) If the change serves a person's self interest, and the change is not a threat to job security, personal expertise, or social status it is more likely that the change will be supported (Traider-Leigh, 2002, pp. 146-148). However, a perceived loss of status, control or security is one major personal factor for resisiting change (Rosenberg & Mosca, 2011, p. 141).

The second factor affecting this stage is the *organizational context and company's history in implementing change*. This factor represents a person's view on the organisation in changing situations. The assessment of the environment will vary since it is a unique experience for every person. In a workplace environment, the context that is assessed is success of previous changes, amount of ongoing changes, rewards and reinforcement of implemented changes, the corporate culture, and where the organisation is headed in the future. These elements should not be underestimated, since the organisation's culture and history will play an important part in creating desire to participate in a change. (Hiatt, 2006)

There is a connection between organizational context and culture to the organization's ability of implementing changes. On one side of the spectrum, there are behaviours such as exclusive decision-making, micro management, fear to speak up, and non-transparency. These behaviours characterise an organization that is not likely to engage employees. On the other side of the spectrum, there are behaviours such as inclusive decision making, delegation, trust, and transparency. These behaviours are more likely to foster a culture where employees are respected and treated with dignity. This type of culture is more ideal for changes that need engaged employees. (Maurer, 2010, pp. 36-37)

An in-depth case study showed that organisations can use their history as a basis to empower or disempower certain strategic opportunities or to influence specific organizational change processes (Brunninge, 2009, p. 8). Therefore, if an organization has been successful in the past with certain change initiatives, it could increase an individual's desire to be a part of a change. However, if an organisation has a poor track record in following through with started change initiatives, it could present a barrier for employees' desire to change. (Hiatt, 2006)

The third factor that can create a desire to support change, or not, is the individual's *personal situation*. Personal context and current life situation, such as health, age, family situation, family and work relationships, financial situation, education, mobility, career aspirations, and past career success play important roles in the decision-making stage.

For example, health or financial situation could impact how an individual makes a decision about participating in a change or not. The decision might not seem logical at first, but when the underlying reasons come to light the decision could make more sense. (Hiatt, 2006)

The fourth factor that will have an impact on the desire stage is *personal motivation*. For example, personal motivators could be eagerness to help others, desire to make a difference, instinctly avoiding negative consequences or pain, career advancement, getting respect or power, or financial security. The spectrum of motivators is broad and unique to every person. Personal motivators also say something about the individuals beliefs and values. (Hiatt, 2006)

2.3.3 Knowledge

The third milestone is *knowledge*. This milestone represents the information, education and training needed to know how to actually change. To implement this milestone every individual needs to know the new skills and behaviors. Also, the individual must learn about the new tools, systems and processes. Furthermore, the person needs to know the new responsibilities and roles needed in the future state of the change. The knowledge stage is only effective if the first two stages are in place, namely, awareness and desire. This makes sense because if you do not now know much about the change and you do not have a desire to participate, it will lead to ineffective education and training. There are four factors that influence whether the knowledge stage can be successfully achieved, namely, current level of knowledge, learning capability and capacity, availability of resources for training and education, and access to knowledge. (Hiatt, 2006)

The first factor in the knowledge stage that has an impact on the implementation of the change is the *current level of knowledge* of individuals. The level of knowledge could present itself in the form of work experience or education. In some cases, individuals already have the necessary knowledge, while in other cases the knowledge gap may be large. The larger the knowledge gap, the bigger the barrier is to achieve the knowledge

milestone for the change. The level of knowledge is directly related to the likelihood of success for the change initiative. (Hiatt, 2006)

The second factor is related to a *person's capability of learning*. In the school systems it is recognized that students have different capacity of learning. Similarities in adults' learning capacity can be observed in their processes of gaining new knowledge. Some individuals can learn quickly and with ease, while some have a harder time learning how to use new tools and processes. For example, one person might learn a new concept easily, another might struggle with technical skills, and someone else might have a hard time memorizing new information. (Hiatt, 2006) One major personal factor for resisting change is the fear of failing. If a person has a hard time learning new things, this fear can become apparent in this stage of the process or later on in the ability stage. (Rosenberg & Mosca, 2011, p. 141)

The third factor that has implications for the knowledge stage is the *availability of resources* that can aid people in acquiring new knowledge. The resources available can vary considerably from one organization to another. For example, some organizations have extensive capital and resources when it comes to delivering training, while others struggle to provide any kind of organized training. Resources that should be available to support a change are general financial resources for the training program, experts in specific topics, trainers, facilities, materials and books, and equipment that can aid the student's learning. (Hiatt, 2006) Lack of these resources can hinder the change process.

The fourth factor in the knowledge stage that will have an impact on the change is the *access to knowledge*. Such access can depend on the geographic location of the organization. For example, in some parts of the world there may not be access to experts on a specific subject, or even access to educational institutions. For some types of changes, there may not be existing knowledge of the subject, or the knowledge is not yet developed fully. For example, technical knowledge may be required for a certain change, but it might not be readily available. The changes may therefore be initiated when the technical knowledge is further developed. (Hiatt, 2006)

2.3.4 Ability

The fourth milestone is *ability*. This is the milestone where the outcomes of the change effort materialize. Ability is the stage where the gained knowledge from previous stage is turned into action. Even if an employee has knowledge about how to change, it does not mean that the employee can immediately master the needed ability. It takes time to demonstrate proficiency, and some employees may never establish the required skills. There are various factors that can act as barriers for a person's ability to implement change, for example, psychological barriers, physical or intellectual capability, limited time frame, available resources to support ability building (Hiatt, 2006), and strong current habits (Prosci Inc., 2019c, p. 8).

The first factor in the ability stage is *psychological barriers*. A common psychological barrier that exists in the work environment is the fear of public speaking. The fear of public speaking can become apparent when an employee must give a presentation or speak during a large meeting. This barrier can be frustrating to many, since the real potential of a person may not become apparent. (Hiatt, 2006)

Physical ability is the second factor that has an impact on the ability stage. Physical limitation that could become apparent in the workplace is, for example, hand-eye coordination, physical size, physical agility, strength, or manual dexterity. A simple task, such as keyboarding, could take an enormous effort to people with arthritis or dexterity. Depending of the performance required by the change, the physical abilities of a person might not be adequate. (Hiatt, 2006)

The third factor that influences the ability stage is the *intellectual capability* to perform. The intellectual capability of an individual has an impact on the ability to learn new things. For example, some people can learn matters related to math and finance quickly, while others are better at being creative and finding innovative solutions. Furthermore, some individuals are simply good writers, while other people have a hard time putting their ideas into words. This means that some individuals may have mental barriers to implement a change, depending on the type of change required. (Hiatt, 2006)

The fourth factor that influences a person's ability to develop a new skill is *time*. Time available for implementation has an impact on many kinds of changes. It may be the case that a person has the potential to develop a required skill, but simply cannot do it within the given time frame. (Hiatt, 2006) One reason why resistance can occur is because employees cannot keep up with the pace of the change (Burke & Barron, 2014, p. 119). If the skills cannot be developed in the time available, it is possible that the change will fail. In many cases in the business world, change is depending on external factors and the supervisors or managers cannot control the schedule of the change themselves. (Hiatt, 2006) Furthermore, in today's challenging business pace competing priorities may also control the employee's work schedule. (Prosci Inc., 2019c, p. 9) Lastly, for employees to develop new skills, time, patience, and focused attention is required (Gilley, Godek, & Gilley, 2009, p. 7)

As in the knowledge stage, *resource availability* also plays a role in the ability stage. The resources available to support a person in their development of new skills are essential. Resources could refer to access to experts and mentors, personal coaching, appropriate material and tools, or simply financial aid. A person's process of learning new skills can be improved if resource support is present. Furthermore, if the resource support is present the potential knowledge gap can also be addressed in this stage. (Hiatt, 2006)

The sixth factor influencing the ability to develop new skills is the *mental capability of breaking old habits*. People are wired to follow their habits and psychologically people have the tendency to follow known processes and routines. For a person to break old routines and develop new abilities, the brain has to create new neural pathways. If current habits and the new required competences are opposites, the barrier to develop the new competence is greater. Battling old habits can be frustrating and people may even revert back to their old habits. To foster ability, managers must be patient, be prepared for a temporary decline in efficiency and give people time to create new habits. (Prosci Inc., 2019c, p. 8) Disruption of routines and increased workload are two major personal reasons behind resistance to change (Rosenberg & Mosca, 2011, p. 141).

2.3.5 Reinforcement

The final milestone of the ADKAR model is *reinforcement*. This milestone is critical for sustaining the change. The reinforcement stage is often overlooked when a change initiative is seen as complete (Prosci Inc., 2019d, p. 3). The hardest part is to sustain change over a longer time period, because if reinforcements are not in place people in the company will revert back to old and comfortable ways of working. According to Rosenberg and Mosca (2011, p. 141), one of the major personal factors for resisting change is lack of rewards for a successfully achieved change. When the desired outcome has been met, reinforcement will aid in integrating the change into the organizational culture (Hiatt & Creasey, 2012), and the change can be seen as integrated into the organizational culture when people say that it is “the way we do things around here” (Kotter, 1995). There are four factors that influence the effectiveness of this stage, namely, meaningful reinforcement, reinforcement connected to achievements, consequences in the wrong direction, and accountability that supports the change. (Hiatt, 2006)

The first factor that contributes to the reinforcement stage is if the *reinforcement is meaningful* to the concerned person. From an individual perspective, recognition can be meaningful if the reward or recognition is directly connected to that specific person. For example, if the reward directly applies to the work that the employee is performing. In addition, the recognition becomes meaningful if the individual respects the person delivering the recognition. (Hiatt, 2006) Usually, the direct manager of an employee is the best person to deliver the message (Prosci Inc., 2019d, p. 5). Also, for the recognition to be meaningful it has to provide value and be relevant to the receiver. (Hiatt, 2006)

The second factor that contributes to effective reinforcement is the *reinforcements' connection to individual achievements*. This means that people want to be recognized when they have contributed with something meaningful to the organization. Most of the time employees can already recognize when they have succeeded with implementing a change, but reinforcement will just inform them that the change is still important and that people in the organization still care about it. The opposite scenario will create a

barrier to change, for example, when an individual struggle with implementing a change and later realize that nobody cares about it. In this case, the change will probably not be sustained (Hiatt, 2006) and the individual will probably not have the desire to continue working on the change in the future (Prosci Inc., 2019d, p. 5).

The third factor influencing reinforcement is *consequences in the wrong direction*. This means that a person displays the desired behaviors but encounter negative consequences due to it. A good example of this is peer pressure. In the workplace, some employees take steps to participate in the change, while others continue doing as they have been before, and also pressuring other colleagues to do the same. Therefore, if peer pressure is displayed in a negative way, it becomes a barrier to embrace change. (Hiatt, 2006)

The fourth factor is one of the strongest methods of reinforcement, namely, *systems for accountability*. In a work environment, this type of reinforcement is visible through performance measurement- and accountability systems. These systems allow transparency and visibility of results and job performance. If goals and achievements are connected to rewards and recognitions, it is more likely that the change will be sustained. (Hiatt, 2006)

2.4 Summary

The scale of organizational change can range from change on an individual level to large scale strategic organisational changes. However, the bottom line is that individual change is needed for organisational change to manifest (Hiatt & Creasey, 2012, pp. 4, 9), even though the initial decision for the change may come from the top of the organization. In order to manage the change initiatives that have been chosen for implementation, successful organizations use change management processes, tools, or mechanisms in order to reach a more beneficial end result (Murthy, 2007; Kotter, 2012; Hiatt & Creasey, 2012).

There are different underlying aspects to recognize when it comes to change management. First of all, for a change to be effective, the business-, economic- and analytic thinking of a change, and acceptance of the change in the organization is necessary (Pucik et al., p. 300). Secondly, changes do not occur overnight, but is a process that takes time. Thirdly, senders of a change message and the receivers of that message may not be in sync, therefore, the senders must communicate effectively and examine if the message was received in the intended way. (Hiatt & Creasey, 2012, pp. 16, 19)

Resistance to change is a normal response when changes occur in an organization, and especially if an individual is comfortable with the current state. (Ford & Ford, 2010; Hiatt & Creasey, 2012) Also, active and visible change leadership is an essential factor for a successful change (Kotter, 1996; Hiatt, 2006; Hiatt & Creasey, 2012; Pucik et al., 2017). Furthermore, value systems in an organization will have an impact on how changes are perceived and embraced, and the size and type of change will determine how much change management is needed. (Pardo del Val & Fuentes, 2003; Hiatt & Creasey, 2012)

The factors that can impact the change vary depending on where in the change process the individual and organization are. A summary of the different barriers and phases in the change process from the ADKAR model is summarized in table 1.

Table 1. Change phases and change barriers (Adapted from Hiatt, 2006)

Phases	Elements impacting the change process
Awareness	<ul style="list-style-type: none"> • Comfort with the current state • The perception of problems • Trustworthiness of the sender • Rumors and misinformation • Debatable reasons for the change
Desire	<ul style="list-style-type: none"> • The change initiatives' nature • Organizational context and past successes in implementing change • The employee's personal circumstances • The individual's personal motivators and values
Knowledge	<ul style="list-style-type: none"> • Current level of knowledge • Learning capability • Available resources for education and training • Accessible and existing knowledge
Ability	<ul style="list-style-type: none"> • Psychological barriers • Physical limitations • Intellectual abilities • Time limits and competing priorities • Available resources that can support ability building • Strong current habits
Reinforcement	<ul style="list-style-type: none"> • Meaningful reinforcement • Reinforcement connected to achievements and progress • Consequences going in the wrong direction • Systems for accountability

In the next chapter, literature on innovation management and innovation ecosystems will be introduced to increase the readers understanding of the current change initiative that the case company is implementing, and to describe the new work environment that the employees will be situated in.

3 Innovation Management and Innovation Ecosystems

In this chapter, innovation and managing innovation will be shortly introduced to provide background information for the strategic change initiative that the case company has undertaken, namely, establishing the foundation for an innovation ecosystem. The next subchapter will present innovation ecosystems, including, characteristics of innovation ecosystems, ecosystem lifecycle, ecosystem strategy, actors and roles in an ecosystem, multi-partner collaboration, governance mechanisms, value co-creation, and success factors and challenges in an innovation ecosystem. The final subchapter summarizes the literature on innovation management and innovation ecosystems and the framework of the study is presented.

Baregheh, Rowley, & Sambrook (2009) defines innovation as “the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace.” (p. 1334). Furthermore, Pisano (2019) points out that innovation involves change by definition. This means that innovations require change, and change is a central part of innovation in organizations.

In turn, “Innovation management is the management of innovation processes.” (Bajenescu, 2017, p. 45). Innovation management includes all the decisions, practices and activities that move an idea to fulfillment with the purpose of creating business value. It includes all the activities operated by an organization, such as making decisions to promote and support the emergence of innovative ideas and projects, deciding which projects should be selected, commercializing new innovative products, implementing new business processes, or increasing competitiveness. (Bajenescu, 2017, p. 40)

Innovation is not an easy task, but there are three essential leadership tasks that help to build innovative capacity in an organization. First, create an innovation strategy, then design an innovation system, and finally build an innovative culture. The innovation strategy should specify how the organization intends to create and capture value through innovation. Furthermore, the strategy explains how the organization intends to

prioritize different innovation opportunities. An innovation system should accomplish three basic tasks, enable search for new and valuable problems and solutions, aid in the synthesis of ideas into a coherent concept, and guide the selection of innovation opportunities. An innovative culture does not look the same for all organizations, but there are some beliefs and behaviors that support innovation, namely, tolerance for failure, willingness to experiment, psychological safety, collaboration, organizational flatness, high discipline, brutal honesty, and individual accountability. (Pisano, 2019) Even though these beliefs and behaviors discussed refers to single organizations, supporting these behaviors and beliefs in an innovation ecosystem could also be beneficial.

3.1 Characteristics of Innovation Ecosystems

“As companies grapple with uncertainty and change, they must collaborate in new ways with unlikely partners.” (Furr & Shiplov, 2018)

An innovation ecosystem is “the collaborative arrangements through which firms combine their individual offerings into a coherent, customer-facing solution (Adner, 2006). According to Gobble (2014), “Innovation ecosystems are dynamic purposive communities with complex interlocking relationships built on collaboration, trust, and co-creation and specializing in exploitation of a shared set of complementary technologies or competencies.” (p. 55). Autio and Thomas (2014, p. 208) point out that ecosystems are evolving communities that are devoted to detecting, developing, delivering, and expanding new applications. In another definition, innovation ecosystem is characterized with the following features:

An innovation ecosystem is set for the co-creation, or the jointly creation of value. It is composed of interconnected and interdependent networked actors, which includes the focal firm, customers, suppliers, complementary innovators and other agents as regulators. (Gomes et al. 2016, p. 45)

Another recent definition of ecosystems in management research is proposed by Adner (2017), who states: “The ecosystem is defined by the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to

materialize.” (p. 42) A value proposition in an innovation ecosystems setting means the introduction of a new service or product, or the introduction of a new or modification of an existing business model in order to create value for customers in a new way. (Yaghmaie & Vanhaverbeke, 2019, p. 284)

There is a distinction between two point of views on the ecosystem construct, namely, ecosystem as an affiliation and ecosystem as a structure. In the ecosystem as an affiliation perspective, ecosystems are seen as a community of actors defined by the affiliation of networks and platforms. On the other hand, ecosystems as a structure sees ecosystems as arrangements of activities guided by a value proposition. The first perspective focuses on the actors as a starting point, while the latter is focuses on activities. (Adner, 2017, pp. 40, 43)

In addition, there are four fundamental components that jointly describe the features of the activity arrangements and actors that are needed for the value proposition in an innovation ecosystem to be realized: activities, actors, positions, and links. *Activities* are the discrete actions that needs to be undertaken for the value proposition to happen. *Actors* are the entities that take on these activities. Moreover, one actor can engage in several activities or multiple actors can undertake only one activity. *Positions* specify where actors are located in the flow of activities in the system. Also, positions characterize who takes over the responsibility where another actor has left off. Lastly, *links* describe the transfer across actors, which may involve the focal actor or not. The substance of the transfers can differ, for example, it could consist of material, information, influence or funds. (Adner, 2017, pp. 43-44)

Members of the ecosystem face both cooperation and competition (Valkokari, 2015, p. 20; Gomes et al., 2016, pp. 31-45). Competition can occur on two levels, namely, within and across ecosystems. Competition within the ecosystem relates to securing activities, roles, and positions that will affect the capture and distribution of value across actors and their positions. Competition across ecosystems refers to creating and capturing value compared to rival ecosystems and their actors. (Adner, 2017, p. 49) Competition and cooperation can happen at the same time or at different times on different levels,

namely, within components, between firms in the ecosystem, or between rival ecosystems. (Hannah & Eisenhardt, 2018, p. 3164)

3.1.1 Ecosystem Lifecycle

A business ecosystem starts off as a collection of random elements that gradually progress towards a more organized community. Ecosystems are said to progress through four separate evolutionary phases, namely, birth, expansion, leadership, and self-renewal or potentially death. (Moore, 1993, p. 76) Ecosystems can evolve through self-organization or even through an unplanned occurrence, but there may also be a leading firm that mobilize the emergence and development of the ecosystem (Williamson & De Meyer, 2012, p. 25).

In the first phase, birth, the ecosystem actors focus on the customer need, namely, the value that the new product or service will bring, and how to deliver it in the best way. During this stage cooperation is essential, and a leader should emerge in order to aid ongoing improvement of the whole community. In the second phase, expansion, the ecosystem expands into new territories. For this phase to be successful, it is necessary to have a business concept that is valuable to a broad number of customers, and that this concept have the potential to scale up to reach larger markets. (Moore, 1993, pp. 76-80)

In the third stage, leadership, the lead companies should provide a vision that compels and encourages customers and suppliers to collaborate and to continue to improve the core offer. It is also relevant to maintain bargaining power in relation to the other ecosystem actors. In the final stage, the mature ecosystem can go in two directions, either towards self-renewal or towards dissolution. This occurs when the business ecosystem is exposed to new ecosystems and innovations, or unexpected new environmental conditions, such as changes in buying patterns of customers, government regulations, or macroeconomic conditions. For self-renewal the actors have to work together to bring new innovation ideas to the current ecosystem. (Moore, 1993, pp. 80-84)

The business ecosystem lifecycle has also been used as a basis in research on innovation ecosystems. Dedehayir, Mäkinen, & Ortt (2016) used Moore's (1993) model of ecosystem stages as a base to describe the actor roles that are present in birth stage of an innovation ecosystem. This indicates that that the stages of a business ecosystem are comparable to the stages of an innovation ecosystem to some extent.

3.1.2 Ecosystem Strategy

As discussed in the beginning of this chapter, for an organization to build capacity to innovate one of the essential leadership tasks is to create an innovation strategy, which specifies how to create and capture value via innovation (Pisano, 2019). Furthermore, if an organization is a part of an innovation ecosystem the firm also needs to define an ecosystem strategy. Even if an ecosystem consists of multiple actors, every firm will define its own strategy from their own perspective. (Adner, 2017, p. 47) An ecosystem strategy can also be designed jointly by the different actors in the ecosystem. In this case, the ecosystem actors could explore common innovation opportunities and by jointly creating an ecosystem strategy they could guide sensitive topics, such as risk, dependence, or misalignments (Talmar et al., 2018, p. 9).

Talmar et al. (2018) developed a strategy tool called the ecosystem pie model in order to guide managers decision-making and analysis regarding the ecosystem strategy. The aim of the tool is to be able to map, analyze, and design an innovation ecosystem. The ecosystem pie model includes constructs and relationships on two levels, the actor level and the ecosystem level. On the ecosystem level there are three constructs: the value proposition of the ecosystem, the user segments that are targeted by the value proposition, and the overall picture of all the actors included in the ecosystem. On the actor level, the following constructs are included: resources, activities, value addition, value capture, dependence and risk. An actor supports to the ecosystem value

proposition (EVP) by its access to resource that can be used for activities aiding the overall ecosystem. (Talmar et al., 2018, pp. 3-4)

In some cases, it may not be the optimal strategy to build an ecosystem, and other strategies might be more beneficial to pursue. The cases of Intel's business model of vertical integration, and Apple's strongly controlled way in which they develop and design their core hardware platforms, are examples of other successful strategies. However, in the right context, where customers demand integrated and complex solutions, where knowledge is essential, and where that knowledge is scattered among organizations located around the world, ecosystem strategies can offer advantages. (Williamson & De Meyer, 2012, pp. 28-29)

3.1.3 Actors and Roles

The actors in innovation ecosystems that have received most focus in research are for-profit organizations, namely, multinational corporations, small- and medium sized enterprises (SMEs) and start-ups (Yaghmaie & Vanhaverbeke, 2019, p. 285; Gobble, 2014, p. 56) The main focus in the literature has still been on larger firms. Furthermore, non-profit organizations, such as, non-governmental organizations (NGOs) and charities could be potential actors. Also, research centers, universities, and regulatory agencies, municipal and regional governments are potential actors that could take part in the innovation ecosystem. (Yaghmaie & Vanhaverbeke, 2019, p. 285; Gomes et al., 2016, p. 45) If ecosystem actors are defined from the perspective of a single firm, actors can also be identified as suppliers, distributors, customers, complementary innovators, outsourcing companies or competitors (Autio & Thomas, 2014, p. 207; Gomes et al., 2016, p. 45). Moreover, the actors could be financial institutions or technology providers (Autio & Thomas, 2014, p. 207).

A 'role' in the ecosystem setting can be defined as a set of distinctive activities or behaviors undertaken by the actors in the ecosystem (Dedehayir et al., 2016, pp. 18, 20). Also, roles in an ecosystem environment has been defined as the interactions, communication patterns, and activities that one single organization performs in order to

complete the goals set in the collaborative context (Davis, 2016, p. 641). The key roles, in the emergence of an innovation ecosystem can be sorted into four groups: leadership roles, direct value creation roles, entrepreneurial ecosystem roles, and value creation support roles. Innovation ecosystems do not have formal organizational structures, and therefore informal roles are central in the initial stage of forming an innovation ecosystem. (Dedehayir et al., 2016)

The leadership roles, in the emergence of an innovation ecosystem, are present in a significant amount of the literature on ecosystems (Dedehayir et al., 2016, p. 22). The leadership roles have also been named ecosystem leader (Moore, 1993), keystone leader (Iansiti and Levien, 2004), lead firm (Williamson & De Meyer, 2012), hub firm, or orchestrator (Yaghmaie & Vanhaverbeke, 2019, p. 285). This indicates that the leadership role is vital in the initial phase of establishing an innovation ecosystem. There are activities that define the role of the ecosystem leader, which goes under the labels of governance, partnership building, platform management, and value management.

The *ecosystem governance* is the first activity that the ecosystem leader will engage in, and this includes forming the roles of the other ecosystem actors, and coordinating the communication and cooperation between them. The second activity is to *build partnerships*. This leadership task includes attracting actors to join the ecosystem and forming connections between the new actors to build an alliance. (Dedehayir et al., 2016, pp. 22) The third activity, is *platform management*. If the ecosystem is built around a platform, the ecosystem leader has to first design and build the platform. Then, the platform will be opened to all actors who will use it to create value and to improve their own work (Iansiti & Levien, 2004, pp. 69, 74; Dedehayir et al., 2016, pp. 23). The fourth activity is *value management*. The ecosystem leader both creates and captures value, but also aggregates the value creation of the other actors and makes sure that the value capture for them are fair. (Dedehayir et al., 2016, p. 23) All in all, the leaders has to make sure that all the members of the ecosystem stay in good health (Iansiti & Levien, 2004, pp. 73-74).

In the group of direct value creation roles four roles were identified: the supplier, the assembler, the complementor, and the user. The role of *the supplier* is to deliver key materials, services and technologies that the other actors in the ecosystem can use. Thus, any actor can be in the role of the supplier as long as these types of activities are undertaken. The role of *the assembler* is to undertake the actions of aggregating components, services and materials, but also the transformation of information produced by other actors. The purpose of *the complementor* role is to extend the core value produced by suppliers and assemblers by offering complementary value that is compatible with the core offering. The final role in the group of direct value creation roles is *the user* role. The users contribute to the ecosystem by defining the need to be satisfied or the problem to be solved. This can be the trigger for the ecosystem to emerge in the first place. (Dedehayir et al., 2016, pp. 23-24)

In the group of entrepreneurial ecosystem roles three roles were identified: the entrepreneur, the sponsor and the regulator. The role of *the entrepreneur* is often held by start-ups or individuals, who identify potential new ventures due to the network of actors present in the ecosystem. Also, the entrepreneur is often an intermediary between actors doing research (e.g. universities) and those actors that aim to commercialise products or services. *The sponsor* role contributes to the ecosystem by, for example, providing financial assistance and *the regulator* role contributes to the ecosystem by creating favorable, political, regulatory, and economic conditions. (Dedehayir et al., 2016, pp. 24-25)

For the group of value creation support roles two distinct roles were identified: the expert and the champion (Dedehayir et al., 2016, p. 24). In the literature, *the expert* role corresponds with actors, such as research organizations and universities, which create new knowledge, discoveries and inventions. (Clarysse et al., 2014; Dedehayir et al., 2016) The activities of the expert role usually entails providing expertise and consultation. *The champion* role can already be included in the ecosystem leader role, but since the task of building bridges between actors is critical, it may be carried out by additional actors. The champion role is usually undertaken by one or several individuals rather than whole

entities, and the role can also extend beyond the borders of one organization. The champion could also be the one that facilitate the transitioning of a new product or service idea to the stage of commercialisation. (Dedehayir et al., 2016, p. 24)

The intensity of participation for one role will vary over time, and different actors may also take on different roles as time progresses. It is valuable for the stakeholders to recognize the informal roles in the initial stage of an ecosystem, since it is important to ensure that these roles are filled by actors that can undertake the necessary activities. (Dedehayir et al., 2016, p. 20) Also, the ecosystem should be flexible in the sense that new actors can join and other actors can exit. The ecosystem can also evolve by actors making extra investments, others reducing their engagement, or by some actors re-focusing their activities in the ecosystem. (Williamson & De Meyer, 2012, p. 28) Furthermore, Adner (2017, p. 44) states that the actors in an ecosystem can be directly linked to a focal actor, or there may also be actors with whom the focal actor has no direct contact or control.

3.1.4 Multi-Partner Collaboration

A multipartner approach to create collaborative innovations with three or more partners has started to gain interest by scholars (Adner & Kapoor, 2010; Davis, 2016). For collaborations to be successful, the objectives of all involves parties must be considered. This becomes even more important in innovation ecosystems since there are more parties involved. (Yaghmaie & Vanhaverbeke, 2019, p. 284) Davis (2016) describes three approaches to collaboration in groups called parallel dyads, unified triad and group cycling (figure 7). In figure 7, the dashed lines mean that there is a strong relationship between the partners, while the solid lines represent the form of collaboration.

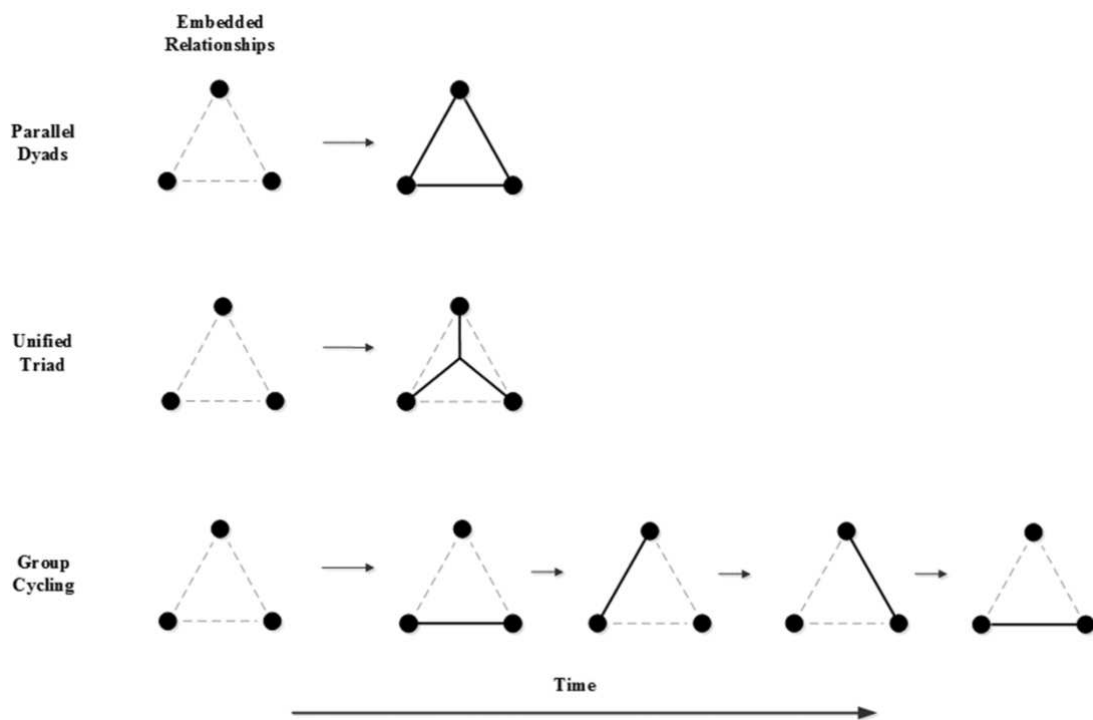


Figure 6. Collaborative forms in organizational groups (Davis, 2016)

Parallel dyads are collaborative arrangement where the partners collaborate in pairs roughly at the same time. The reasons for forming parallel dyads are to avoid conflicts that can occur in arrangement with multiple partners, and to conduct projects that could possibly be constrained by the third partners involvement. However, the study showed that collaborating in parallel dyads reached a low innovative performance in the end, and also problems of trust occurred that restricted the access to vital resources of the third party. Furthermore, conflicts of participation occurred in the cases studied. (Davis, 2016, pp. 632-633)

In *unified triads* three organizations collaborate jointly with common governance by all involved partners and towards common objectives. The reason for forming unified triads is because it is seen as an inclusive and effective way of combining resources, knowledge, and technologies to create innovations. However, the study showed that the collaboration ended with a low performance regarding innovation due to conflicts about relationships, roles, and governance. The conflicts could potentially have been resolved with additional measures but it would have taken too much time for the project to be

finalized in time. Even though there were conflicts, the trust of the partners were not decreased significantly, because there were no perception of hidden opportunism, unfairness, or decrease in expected obligations since all discussions happened openly. (Davis, 2016, pp. 640-644)

Group Cycling is a third form of collaborative arrangement. In this arrangement collaborators work together first in pairs, where the third party is initially excluded, but with the potential promise of future collaborations with the third party. The outcome of the first collaboration effort is then linked together with consecutive collaborations with the third party. This process appears to rotate between partners over time and lead to a higher performance of innovation. The reasons why partners want to be involved in this type of collaborative arrangement is to minimize conflict that can occur if all parties are working together as one single group. Also, parties want to make sure that resources from all the members of the group can be accessed and combined over time. An important aspect of the group cycling arrangement is that the two initial parties must provide credible explanations on how their current work will be linked to the future collaborations with the third party. (Davis, 2016, pp. 644-49)

Forms of collaboration between companies and research organizations have also been studied in the setting of innovation ecosystems. These forms ranged from formalized practices to more open and flexible modes of collaboration. The more formalized forms were inclusion in consortiums, where several companies and research institutions were usually involved, and contract research. The companies also engaged in less formal modes of collaboration, such as taking part in associations or committees and assigning research projects to students. (Schroth & Häußermann, 2018, pp. 7-8)

3.1.5 Governance Mechanisms

There can be both formal and informal control and coordination mechanisms present in innovation ecosystems. Jacobides et al. (2018, p. 2258) claim that the actors in the ecosystems are significantly interdependent but that formal control mechanisms, such as contractual arrangements, may not always be needed. Generally, ecosystems have a

dynamic nature. Hence, agreements and contracts that govern the interaction between partners should be flexible and avoid too many details (Williamson & De Meyer, 2012, p. 39; Furr & Shiplov, 2018, p. 64). Instead of making detailed contracts, companies may utilize simple framework agreements. These framework agreements define general boundaries of collaboration and leave room for adaptation for new business models and technological findings as they materialize. Also, it would be impossible to write detailed partnership agreements that take into account all the imaginable contingencies, if companies venture towards uncertain technologies. (Furr & Shiplov, 2018, p. 64)

If the innovation ecosystem is arranged around a platform, the platform itself can be used as form of control mechanism. The control of the coordination platform may lie in the hands of a single firm, a group of companies, or a not-for-profit organization. (Chesbrough & Appleyard, 2007, p. 64). Furthermore, there are also informal mechanisms of coordination, which are behavioural and social coordination mechanisms that can be found in the relationships between actors, such as professionalism, trust, openness, complementarity and transparency (Ågerfalk & Fitzgerald, 2008, p. 385).

3.1.6 Value Co-Creation

Prahalad & Ramaswamy (2004) coined the term value co-creation (Galvagno & Dalli, 2014). Initially, value co-creation meant creating value jointly with the customers (Prahalad & Ramaswamy, 2004), but the term is now also being used in other contexts, for example, in innovation ecosystems (Ketonen-Oksi & Valkokari, 2019). Value co-creation can be defined as a process of producing new material- and symbolic value, and the process is joint, peer-like, collaborative, and concurrent (Galvagno & Dalli, 2014, p. 644). Furthermore, the value co-creation process consists of four key building blocks, namely, dialogue, transparency, access and risk assessment (Prahalad & Ramaswamy, 2004). According to Ketonen-Oksi & Valkokari (2019), innovation ecosystems can work as the structure for value co-creation.

A model for value co-creation was introduced by Kijima and Arai (2016). This model is composed of two concepts: platform and ecosystem (figure 8). The platform is where

different actors meet and grow an interest in value co-creation, and it is seen as the place where actors in the ecosystem can connect. The ecosystem is then where the real value co-creation occurs. (Ketonen-Oksi & Valkokari, 2019, p. 27) Furthermore, the value co-creation process is divided into four different phases of interaction: co-experience, co-definition, co-elevation, and co-development (figure 8). (Kijima & Arai, 2016; Ketonen-Oksi & Valkokari, 2019)

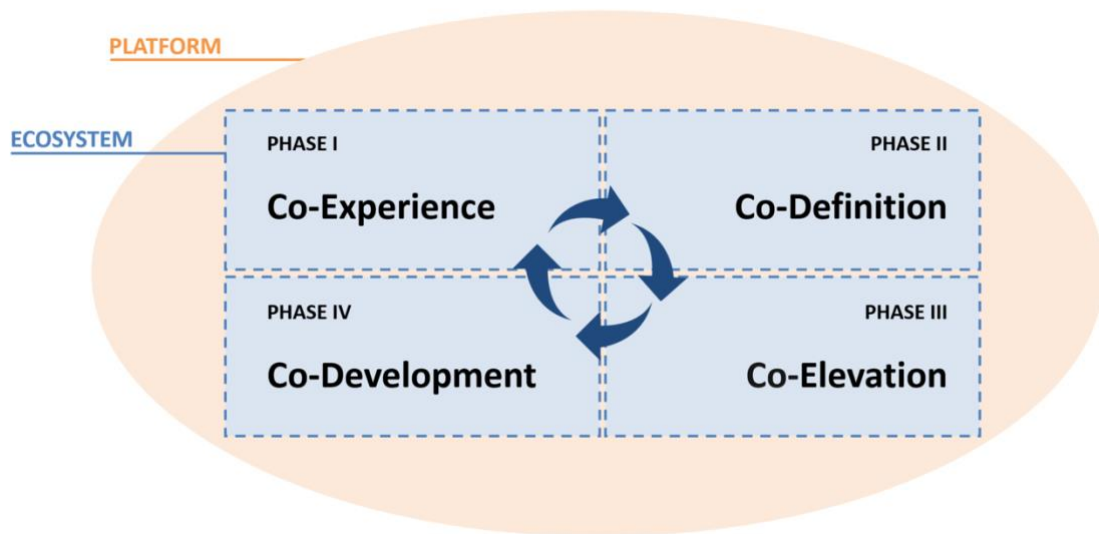


Figure 7. The value co-creation process (Ketonen-Oksi & Valkokari, 2019)

The value co-creation begins when the actors in the ecosystem join together with a mutual interest in innovation. The first phase is called *co-experience*. In this phase, the actors are starting to get more familiar with the expectations and needs of the other actors in the ecosystem. In the second phase, which is called *co-definition*, the actors start to share their own perceptions and models of value co-creation. The third phase is called *co-elevation*, and in this phase the focus will shift towards specific value propositions and the communication between actors are strengthened. The last phase is called *co-development*. In this phase, the concrete value co-creation occurs and is assessed. (Galbrun & Kijima, 2009; Kijima, Rintamäki & Mitronen 2014 as cited in Ketonen-Oksi & Valkokari, 2019)

There are two key principles that are recommended to improve the value co-creation process in an innovation ecosystem. First principle is to make sure that the ecosystem consists of a diversity of actors. Furthermore, it is important to encourage the actors to participate actively, to seek shared values, and to invest energy and time to create an understandable vision. Second principle is to facilitate and support the shared vision with structures that help the actors to make new connections, and share their knowledge and resources in structured ways. (Ketonen-Oksi and Valkokari, 2019, pp. 25, 33)

3.1.7 Success Factors and Challenges

Success factors in implementing an innovation ecosystem lie in the areas of governance, resources, leadership and strategy, human resource management (HRM), organizational culture, partners, clustering and technology, and people. A study indicates that the dimension of governance especially plays a central part in innovation ecosystems, which is understandable since a variety of actors need to collaborate and communicate in the ecosystem. (Durst & Poutanen, 2013) These areas of potential success are derived from analyzing the literature but have not been empirically investigated by the researchers.

Iansiti & Levien (2004, pp. 72-73) suggested three different components that aid in determining the strength of an ecosystem, namely, productivity, robustness, and niche creation. *Productivity* in a business ecosystem is the ecosystem's ability to steadily transform raw materials of innovation and technology into new products and services with lower cost. An easy way to measure productivity in an ecosystem is to look at return on invested capital. *Robustness* is the ecosystem's capability to survive when changes and disruptions occur in their environment, such as unanticipated technological changes. To measure the robustness of an ecosystem, the survival rate of the members compared to other ecosystems or over a time period can be examined. Lastly, *niche creation* is another component that enhances the health of the overall ecosystem. The ecosystem's capacity of enhancing diversity through the establishment of new valuable niches or functions will aid in creating productive innovations and to resist external shocks.

An important aspect to consider in the innovation ecosystem is the relationship between universities and industry. The effectiveness of the university-industry collaboration is important, since the cooperation between universities and for-profit industries expedite innovation making. A cross-country study showed that the collaboration between industry and universities and innovation output has a positive significant correlation both on a global and European level. (Mercan & Göktaş, 2011, pp. 108-111)

There are various success factors that foster collaboration between firms and research organizations in an innovation ecosystem. The first factor is related to the aspect that firms and research organization have different sets of objectives, hence there is no competitive pressure. The second factor is that companies gain access to expertise, and the third factor is that companies could also gain potential new employees. However, challenges to collaboration between these parties can be related to difficulties in intellectual property negotiations, which can prevent collaboration and the development of an effective innovation ecosystem. (Schroth & Häußermann, 2018, p. 8) All in all, an innovation ecosystem that has strong ties between universities and for-profit firms has a higher chance of success.

Innovation ecosystems brings great benefit when they function, because the ecosystem helps firms to create value that they would not be able to do on their own. However, innovation ecosystems also present new types of risks to firms, and there are three fundamental risk types: initiative risk, interdependence risks, and integration risks. Initiative risks are related to the usual uncertainties in managing projects, while interdependent risks are related to the uncertainties that occur when collaborating with interdependent innovators. Integration risk is related to the process of adoption of the innovation across the value chain. The success of a company in an innovation ecosystem depends on how well they have managed to evaluate the ecosystem's risks. (Adner, 2006)

Challenges in the ecosystem are related to the ecosystem actors' expectations regarding roles and structures. The role expectations are related to the question on who the leader will be and who will take the role as follower in the ecosystem. Questions, such as who

will lead the actors in the ecosystem towards alignment, who will follow the guidelines of the leader, and who accepts the role as a follower will arise (Adner, 2017, p. 48). Another aspect that further complicates the expectations of roles, is that the roles are not static and can change over time (Iansiti & Levien, 2004, p. 78). The structural expectations are related to the positions in the ecosystem. For example, who will be the face towards the end customer and who will take an upstream role. (Adner, 2017, p. 48)

3.2 Summary and Framework of the Study

Innovation is a process where organizations start with initial ideas on how to improve or create new processes, products or services, and make those ideas into reality to increase their competitiveness. (Baregheh et al., 2009, p. 1334) Innovation management is applied in organizations in order to manage the innovation process and guide the activities, decisions, and practices regarding innovation. (Bajenescu, 2017, pp. 40, 45) To build capacity for innovation it is beneficial to establish an innovation strategy, outline an innovation system, and form an innovative culture. (Pisano, 2019) A strategy for innovation is also essential in ecosystems, and according to Williamson and De Meyer (2012, p. 28-29), it is especially important in the context where customers' require complex and integrated solutions and where know-how is fundamental and spread widely across the world. The ecosystem strategy can be formed individually by each actor (Adner, 2006, p. 47) or alternatively created jointly by the ecosystem actors (Talmar et al. 2018, p. 9).

Innovation ecosystems are dynamic and evolving communities that consist of actors that are interdependent and connected (Autio & Thomas, 2014, p. 208; Gobble, 2014, p. 55). The relationship between them is built on trust, collaboration, and the joint aspiration for value co-creation (Gobble, 2014, p. 55; Gomes et al., 2016, p. 45). Furthermore, the multilateral group of ecosystem actors need to be aligned and interact in such a way so that the set value proposition can be realized. (Adner, 2017, p. 42) However, the ecosystem members also face competition, in addition to cooperation and collaboration

(Valkokari, 2015, p. 20). Competition can take place both within the ecosystem and across rival ecosystem (Adner, 2017, p. 49; Hannah & Eisenhardt, 2018, p. 3164)

Actors in the ecosystem undertake different roles, defined by Dedehayir et al. (2016) as leadership roles, entrepreneurial ecosystem roles, direct value creation roles, and value creation support roles. The roles of the ecosystem actors evolve as time progresses (Williamson & De Meyer, 2012, p. 28; Dedehayir et al., 2016, p. 20), and the whole ecosystem also evolves by new actors joining and other actors exiting (Williamson & De Meyer, 2012, p. 28). For successful collaboration between multiple actors, it is important that the objectives of all actors are considered, especially since there are numerous actors involved in an innovation ecosystem. (Yaghmaie & Vanhaverbeke, 2019, p. 284) Furthermore, there can be both formal and informal governance mechanisms that provide direction for the actors in the ecosystem.

Value co-creation is a process that can be present in innovation ecosystems, and the innovation ecosystem can function as the foundation for the value co-creation process. It is essential that there is a diversity of actors in the ecosystem that create a comprehensible vision and seek mutual values. Furthermore, to improve the value co-creation process there should be structures in place to help actors share their resources and knowledge in an organized way. (Ketonen-Oksi & Valkokari, 2019)

The areas of success for innovation ecosystem lies foremost in the area of governance, but also in leadership, strategy, HRM, resources, technology, partners, people and organisational culture (Durst & Poutanen, 2013) and the health of an ecosystem can be measured in the terms of productivity, robustness, and niche creation. (Iansiti & Levien, 2004). Moreover, a strong relationship between universities and industry in the ecosystem leads to a higher innovative output. (Mercan & Göktaş, 2011, pp. 108-111) Innovation ecosystems also bring different kinds of risks, such as initiative risks, interdependence risks and integration risks, and expectations regarding roles and structures in the ecosystem brings challenges. (Adner, 2006)

Some of the literature included in chapter 3 describes attributes of business ecosystems (e.g. Moore, 1993; Lansiti & Levien, 2004), and the researcher included it because it is still close to the attributes of innovation ecosystems. Main difference seems to be the focus of attention, where business ecosystems focus mainly on value capture, and innovation ecosystems focus both on value creation and value capture (Valkokari, 2015; Gomes et al., 2016).

Overall, the literature on innovation ecosystem seems to be quite scattered. Various inquiries on the innovation ecosystem topic have been conducted, yet there is not much consensus on the boundaries and scope of the concept (Ritala & Almpantopoulou, 2017, p. 39). Case study approach has been the main research strategy used to investigate the topic. This may be a reason why a general consensus has not yet been reached. However, case studies are appropriate for research on topics that are rather under researched, and also since the phenomenon is rather critical and unique (Yin, 2014, pp. 51-52) Furthermore, there has not been much emphasis on individuals and their unique experiences working in an innovation ecosystem in the literature.

In this study the ADKAR change management framework (Hiatt, 2006; Hiatt & Creasey, 2012) will be used as a base for answering the research question of this study: *'What are the employee barriers that impact the implementation of new ways of working in an innovation ecosystem, and why?'*. On the basis of the literature review, figure 9 draws together the employee barriers points with the innovation ecosystem life-cycle stage, birth (see Moore, 1993). The barriers are studied from the perspective of employees, keeping in mind that the innovation ecosystem is in the initial phase of creation.

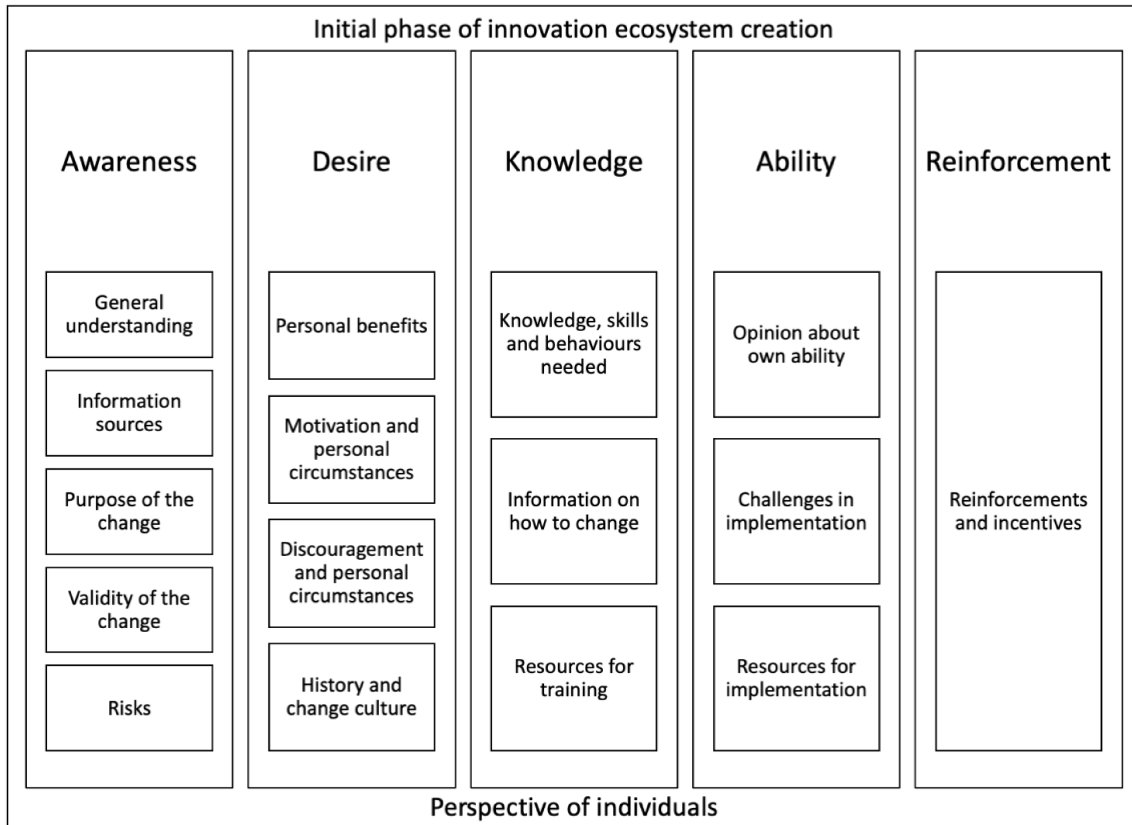


Figure 8. Framework of the study (Adapted from Hiatt, 2006; Hiatt & Creasey, 2012)

In the next chapter, the focus will be turned to the research methodology of this study. The research philosophy and approach will be presented. Also, the choices regarding research design and research methods will be presented and justified. The following chapter will also address the trustworthiness and ethics of the study.

4 Research Methodology

This chapter presents the choices made regarding methodology, which are important decisions to make in order to plan and execute empirical research. Methodology means “the theory of how research should be undertaken” (Saunders et al., 2019, p. 808), and focuses on the particular ways in which we use research when attempting to better comprehend the world (Eriksson & Kovalainen, 2016, p. 17). The methodology therefore determines the core of the whole research. The selected methods are chosen so that the research question can be answered in the most accurate way possible. In this chapter, the research philosophy and approach are presented and the choices regarding the research design are discussed. The chapter continues with the explanation of the research methods, and finally, the quality and ethics of the study are discussed.

4.1 Research Philosophy and Approach

Research philosophy is defined as the belief systems and assumptions of how knowledge is developed (Saunders et al., 2019, p. 130). In this research, interpretivism is the research philosophy applied. The interpretivist position is associated with subjectivism that “views reality as being socially constructed.” and sees that “knowledge is available only through social actors.” (Eriksson & Kovalainen, 2016, p. 16) Interpretivism maintains that “human beings and their social worlds cannot be studied in the same way as physical phenomena” (Saunders et al., 2019, p. 149), as different individuals in different circumstances at different times with different cultural backgrounds and experiences create different social realities.

It is argued that interpretivism is appropriate in business and management research, since business situations can be complex and often unique in terms of context. The purpose of this research philosophy is to “create new, richer understandings and interpretations of social worlds and contexts.” (Saunders et al., 2019, p. 149) In management and business research this is usually done by investigating organizations from the point of view of different groups of individuals. For example, individuals in different organisational roles, with different gender, or individuals with different ethnic

or cultural background may experience events or workplaces differently. (Saunders et al., 2019, p. 149) In this study, the individuals that will be studied are employees working in a large multinational corporation. The employees are situated in Finland and have Finnish nationality.

This research will take an abductive approach. An abductive approach to theory development is a combination of both the deduction and induction, where a deductive approach moves from theory to data and an inductive approach from data to theory, an abductive approach moves between theory and data several times (Suddaby, 2006, p. 639). Some researchers would even argue that pure induction or deduction is difficult to accomplish and that in practice some elements of abduction are usually partly used. (Saunders et al., 2019, p. 156). This research commenced inductively, since the research topic was formed from an initial informal interview with two individuals in the case company. Then, theory related to this topic was located in the literature. The final step was more deductive in the sense that the findings were constantly compared with suggestions made in the literature and with earlier research findings on the topic.

An abductive approach is appropriate when there is an abundant amount of research on a topic in one context, but little research has been undertaken in another specified context. This can enable the researcher to generate new theories or modify existing theories. (Saunders et al., 2019, pp. 153, 157) The aim of this thesis not to generate an entirely new theory, but to potentially modify existing theories related to employee change barriers in the initial implementation phase of an innovation ecosystem.

4.2 Research Design

Research design is the overall research plan that enables the researcher to answer the research question. The research design includes methodological choices, purpose of the research, time horizon for the research, and the choice of research strategy. (Saunders et al., 2019, p. 173)

A qualitative research design is applied in this study. This is a logical choice, because according to Denzin & Lincoln (2018, pp. 10-12), qualitative research is often linked with an interpretivist philosophy. Furthermore, qualitative research is interpretive because the researcher must make sense of subjective and social constructions that are communicated by the informants about the studied phenomenon (Saunders et al., 2019, p. 179). Qualitative data can be either verbal, textual, visual material or audio material that allows the researcher to interpret and describe the data, without the focus of measuring it (Eriksson & Kovalainen, 2016, p. 83). The methodological choice for this study is mono method qualitative study, which according to Saunders et al. (2019, p. 179), is when one technique for data collection is used together with a matching qualitative procedure for analysis.

The purpose of this research is mainly exploratory. In an exploratory study the researcher tries to gain insights about a certain topic and discover what is going on. This is usually done by asking open questions to the informants. Furthermore, the research questions in an exploratory study are probable to start with a "how" or "what" (Saunders et al., 2019, p. 186). This is the case for this study, as can be seen from the research question: 'What are the employee barriers that impact the implementation of new ways of working in an innovation ecosystem...?'. Furthermore, exploratory research is useful to undertake when the exact nature of the phenomenon is not known (Saunders et al., 2019, p. 187).

Explanatory research is conducted by looking at a problem or situation in order to explain the relationship between variables. This research is also partly explanatory in the sense that the researcher does not only want to explore the topic, but also at the same time understand what the underlying reasons are for resisting or supporting the specific change initiative studied. Research questions that are explanatory are likely to include "how" or "why" (Saunders et al. 2019, p. 188), and the research question of this study ends with the additional question "..., and why". Basically, if there are employee barriers present, then the researcher also wants to investigate why these barriers are present.

The time horizon for this study is cross-sectional. A cross-sectional study can be seen as a “study of a particular phenomenon (or phenomena) at a particular time”. (Saunders et al., 2019, p. 212). Cross-sectional studies are often utilized with a survey strategy, but also for an abundant amount of case studies with interviews conducted in a short time period (Saunders et al., 2019, p. 212). This is the case in the present study since all interviews were conducted within a time period of approximately two weeks. The cross-sectional time horizon was chosen, instead of a longitudinal approach, due the time constraints and limited resource for completing the master’s thesis.

The research strategy for this study is a case study strategy. According to Saunders et al. (2019, p. 180), case study research is a strategy that is commonly used in qualitative research, and it is also a popular strategy used in business research (Eriksson & Kovalainen, 2016, p. 132). When conducting a case study, the researcher studies a phenomenon or topic within a real-life setting (Yin, 2014, p. 16). An in-depth case study is beneficial when the researcher tries to identify what is happening, why it is happening, what are the effects, and what are the implications for further action. Furthermore, understanding the context is essential when conducting case study research (Saunders et al., 2019, p. 197), and the purpose of doing a case study is “to shed empirical light about some theoretical concepts or principles” (Yin, 2014, p. 40)

This study will focus on a single case. According to Yin (2014, p. 51) a single case approach is appropriate when the case is seen as critical or unique. One rationale for choosing a single case is that it is critical to theory, and that the case presents specific circumstance where the theory is believed to be accurate (Yin, 2014, p. 51). This study can be seen as critical in the sense that the perspective of individuals in an innovation ecosystem has not yet received adequate attention (see Durst & Poutanen, 2013, pp 36-37). Another reason for choosing a single case study could be due to its uniqueness, and because it differs from everyday situations (Yin, 2014, p. 52). This single case was chosen due to the unique situation of case company. The situation is unique in the sense that the company has initiated a certain change, which is to establish an innovation ecosystem. Furthermore, this change is rather unique in the context on a Finnish MNC. Lastly, a

single case study is more manageable due to the restriction of conducting a master's thesis as mentioned earlier.

The unit to be analyzed, namely, 'the case' to be studied can refer to, for instance, an event, a person, a group, a program, a decision, a change process or an organization (Yin, 2014, p. 31; Saunders et al., 2019, p. 196). This single case will be treated holistically, which means that the organization or program is treated as a whole and no specific departments are compared (Yin, 2014, pp. 55-56). In this research, the case refers to a single organization and the specific change process that the organization is undergoing.

4.2.1 Case Company

The case company is a multinational corporation working in an industrial sector and has its headquarter in Finland. The MNC has initiated a change, namely, establishing the foundation for an innovation ecosystem. The innovation ecosystem is aimed at being an environment for multilateral collaboration. It will both consist of physical spaces designed to aid and speed up co-creation, and an online community where collaboration and co-creation can take place. Virtual communication can also take place within the physical spaces if some actors cannot be present face-to-face.

The primary purpose of the case company for collaborating with multilateral set of partners in an innovation ecosystem is to be able to create added value for customer in a faster way. The purpose of establishing the innovation ecosystem as a whole is to bring different actors together and to speed up the process of value co-creation. By opening up and sharing information with other ecosystem actors, it will be possible to create added value to the customers faster. The purpose for the ecosystem as a whole is not only to create customer value, but also create value for all actors in the ecosystem. Even though the main purpose for the case company is to create customer value, a secondary purpose is to contribute to the creation of new knowledge. This can be done by providing the research community and universities with data. In return, individuals from the research community can support the ecosystem with their expertise.

The case company has realized that different actors have to work together to be able to solve the increasingly more complex challenges that the industry is facing. By collaborating, actors can expand their competences and make use of the various capabilities present in the innovation ecosystem. Also, the company is working on a framework that can aid the process of co-creation and speed up collaboration in the innovation ecosystem. This framework will consist of tools and processes that can guide the innovation process. The innovation ecosystem is currently in the stage of the value co-creation process where the actors share their perceptions and models of value co-creation, and they have started to look at specific value propositions. (see Kijima & Arai, 2016; Ketonen-Oksi & Valkokari, 2019).

This change for the organisation is seen as radical from one perspective and incremental from another. It was seen as radical change for the case company, in the sense that the company is not always going to be in the leading position. In addition, multilateral collaboration where all actors have the same information and discuss simultaneously was also seen as a radical aspect. However, the way of working is seen as a more incremental change.

For internal employees, new ways of working are needed. The new work environment is an innovation ecosystem where value co-creation, multilateral collaboration, and innovation is at the core. Employees of the case company are required to collaborate and work together with both internal and external parties in the innovation ecosystem. First of all, the work environment in the innovation ecosystem differs from employee's normal work environment in the sense that there will be external partners present to a greater extent. The new work environment differs more for some individuals, and less for others depending on what kind of work they are conducting in their normal work environment. Another difference in the work environment is that collaboration will not only occur between two partners at a time, but also with three or more partners simultaneously.

4.3 Research Methods

Research methods include the particular techniques for collecting and analyzing qualitative data (Saunders et al., 2019, p. 180). In this subchapter, the sampling techniques used in this study will be described and justified. After that the data collection method is explained, and finally the techniques used for analyzing the data are presented.

4.3.1 Sampling

Sampling in qualitative research is used to describe the general nature of the samples. (Eriksson & Kovalainen, 2016, p. 88), and the target population is the actual target or focus of the study (Saunders et al., 2019, p. 295). The target population in this study is employees of a multinational corporation, situated in Finland, which are or will be involved in the innovation ecosystem in the future. Due to restrictions of time and resources, the entire target population cannot be studied, and therefore a sample is selected.

Non-probability sampling is a number of sampling techniques used when “the probability of each case being selected from the target population is not known...” (Saunders et al., 2019, pp. 296, 810) Non-probability sampling is seen as appropriate for this study, since the intention is not to make statistical generalizations. Self-selection sampling is a volunteer sampling technique, where the need for cases is made public either through the appropriate media or by asking individuals to take part. After that, data is collected from the individuals that respond. Snowball sampling is another volunteer sampling technique used when its difficult to determine the exact target population, and contact is first made with a couple of individuals. Next, they recommend additional individuals for interviewing. (Saunders et al., 2019, p. 323-326) A combination of self-selection sampling and snowball sampling is used in this study.

First, a number of employees were suggested for the interviews by an initial contact person in the case company. The researcher then contacted these suggested employees

and asked if they wanted to take part. After an interview was completed, the researcher asked the interviewee to identify another employee that would be suitable for interviewing, since it was challenging to identify the target population. In the end, the sample size of the study was ten. Eight interviewees were chosen through self-selection, and the last two interviewees by snowball sampling. Data collection was stopped after the tenth interview, due to reasons of access and time, even though there were additional interview subjects identified. All employees that were asked, agreed to be interviewed.

The sample consisted of eight males and two females. The age of employees varied from 31 to 60 years old. Three of the employees were between 31-35 years old, one between 36-40, two between 41-45, three between 51-55, and one between 55-60 years old. Most of the employees had some kind of technology or engineering background, while two had a business background. The five of the employees belonged to the supply management department and five to the research and development (R&D) department. Those departments were seen to be the ones from which employees were most likely to work in or be involved in the innovation ecosystem in the initial stages. Four of the employees worked as experts in different areas, three worked as managers with different responsibility areas, two worked as purchasers, and one as an engineer. The employees had been employed by the case company between 6 to 30 years. Information regarding interviewees and interviews are presented in table 2. Detailed information is not included in the report in order to keep the anonymity of the informants.

Table 2. Information regarding informants and interviews

Informant Pseudonyms	Department	Educational Background	Age Group (years)	Lenght of Employment (years)	Lenght of Interview	Time of Interview
Employee 1	Supply Management	Business Background	31-35	11-15	0:38:32	Week 33, 2020
Employee 2	Supply Management	Technology Background	51-55	11-15	1:10:55	Week 34, 2020
Employee 3	Research and Development	Engineering Background	41-45	16-20	0:51:36	Week 34, 2020
Employee 4	Research and Development	Technology Background	31-35	6-10	0:37:16	Week 34, 2020
Employee 5	Supply Management	Engineering Background	51-55	21-25	0:26:21	Week 35, 2020
Employee 6	Supply Management	Business Background	55-60	26-30	0:27:16	Week 35, 2020
Employee 7	Research and Development	Engineering Background	41-45	16-20	1:13:31	Week 35, 2020
Employee 8	Research and Development	Engineering Background	36-40	6-10	0:32:27	Week 35, 2020
Employee 9	Supply Management	Engineering Background	51-55	26-30	0:33:24	Week 35, 2020
Employee 10	Research and Development	Technology Background	31-35	6-10	0:31:27	Week 35, 2020

4.3.2 Data Collection

Research interviews was chosen as the data collection method for this study, since it was seen as the most appropriate way to answer the research question and objectives. Moreover, this data collection technique is also suitable for the chosen qualitative research design of the study. Furthermore, this study takes an emotionalist standpoint, which according to Silverman (2013, p. 444), is a type of interview study that sees interviews as a path to understanding the authentic experiences of the interviewees. The focus of emotionalist interview questions is to interpret people's perceptions, understandings, emotions, and viewpoints (Eriksson & Kovalainen, 2016, p. 92), and often open-ended questions are preferred (Silverman, 2013, p. 444).

The type of interview conducted in this study is semi-structured interview. When conducting semi-structured interviews, the researcher starts with "...a predetermined list of themes, and possibly some key questions related to these themes, to guide the conduct of each interview." (Saunders et al., 2019, p. 437). However, new themes may emerge during the interview depending on the interviewee's interpretations or from the research setting. In this sense, semi-structured interviews are non-standardized. (Saunders et al., 2019, pp. 437-438) Semi-structured interviews are useful in exploratory studies since they may provide contextual and background information, and also in explanatory studies to help to understand relationships between variables. (Saunders et al., 2019, p. 443). The interview questions used in this study mainly originated from the research by Hiatt (2006) and Hiatt and Creasey (2012). However, interview questions used by Rosenberg & Mosca (2011) to discover barriers to organisational change is partially used in this study on topic of history and change culture.

In the interviews open-ended questions were mainly used, because Eriksson & Kovalainen (2016, p. 96) maintain that these types of questions usually produce more detailed answers and encourage interviewees to share more information. Simple question are easier to understand and answer, and neutral questions help to avoid pre-assumptions that the researcher might have (Eriksson & Kovalainen, 2016, p. 96). Therefore, the researcher aimed at keeping the interview questions as simple and

neutral as possible, because this would produce a more accurate account. Follow-up questions were asked if required, and additional explanations were given to interviewees if it was needed. Also, the interview questions were sent to the interviewees before the interviews, so that they had the possibility to get familiar with them. The interview guide, with the primary questions, is presented in the appendix.

The interviews were conducted one-to-one, meaning between the researcher and a single interviewee at a time. The interviews were conducted virtually through Microsoft Teams program. This program was chosen since it is the program normally used in the case company, so interviewees were already comfortable with the software. Eight of the interviews were conducted with an audio call, and two of the interviews with a video call. The researcher gave the interviewees the option to choose between video and audio call depending on what they were most comfortable with. Also, the interview guide was displayed virtually while conducting the calls, so that the interviewees could easily follow as the interview progressed. The interviews lasted between 26 minutes to 1 hour and 13 minutes (table 2), and the interview language was English. Having the interviews in English, allowed the researcher to use direct quotes without any translation when presenting the findings. English is the work language used in the case company and therefore the interviewees did not see any problems in conducting the interviews in English. All interviews were recorded and transcribed.

4.3.3 Data Analysis

In this study qualitative content analysis is used. According to Eriksson & Kovalainen (2016), "qualitative content analysis refers to the ways of analyzing the content and meaning of different types of qualitative data" and "the word 'qualitative' indicates that there is also an increased interest in the contextual meaning of the data" (p. 119). The aim of qualitative content analysis is to provide a description of the studied phenomenon in a way that is factual and holistic, namely, it gives the 'big picture' (Eriksson & Kovalainen, 2016, p. 120) Qualitative content analysis and thematic analysis are similar ways of analyzing data since both techniques aim at discovering patterns and themes in

the data collected, by coding the data in a systematic way. (Saunders et al., 2019, p. 651; Eriksson & Kovalainen, 2016, pp. 119-123)

In an abductive approach, data analysis begins with themes that are derived from theory, and the themes are later modified or added to as the data set is explored (Saunders et al., 2019, pp. 651-652). This was done also in this study. The coding units used in the study are key word, phrases, sentences and themes. Data analysis was started already during data collection, and initial interpretation of data was done already then. As in qualitative research data collection, data analysis and interpretation are seldom separate from each other (Saunders et al., 2019, p. 638; Eriksson & Kovalainen, 2016, p. 140). In an interpretivist philosophy it is important to let the voices of the participants emerge in the analysis (Saunders et al., 2019, p. 642), and therefore adequate quotations are presented in the findings.

The data was transcribed with the help of a feature in Microsoft Teams, called automated captions. However, the correct wording was not always recognized by the software, so the researcher edited the transcripts manually later on. This also allowed the researcher to get familiar with the content. The coding of the data was done through MAXQDA2020 software, which allowed easier follow-up of the coding and categorization. The coding was initiated from one interview. Then the codes were labelled, and finally arranged under relevant themes. The same codes were used when analyzing the following transcripts, but some codes were modified, or added as the analysis progressed so that they would be relevant for the whole set of data. When all data was coded, it was checked for overlapping and then some categories were merged when they did not contain not enough data. Then, the codes were searched for patterns and relationships, as well as summarized. The findings are presented in chapter 5.

4.4 Trustworthiness and Ethics of the Study

Research quality is an essential aspect to consider when conducting research. In quantitative research it is appropriate to assess research quality by the terms of reliability and validity (Saunders et al., 2019, p. 219). However, using these criteria to assess qualitative research that adopt an interpretivist philosophy can be seen as inappropriate, because in interpretivist philosophy reality is seen as being multifaceted and socially constructed (Lincoln and Guba 1985, p. 294; Saunders et al., 2019, p. 219). Therefore, alternative criteria are used to assess the quality of this study, namely, trustworthiness. The trustworthiness assessment criteria were introduced by Lincoln and Guba (1985) and consists of four aspects: credibility, transferability, dependability, and confirmability. These criteria can be seen as more appropriate for qualitative research (Saunders et al., 2019, p. 216).

According to Saunders et al. (2019) “credibility refers to the extent to which the researcher has gained access to participants knowledge and experiences, and is able to infer meanings that the participant intends...” (p. 449). Member checking was used in this study to increase the credibility of the findings and interpretations. This was done by sending the quotes presented in the findings together the researcher’s interpretation to the informant to confirm the accuracy, and to correct any possible misconceptions. (see Lincoln and Guba 1985, p. 314) Moreover, during the interviews, clarifications were provided to the informants when the meaning of the questions were not clear. Also, the researcher asked follow-up questions, and verified the meaning of the informant’s answers when needed. (see Saunders et al., 2019, p. 449, 451)

Transferability refers to the extent to which the findings of a research study are applicable to other settings (Lincoln and Guba 1985, p. 316; Saunders et al., 2019, p. 449). To make the research transferable to a greater extent, the researcher is responsible for providing a sufficient description of the research context. In that way, other researchers have the possibility to judge the transferability of the findings to other contexts (Lincoln & Guba, 1985, p. 316). To improve the transferability of this study, a complete description of the research question, the research design, the context of the

research, finding, and interpretations are presented in this thesis (see Saunders et al, 2019, p. 451).

Dependability is concerned with documenting and providing sufficient information of the research process in a logical and traceable way (Eriksson & Kovalainen, 2016, p. 308; Lincoln & Guba, 1985, pp. 316-318) In qualitative research this is concerned with if another researcher would reveal similar information (Saunders et al., 2019, pp. 447-448). Therefore, to improve the dependability of this study the research design, reasoning behind the choice of strategy, the methods used, and how data was collected has been thoroughly described in chapter 4.3. This was done in order to show the logic and traceability of the study.

The lack of standardization when using semi-structured interviews can lead to concerns regarding dependability. Interviewer bias is when the tone of voice, non-verbal communication and comments of the interviewer creates a bias in how interviewees answer to the questions (Saunders et al., 2019, pp. 447-448). To increase the dependability during the interviews, questions were asked in a neutral tone of voice to reduce interviewer bias. Furthermore, to ensure that the questions were phrased clearly and understood in a similar way, they were sent to three independent individuals before the interviews for pre-check. After the two initial interviews, modifications and additions to some questions were made for the remaining eight interviews.

Confirmability refers to the connection between data and the interpretations of that data (Lincoln & Guba, 1985, pp. 318-320; Eriksson & Kovalainen, 2016, p. 308). Confirmability is also about linking the data in the findings and interpretations in a way that can be understood by others without difficulty (Eriksson & Kovalainen, 2016, p. 308). To increase the confirmability of this study quotes were used when presenting the finding, so that the connection between the findings and the interpretations would be easier to understand by the reader. Confirmability is also increased by linking the data and interpretations with existing theories, which is done in chapter 5.

The importance of ethics was acknowledged throughout the research process. Research ethics refers to the ways of conducting research and reporting findings (Eriksson & Kovalainen, 2016, p. 64). Before beginning every interview, the researcher explained that the outcomes of the interview will be used in a master's thesis, and then the purpose of the thesis was explained to the interviewee. Also, it was made clear that the interviews are voluntary, and that the informant could simply decline to answer a specific question they were not comfortable with. However, it was assured that the material will only be seen and handled by the researcher herself. Furthermore, the researcher asked if the interviewees accepted that the interviews were recorded, so that direct quotes could be used if needed. Moreover, it was ensured that the informant will be completely anonymous, and that only limited information about the corporation will be included so that the case can be described, but that the name of the corporation will be anonymous. The informants were later provided with the quotes used in the findings, to confirm their meaning, and to give their final approval for publishing them.

5 Findings and Discussion

In this chapter, the findings from the research interviews are presented and discussed in connection to previous research and the framework used in this study. Furthermore, the chapter answers the research question: *'What are the employee barriers that impact the implementation of new ways of working in an innovation ecosystem, and why?'*. The focus of the study was to investigate the barriers that employees face in the change process, when new ways of working are implemented in an innovation ecosystem. The secondary focus was also to investigate why employees face these barriers in the change process. Findings are presented according to the stages of the change process: awareness, desire, knowledge, ability, and reinforcement. Also, improvement suggestions provided by the interviewees are presented at the end of the chapter.

5.1 Awareness

This section presents the findings of the elements impacting the change process in the awareness stage, either positively or negatively. The elements that are presented are general awareness and the understanding of the nature of the change, the information sources and communication in connection to the change, the purpose of the change, the validity of the change, and the risks regarding the change.

5.1.1 General Awareness

The awareness regarding the nature of the change, establishing an innovation ecosystem, among the employees were rather high. All employees had a general understanding that the innovation ecosystem is created in order to increase cooperation and collaboration between various internal and external partners. Three of the employees had a high awareness of the change, and they could describe in detail different aspects of the innovation ecosystem. Three of the employees described the innovation ecosystem in general terms and had an average awareness regarding the change. Four employees had lower awareness and showed uncertainty when describing the innovation ecosystem, but they could still describe the general idea of the change.

Three of the interviewees were more confident about their knowledge regarding the innovation ecosystem and had a greater understanding of the nature of the change. Also, because they were generally more involved in activities connected to the innovation ecosystem. One employee with high awareness described the innovation ecosystem in the following way:

I know [the innovation ecosystem] is being created basically to, to have this new kind of co-operation... sorry one moment [children interrupts]... So, uhm, where were we, yes. What I know about [the innovation ecosystem]. So, [the innovation ecosystem] was created to have this new kind of cooperation between different... could we use the word institutions maybe here. So, to have a cooperation, for example, between [the case company] and suppliers, [the case company] and customers and yeah, for example the university... So, to have sort of like, a place and circumstances where we can develop new kind of products, new technologies, and maybe solve current problems what we now have, and to have a look into the future. What we want to do, or how we want to do business in the future, and benefits for all these participants involved.

The second employee with high awareness described the idea of the innovation ecosystem in more detail, including the initial physical location and also the virtual aspects of the innovation ecosystem, as the following quote indicates:

In the first stage it [the innovation ecosystem] will be located in [city A]. Maybe later on in some other places also, and it's supposed to be a place for joint working for people from [the case company] and other companies, or also for activities with people from different parts of [the case company]. So, it's for cooperation and co-creation. So, it's a physical place, but in addition to that, there's also [the innovation ecosystem] community. So, including apparently some virtual means... well it has been said that there will also be some facilities for distant working, virtual meetings, etc.

The third employee with high awareness was involved in the planning and coordination of the innovation ecosystem, and could describe in detail the progress of the activities ongoing in connection to the innovation ecosystem, such as the current partners, the status of the framework under development, the virtual community work, and the stakeholder management within the company.

Three of the employees with an average awareness shortly described the main idea of the innovation ecosystem. One of these employees said that the innovation ecosystem is established so that the case company together with customers, suppliers or

universities can develop new products and solutions faster and in a smarter way. Another employee with average awareness described the innovation ecosystem, as follows:

That it [the innovation ecosystem] is this collaboration space, or set-up made in connection with the [hub] and where some certain partners will be called to do development together with [the case company].

Four of the employees said that their awareness regarding of the innovation ecosystem was rather limited, but they were still able to describe the general idea of the innovation ecosystem to some extent. One employee with lower awareness described the innovation ecosystem with the focus of the suppliers as the collaboration partner:

I have to say that I don't know too much, but as I have understood that the main idea is to have more cooperation with the suppliers and develop together, and then I know that there are some kind of test [rooms] where you can have some... you can do some tests together, but that's mainly what I know, that the idea is to cooperate more with the supplier.

Another employee with lower awareness described the innovation ecosystem with universities as the type of collaboration partner:

If I'm honest, I don't know very much about this, but I have understood that it's a part of [the hub], and there's some (pause), will be a lot of cooperation with universities. For example, in [city A] I think also [University A] and [University B], and so on. That's what I know at this moment.

The following employee with lower awareness said that he or she had not even heard the name of the innovation ecosystem mentioned that often, as the following quote describes:

First I have to say that this whole [name of the innovation ecosystem] word I have not heard so often... I think that it's some kind of... a space where [case company employees] and people from different universities and schools can co-create and work together, and as well as our suppliers. So, some kind of get-together space.

To conclude, all employees had a general understanding of the change that is happening. Three employees could describe the nature of the change more in-dept, three on an average level and four had a lower understanding of the nature of the change. According to Hiatt (2006), it is important for people to understand the nature of the change in the awareness stage, and since some employees had a low understanding of this aspect, it

presents a barrier in their change process. Perhaps, a reason why some employees had a lower awareness of the change is because information regarding the innovation ecosystem has not yet been communicated properly. According to Hiatt (2006) and Kotter (1995), every individual internalizes new information differently, and therefore, broad communications are not always enough to create awareness.

5.1.2 Information Sources

The employees mentioned various information sources from where they had received, or found, information regarding the innovation ecosystem. The main source of information mentioned was the company intranet. Seven of the employees mentioned that they had read some news about the innovation ecosystem from the intranet, and one of these employees said:

[The information comes] maybe mostly from [company intranet], this first page I have read sometimes something from there, and I think it's the easiest way to find information. Easy way to get information from there.

Another common source of information was general information session or meetings. Seven interviewees had gotten some information from this kind of a source. One employee said that in the beginning, information regarding the innovation ecosystem came from the common info sessions that were held. However, it seemed that some employees felt that these meetings and info sessions only gave very limited information about the innovation ecosystem. One employee described it in the following way:

We had a 30-minute session, in the beginning of this year about this [innovation ecosystem], but that's all.... very briefly and not any details mentioned about [the innovation ecosystem].

Another employee had been invited to a meeting regarding the innovation ecosystem, but felt that it was rushed, and that not enough background information was given:

I have been invited to one meeting.... It came with really short notice. Was it... the invitation was sent in the afternoon and then next day was the meeting day and it was really... I don't think it was really well planned because it came with such a short notice and then it was just: now you need to tell us which suppliers you want to involve in [the innovation ecosystem], and we didn't really get that much background information. So therefore, I'm a bit worried that we now... we are really in a hurry.

One employee said that for him or her the information came directly from the people involved in the innovation ecosystem, since the employee was involved in the coordination and planning of the innovation ecosystem. Moreover, another employee mentioned a webpage, where also information regarding the innovation ecosystem could be found from time to time. Another information source mentioned by one employee was events. In these events the innovation ecosystem had been presented, as the following quote indicates:

So, there have been a few, uh, events where the [hub] program has been presented... So, some information there, and I have been active, taking part of the information that has been offered in [the innovation ecosystem] carnivals and similar events.

Two employees were involved in additional activities related to the innovation ecosystem and had received some information through this involvement. One of these employees had been a part of a, so called, ambassador community where the employee received additional information. The other employee was participating in a project where the innovation ecosystem was one of the topics discussed, so the employee partially got information from there.

One interviewee said that the information regarding the innovation ecosystem mainly came from everybody talking about it in the 'hallways', and another employee mentioned that the information regarding the innovation ecosystem mainly came from discussions with the colleagues around the coffee table, because there were always some of the colleagues that were at least a little bit involved. However, this employee also felt that the information was quite limited at the moment, and not coming from the right sources:

I think that the information is really low at the moment, at least for me. So, no, I think that it would really be good to have some kind of concrete examples. What is the intention in this whole [the innovation ecosystem]? Because now I think that the information that we have gotten is too limited. At the moment it is basically based on some rumours. So no, that that is not the correct way.

To conclude, interviewees had gotten information about the innovation ecosystem from the company intranet, general info sessions and meetings, the people directly involved in the design of the innovation ecosystem, the web page, additional activities, and from other employees talking about it in the hallways and around the coffee table. However, it seemed that the information coming from some sources of information was lacking details and background information. Also, one employee felt that the current information did not come from the right sources, and the information was currently based on rumors, and according to Hiatt (2006) rumors and misinformation creates a barrier to awareness building in the initial stage.

5.1.3 Purpose of the Change

The employees described various purposes for the change, and the reasons why they thought this change was needed in the company. The most common purpose for the change that was mentioned was to increase collaboration between various ecosystem actors. The following employee described the purpose of getting closer collaboration and better relationships with suppliers:

Well, at the at the moment I think that quite many suppliers they are either just doing what we ask, so that they don't develop themselves at all. Or then, then we just buy what they give. So, I believe that it would be a huge benefit to really do this cooperation, so we could know what are the difficult things from the manufacturing perspective, or the supplier would understand that why this thing is really important to us, and maybe also there could come many new ideas if there would be some more cooperation.

One employee described the need of increased collaboration, not only with suppliers, but also with universities. The employee hoped that internal collaboration would also increase through the innovation ecosystem:

I think it [the purpose] is mainly to get a tighter cooperation between these parties, whether it be [case company] and universities or [case company] and suppliers.... I don't know if it's also meant that internally, you know if it's some different department of [the case company], so those different departments could also meet there, I hope.

The purpose of increasing collaboration was also about actually doing something together with partners, but also dividing the cost between all partners involved. So, that

the case company would not have to take all the cost for new development as one employee described it. Moreover, increased collaboration was not only discussed in relation to suppliers, universities, and the case company itself, but also collaboration with customers. This is evident in the following quote:

It's an opportunity to work closer together. Between different kind of people, and of course different business functions, and suppliers, and especially with customers also because they pay our salary. They are very important.

Increasing competitiveness and staying ahead of competitors was mentioned as the purpose for the innovation ecosystem by two employees. One of these employees described the purpose as creating customer value and increasing competitiveness by being a pioneer in the field, as the following quote indicates:

I think the purpose is clearly to create added value for the customers, and of course the competition is tough and we need to be in front yard, so to say, always. So, I think it's also to little bit being a pioneer in solving current challenges what we have, and looking into the future, and why is the change needed? Obviously, the competition is tough, and I think everyone of us needs to always find a way to work in the future the best way.

The following two extracts from the transcripts indicate that the purpose of the innovation ecosystem, and the need of the change is to increase information flow and company know-how, as follows:

The concept is of course to be able to perhaps collect more information from the customers, suppliers, (pause) and more perhaps about their needs, and feedback together with our partners. I suppose this is very important.

I could imagine (laughs) that maybe behind is... basically the knowledge we are having around us. I would like to see it like that. I mean that we have a lot of knowledge for us to take the advantages from the supplier base, as an example... Maybe there are some innovations that [the supplier] have been thinking: huh, why is this done like that? And we could learn and get the knowledge from there....it's the same thing existing also in the customer side.... Even more the feedback from the customer side. What they want to be developed to their product's specific purposes and so on.

Two of the employees also mentioned that the purpose of the innovation ecosystem is to make the company more visible to other actors through marketing, as can be seen from the following quote:

When I was thinking why [is this change needed], one thing that popped up is that maybe one big thing is for marketing purposes also. Maybe both internally and externally that we want people to know that now we do this kind of a new cool thing, even though it's maybe not that new to do collaboration with partners... Of course, more visibility will also most probably gather more interest from other companies to collaborate, maybe more high-quality partners.

Two employees also talked about the purpose of collaboration with the larger ecosystem that they live in and the integration of the whole value chain. One of these two employee pointed out that he or she did not know if this actually was the purpose, since the decision makers have not talked about it explicitly, but assumed that integration of the value chain was partly the purpose. The following quote indicates this:

Yeah, I have not looked into the heads of the people that decided it, but (pause) one thing is that with the [vision A] and [vision B], there have been lots of speaking about ecosystem, where larger parts of the value chain should cooperate to come up with solutions that create value, and then the idea is that working together gives better results, so for instance involving customers in projects early on to get their feedback on what is the really essential parts for them. What makes sense, and what not.

Two interviewees mentioned that the purpose of the innovation ecosystem is to introduce new innovations. One of these two employees said that he or she was not sure if this was the purpose, but the employee hoped that it was a place for future innovations. The other employee said that the purpose of the innovation ecosystem is to find new innovations that are not possible to find just inside the case company. The employee said:

The purpose is to find new innovations that we cannot find internally in [the case company] only, but where we need partners in order to come up with them. That's what I would say.

To sum up, the purposes mentioned by the employees were to increase collaboration with different partners, to increase the competitiveness of the company, to create value for the customers, to increase the information flow and internal know-how, to increase company visibility through marketing, to develop the ecosystem we live in, and to come up with new innovations. Rosenberg & Mosca (2011, p. 141) state that individuals who do not understand the organizations intention for a proposed change are like to show

resistance. However, this was not evident in the findings, since all employees specified a purpose and reasons for the occurring change. They could describe why this change is happening, and therefore this do not present a barrier for them in the change process.

5.1.4 Validity of the Change

The most common opinion by the employees was that they felt that the reasons for establishing the innovation ecosystem were valid. For example, one employee thought that the reasons for establishing the innovation ecosystem were valid, because improvements in way of working are always needed. Another employee also thought that the change of establishing the innovation ecosystem was valid, because the employee felt that things need to progress and continuously improve. A third employee also said that this change is important and a step in the right direction. One employee believed that the reasons for the change were valid, but had some hesitation regarding the actual implementation. This is described in the following quote:

Well, I believe they are [valid], but yeah, I believe that also the plan should be really well defined before starting with the [partners], because otherwise we just choose some [partners] and try something, and I believe that is quite often the bad thing that we are doing. We just want to try something new, but we don't really plan it well.

Two of the employees were unsure if the reasons for establishing the innovation ecosystem were completely valid. One employee felt unsure about what the reasons for establishing innovation ecosystem actually were, as the following employee describes:

I'm not sure if I can determine that [the validity] based on what I know actually. If you want to market it then yes, this is a good way.

The other employee that were unsure about the validity had the reasoning that the change seemed to be implemented partly because it sounds good, as the following quote shows:

I'm not sure. It seems to me that there's a bit of hype about it. It sounds good, and possibly partly done maybe because it sounds good, but it's of course not only that. So, I think co-creation is a good thing and involving customers, if we are able to do that.

In conclusion, most of the employees felt that the reasons for establishing the innovation ecosystem were valid. However, two employees were hesitant about the validity of the change. The employees were unsure about the validity because of lack of information and because the change partly seemed to be a hype. According to Hiatt (2006), building awareness is prolonged if the reasons for the change are questionable. Two employees were questioning the reasons for the change, and therefore this presents a change barrier.

5.1.5 Risks with the change

The interviewed employees identified various risk if the innovation ecosystem would not be successfully implemented. The employees identified risks on various levels. Some identified risks on a high level, while others talked about risks related to way of working, partners or employees. A high-level risk that was identified was the shutdown of the innovation ecosystem, if it is not successfully implemented. This is described in the following quote:

I mean the risk if it's not being (pause) implemented in a good way, then of course it will be shut down. That will be the end of it. I don't think there are much other risks as such. Of course, smaller ones but. It's a chain of action, so, if it's not well implemented you will have difficulties getting projects in, you will have difficulties getting money in, and you will have problems getting resources in, and then it will soon die. I think that's the outcome.

Three employees also talked about risks related to intellectual property rights (IPRs), the following quote describes the opinion of this risk in a relevant way:

The risk is related to these steps inside the [innovation ecosystem] and then how the... basically the risk what comes to the IP rights and the challenges there. Maybe there are some who are not basically willing to sign anything and then basically having the (pause), basically the IP right seen as not to be shared.

Two employees also talked about risk related to a restricting and limiting framework. One employee said that if the framework used inside the innovation ecosystem is too restrictive, then it will limit some forms of innovation and collaboration. This presents a risk as the following quote indicates:

Well, if it is implemented, but not in a successful way then it can be... If they have quite many restrictions and limitations which makes it not really smart,

let's say, not a new innovation or product feeder anymore. Then, it just becomes like, I don't know, any other team, nothing special... and also restrictive in the way of which projects, which people have room to work inside this framework.

Also, information sharing and confidentiality was mentioned by two employees as risks in the innovating ecosystem:

One question mark is related to confidentiality and sharing of information, how to strike the right balance so that we are not too careful to share essential information that would be needed for together making a good service or product, but on the other hand not (pause) sharing sensitive information... Yeah, so that of course is both for [the case company] and for other parties.

Reluctance of people and their attitude was also one risk pointed out by two of the interviewees. One employee that mentioned reluctance and the attitude of people as a risk and a barrier, described it as follows:

This way of working can differ rather much from what we traditionally have been used to. So, there can be some obstacles, or hindrance in attitudes of people that can be something, one risk.

The other interviewee that talked about the attitudes of people and reluctance said that people can become hesitant if they do not see any results from their efforts, as described in below quote:

Well, of course, uh, in the beginning for sure people are really interested about, when we start the cooperation, what comes out of it. So, if we think about, for example, a situation where many organizations and institutions are putting a lot of input and efforts and resources for some project, but then, not much comes out of it. That could be something, which could maybe create hesitation for different people and for different participants.

Other risks identified by the interviewees were risks related to an unclear process and unclear targets, and a lack of interested parties to join the innovation ecosystem. The following employee describes the risk of the innovation ecosystem staying empty, and a lack of interested parties to collaborate:

I wonder if there will be a suitable amount of companies and people and activities, etc. So that there will be a continuous (pause), that there will be work going on, etc... So, it's easy for us to say that everybody should come here and cooperate with us. But then, if somebody else has a platform or center or something, we are maybe not that eager to go there to cooperate and contribute. So, what does that say? What says that people and companies really

come here? Yeah, so that was one thing that, well does it [the innovation ecosystem] suddenly stay empty?

On the other hand, two employees did not see any risk related to the innovation ecosystem implementation. One of these employees said that they do not see any risks as such, and that the worse-case scenario would be that everything just stays exactly as it is currently. The following quote strengthens this finding:

I don't know, if I see any risks. I mean at the worst-case scenario would be something that, ok, things stay exactly the way they are today. So, I think there is only opportunity for things to get better, but big risks, I don't see big risks there, you know, no. Only a chance of improvement.

To summarize, the biggest risk would be that the innovation ecosystem will be shut down if it is not implemented successfully. Then, the risks inside the innovation ecosystem that were mentioned most frequently by interviewees were risks related to IP rights, restrictive framework, and information sharing. Other risks mentioned were unclear targets and processes, the attitude of people, and lack of interested parties. Also, two people did not see any risks related to the innovation ecosystem implementation. Adner (2006) identified three kind of risks present in innovation ecosystems, yet only two kinds were identified in the findings: Initiative risk and interdependence risks. Initiative risk are the kind of risks normally present in projects, while the interdependence risks identified were related to the sharing of IPRs and information.

According to Hiatt (2006), it is important that individuals know what the potential risks of not changing entails. Therefore, the employees that did not identify any risks related to the innovation ecosystem implementation, may not be too eager to participate in the new way of working, since they do not see any risks if they do not change. This could lead to everything staying the same, and this presents a barrier for the employees and the implementation of the change.

5.2 Desire

This section presents and discusses the findings of the elements impacting the change in the desire stage of the process. The elements presented in this section are personal

benefits, motivation and personal circumstances, discouragement and personal circumstances, the case company's history in implementing changes and the change culture in general. In general, the desire of the employees to participate in the change, and to work in the innovation ecosystem environment in the future was on a high level.

5.2.1 Personal Benefits

Many interviewees saw that working in the innovation ecosystem could benefit them personally, with some exceptions. The main personal benefit mentioned by the employees was stronger collaboration and communication with different partners, which would sequentially facilitate their own work. Three employees mentioned that a benefit would be if they could get a closer relationship with suppliers, while another interviewee also mentioned closer contact with different actors as a personal benefit. This employee was usually in contact with different people and organizations outside the case company during the daily work:

Absolutely, I think so, because my work is so, let's say, collaborative. So, I need to communicate with quite a lot of people over the borders. I also try to set up these innovation projects which also require this kind of space and framework, so absolutely.

One employee saw that the innovation ecosystem could bring personal benefits by helping to maintain and build a stronger personal network. Mainly, with suppliers from various countries, but also with stakeholder from different parts of the organization. Another interviewee also mentioned that it would be a personal benefit if the employee could get closer contact with customers, start-ups and other people, as described in the following quote:

Simply also, if it would be so that the café area would be a place where you could meet some customers and some start-up companies, and some other people. You might have interesting discussions, because today the customer feels very distant for me. There are so many stages in between.

Three employees also mentioned that a personal benefit would be if they could learn something new and grow on a personal level, when working in the innovation ecosystem. One employee mentioned that when working as a team, sometimes you fail

and sometimes you succeed. However, in the end you always learn something and your skill set and know-how grows. The employee felt that this would also be the case when working in the innovation ecosystem. Another employee described the benefits of learning and personal growth, as follows:

Yeah, definitely I do see that it, for sure could bring benefits for me personally as well. I personally see that always when there's a potential or possibility to a little bit step out of the box you are normally in, and to look at things differently and to be a part of something, of creating something completely new. Then I think there's always a possibility for your own growth and for your own learning and learning process and so on. So, definitely yes.

Two interviewees currently could not see any personal benefits for working in the innovation ecosystem. One reason why one employee did not see any personal benefits was because the person felt that he or she knew too little about the innovation ecosystem to make that judgement. Another employee said that he or she could not see any personal benefits as of today for working in the innovation ecosystem, since the person did not see that it could benefit the persons specific area of work.

For me personally, as it is today, I don't see any benefits, because I'm working with [suppliers producing part A] that in the past was decided by [the case company] to not be a core business. And today, the strategy is that we are buying all parts from the outside, with some exceptions... So, there I don't see the benefit.

To summarize, the main personal benefit recognized for working in the innovation ecosystem by the interviewees was a closer and stronger collaboration with different parties, and the second personal benefit identified was personal growth and learning something new. Two employees did not see any personal benefits at this point in time. The reason why these employees did not identify any personal benefits was due to lack of information regarding the innovation ecosystem, and no connection to the person's area of work. According to Traider-Leigh (2002, pp. 146-148) and Hiatt (2006), if a change serves the self-interest of a person or presents personal benefits it is more likely that the change will be supported and embraced. Since two employees did not identify any personal benefits at this point in time, it can be considered a barrier in the change process.

5.2.2 Motivation and Personal Circumstances

The most common motivation for working in the innovation ecosystem was the possibility of getting better contact, collaboration and relationship with different partners. Supplier were the most common partner mentioned. This is also logical since many interviewees work in the supply management department. One employee described the motivation like this:

Maybe I'm having the possibility to... even more increase the contacts and feedback... I'm now talking about the supplier base and how is it developing globally in different continents. A little bit different in Europe, little different in Asia, and so on. Expanding this kind of knowledge could basically motivate in a way.

Another interviewee also said that if the innovation ecosystem would improve the relationships and communication between the employee and the suppliers, then that would be a motivation for working in the innovation ecosystem environment. This is evident in the following quote:

Well, it's just to get a better relationship with my suppliers and maybe to understand better the restrictions in both ways, and also what is possible and what's not. Then if you are discussing often and meeting the supplier face to face, it's also always easier to be in contact in even really small things.

Also, another employee said that the motivation for working in the innovation ecosystem would be if there would be partners actually present in the innovation ecosystem, and if it would actually be a space for collaboration. Another employee said that better communication with suppliers can also help with increasing customer value. This would be a motivating factor for the employee, as described in the following quote:

Maybe... Of course, if we can create some new value for our customers also, because we have a lot of suppliers and they're very innovative. And really, we need to listen what they suggest also. They have very often very excellent proposals, and help them help our customers in that way.

The second most common motivation for working in the innovation ecosystem was related to seeing end results. For example, if the employees could actually see that some idea would become a project in the innovation ecosystem, and then eventually end up as a product or service. One employee said that it would be motivating if it would be

possible to see results from the work done in the innovation ecosystem, because the interviewee felt that when doing research work it is usually rather long term. The employee also said that results may come first after many years, but you do not know for sure if the research will produce any results. Another employee described the motivation of seeing results in the following way:

Working at the right things, doing something proper, and something that we believe in, and then something that will eventually end up as a product, or then doing good research for something in the future.

Other than these two most common motivations, employee's motivation varied to a great extent. For example, the motivation was related to the possibility to reduce costs, to increase customer value, the possibility to learn something new, contributing to something good, interesting discussions with external parties, a good atmosphere in the innovation ecosystem, or interesting projects. Other motivating factors were if the innovation ecosystem would increase the job satisfaction, if there would be sufficient resources for participating in the work in the innovation ecosystem, and if there were projects related to the persons area of expertise. The following quote describes the motivation related to interesting projects, the persons area of expertise, and sufficient resources:

I think what would motivate me to work in [the innovation ecosystem], is if I hear there's an interesting project where I... with my current know-how and my background could bring added value, and if I would have the possibility to participate in terms of resources.

One interviewee said that he or she would be motivated to work in the innovation ecosystem if the whole framework was functioning in an adequate manner, namely, if the innovation ecosystem would have innovative projects, if it would have people there, and if it would have a functioning decision making and framework. On the other hand, another employee could not say exactly what would motivate him or her to work in the innovation ecosystem because of lack of information, but the employee still had a general interest in the innovation ecosystem, as indicated in the following quote:

A little too early to say, of course, because this is a new concept, but the whole concept is very, very interesting. So, I'm looking forward to work with this [innovation ecosystem] concept. It will be very, very interesting to see. But as I

said to you also earlier, it's a little too early to say also because lack of information and what kind of opportunities there are, but at least there are opportunities. So, very interesting concept.

When employees were asked if there were any personal circumstances that would drive them towards working in the innovation ecosystem, the most common answer was that they did not see any personal circumstances that would have an impact. However, one exception was that if one of the employees would find a more interesting job opportunity in the case company working in the innovation ecosystem, it could have a positive impact, as follows:

Doing interesting things motivates me as said. So, if there is more interesting job there [in the innovation ecosystem] it can motivate and drive me in that direction.

To sum up, employees' motivation was mainly related to the possibility to increase contact and collaboration with various parties, and if they would be able to actually see results of the work done in the innovation ecosystem. Other motivating factors were to reduce cost, increase customer value, possibility to learn, contribute to a good cause, interesting discussions with various parties, a good atmosphere in the innovation ecosystem, interesting projects, increased job satisfaction, sufficient resources, projects related to area of expertise, and a functioning innovation ecosystem. One personal circumstance discovered that would drive one of the employee towards working in the innovation ecosystem was career aspiration, and if a more interesting job would open up in the innovation ecosystem. Since all employees could find a motivating factor for working in the innovation ecosystem, no barrier in the change process was identified in this section.

5.2.3 Discouragement and Personal Circumstances

Generally, the interviewees had a positive attitude towards the innovation ecosystem, and six of the employees said that there were not any reasons why they would not like to work in the innovation ecosystem. Many of them were looking forward to this kind of work and environment, and many saw it only as an opportunity. Yet, some factors that would discourage the employees to work in the innovation ecosystem were discovered.

The most common answer was lack of resources, since the employees assumed that the work in the innovation ecosystem would not affect their normal workload and duties, but that the work in the innovation ecosystem would happen beside the normal duties.

One employee talked about resources in terms of workload and time:

Obviously, it's always a matter of matter of resources, and how much you have time reserved for it... The workload is obviously, uh, quite high for me and for many people I think in supply management, so, um, that would be maybe the thing that would be stopping, if anything would be stopping, or prohibiting me from working there.

Another employee also talked about resources and lack of time as a discouraging factor.

The employee talked about the balance between normal work duties and additional activities in the innovation ecosystem, as the following quote describes:

I have my normal duties, and I often find that I don't have enough time, or I don't achieve enough, etc. So, there is always a balance that how much do you do in addition to your kind of normal duties. As long as it's not too much of it, I would assume that I would choose to participate at [the innovation ecosystem] when I have a possibility to be involved in some activity there.

Another reason mentioned by one employee that would be discouraging, would be if the innovation ecosystem would become a sort of restricted area, where always the same people are. The employee also said that he or she would probably still use the facilities, but not the full framework as such, if the implementation is lacking. Other reasons that would discourage employees from working in the innovation ecosystem were bad atmosphere, and if the way of working would be limiting, as the quote below indicates:

If it would limit too much this way of working. I very much like to keep the open possibility for creativity and new ways to also go forward with development.

Unclear targets and poor planning were also seen as discouraging factors. One employee said that if no one really knows what they are supposed to do in the innovation ecosystem, then that would not be motivating. Furthermore, not seeing any results would be discouraging to some of the interviewees. One interviewee said that if the people feel that the work in the innovation ecosystem is not leading anywhere, then they will start to have negative feelings regarding the whole environment:

If I feel that, ok, what do I get here? And is this leading now somewhere, and no nothing comes out from it. So, if that kind of a vibe then I think people will start to turn negative.

Mainly, there were not many personal circumstances identified that would hold employees back from working in the innovation ecosystem. However, one employee mentioned that they lived quite far away from the physical location of the innovation ecosystem, so this person would not be able to present in the work face-to-face in the innovation ecosystem daily. This is evident in the following quote:

Of course, because I live in [City B], I'm working in [City C] office, so I can't daily work on-site in [the innovation ecosystem], but that's the only [thing] that would hold me back.

Another personal circumstance that would hold one employee back from the work in the innovation ecosystem environment was related to health. This person currently had a partial burnout, and the story below describes the situation:

Personally, I have a bit of a burnout or I mean some level of mental fatigue. So, it can take a lot of energy for me to be among other persons and having intense meetings for many hours, even days.... But I hope that in most cases it could give so much that I'm willing to do the trade-off anyway, that ok now I do this and then I try to recover afterwards. But if it's three days or five days, as can be a good length for some innovation prints or something, then I think it over several times that I am I really able to endure that without getting too much stress, so that I'm not able to sleep the night after all the impressions and inputs.

In addition, this employee mentioned that with the current world situation with Covid19, there are no face-to-face meeting in the company. According to this employee, virtual meetings are more tiring and stressing, as describe in the following quote:

And current world situation, ok, there is the Covid19 of course, so meaning that that there are not at this moment face to face meetings and for me it's... virtual meetings give less and take more, so it's more stressing it's more (pause) exhausting, and you don't see all the expressions of people's faces so easily.

One person also mentioned that relationships at work could have a negative impact and hold the person back from working in the innovation ecosystem, which is described in the following quote:

It would be bad, if there are some persons that maybe you don't get along with too well, or the cooperation doesn't work. In the workplace I think it's... The vast

majority is good and fun and you get along well with the people, but there can be also some exceptions. If it would be too difficult people there, you quickly lose interest and think, ok, forget about it then.

To conclude, the main barriers that would prohibit or discourage employees to work in the innovation ecosystem was lack of resources. Other barriers identified were if the area would become restricted or closed, if the ways of working would be too limiting, bad atmosphere, unclear targets and poor planning, or lack of visible results. According to Hiatt (2006), personal circumstances may impact employees desire to participate in a change. Some personal situations that would hold some employees back from working in the innovation ecosystem was distance to the current physical location of the innovation ecosystem, health, and poor work relationships.

5.2.4 History and Change Culture

Many interviewees had been employed by the company for quite many years and therefore, they had also been a part of, or seen, many changes in the company. The type of changes mentioned by the interviewees were organisational changes on various levels. However, the biggest changes had occurred on a higher level, as the following quote indicates:

Well, at least on general level, I think it's been really a lot of organizational changes these last 20 years. And the company name has even been different. So, most of the time it has been biggest changes on which kind of business units we have and more on this VP and director level, and how (pause) the different teams are then placed. But inside the teams there have not been that much change.

The following employee also talked about changes in organisational structures, strategy changes, and also several rounds of workforce reductions, as follows:

There have been a lot of changes during the years, more than I can remember... there have been many different organizational structures and then since maybe 2012 or something, there have been several cooperation negotiations, with people getting fired... But yeah, changes, many different strategies and initiatives.

One employee also talked about department changes, changes in business lines, and other structural changes. Moreover, the employee had the opinion that there had been too many changes in the past years, as the quote below indicates:

They have changed it [the department] very many times during the last eight years, so lot of... very many times... too many times... new structure and on so. So, different business lines and a little bit that have been... they have changed it very many times.

On the other hand, the following interviewee said that no bigger changes had occurred in the own department, but that changes in other parts of the organization also had had an effect on the interviewee to some extent:

Well, my organization it has been quite similar. It has not... We have not had big changes, but for sure I have been working with people that have had quite a lot of changes. So, in a way it has affected also me. But no, I have not been a part of any changes.

One employee also mentioned that the changes in the organization had not had a large impact on the employees' work, per se, even though there had been some structural changes in the organization:

Yeah, from position point of view in that way then no changes, because the same area of the tasks and responsibilities. Then of course from organizational point of view, yes. There was the, let's say, the setup that there was centralized the expert organization and then after that the organization was split completely... Otherwise, of course we have last year seen a lot of organizational changes, but personal impact has been quite low for me.

One employee had also recently had changes related to area of responsibility, namely, the responsibility area of the employee was extended. Another employee had even been working with the implementation of various changes in way of working, but the employee also mentioned organisational changes, as can be seen in the following quote:

Where to start (pause), because I have been working more or less with changes since I started in the company. So, in implementing project management methods and tools. So, that's at least one big part of it. Then I have been working with changing our ways of working for some years, implementing innovation sprints, trying to get people to participate to these things. Organizational changes, of course, it's a big part of it, so that's perhaps a short version of it.

When the implementation of the various changes was discussed, many of the interviewees had the opinion that the changes in the organization had been implemented with varying results, some successful and some not. One employee spoke mainly about previous changes in a positive way, while another one mainly talked about the change capabilities in a negative way. The rest of the interviewees were somewhere in the middle. The following employee pointed out that the large amount of changes in the organization is making it more difficult for people to understand the reasons and purpose of the changes:

I think there's always space to improve there. Yeah, the amount of, the big amount of changes has maybe given additional challenges for people to understand why the changes are being done, because there are so many changes and it's not always seeing... I'm working so to say on a floor level, so benefits of the changes are not always seen to this level. So, I think at least there is space to improve there.

Another employee commented that the implementation of high-level changes rarely makes a real change in the lower levels:

With varying results, I would say (pause), but when it's on this level, when it's more on VP and director level there are changes, then usually there are no changes on the lower levels and very seldom something that makes a real change on the, let's say, floor level or the way of working level. At least what I have seen.

Another interviewee described the implementation of changes in new ways of working and organisational changes, some successful and some not as successful:

Many of them, some part of the project management methodologies were really well implemented, some were not. Tool wise, it was not perhaps the most perfect implementation. Looking at the way of working implementation, for example, our innovation way of working has been very successfully implemented with good feedback. Then if we take the organizational changes as well, some have been more positive, but many of them have been perhaps on the negative side.

One employee said that many of the changes initiated by the organization have sounded good at first, but that there has been some resistance by lower management in the implementation phase, as can be seen in the quote below:

Many of the initiatives sound good to me at least when first presented by upper management or some kind of experts or so, but then lower management often

is a bit reluctant. So, there has been at least a bit of an attitude that we continue working as we always have done, even though there are these new requirements and processes, etc. Maybe we adopt a bit, so we do a bit of it, but it's more that you're filling the different templates because you are required, not because you really try to get something out of those planning documents, or whatever. So, less professional approach on the lower level.

Furthermore, the same employee pointed out that with smaller changes there have also been some lack of communication regarding their purpose. Also, for these kinds of changes there has not been much possibility to have a discussion regarding their implementation, as the story below demonstrates:

Maybe not so much information always about what it's really about. So, maybe not so much with bigger changes, but at least with smaller things it kind of happens that you get a message that now this and this should happen. You should report this, or this input is needed, or this change will take place, but you don't know from whom the initiative originally comes, and you don't... you are not able to discuss really that why this? Could it be done in another way?

Another employee said that he or she was unsure if any organisational changes had been successfully implemented, because the employee felt that even though the organization had changed in the past, the actual work of the employee had not:

I don't know, because I feel that our work has changed quite little in these past 10 years. Even though the organization has changed a bit, our work has not.

When asked, if the changes that the employees had been a part of had been reinforced or rewarded in some way, the general answer was negative. A reason for this might have been due to the nature of the previous changes, because the employees had mainly been a part of organisational changes. However, two employees mentioned some kinds of reinforcements. One employee that had worked with implementing changes in the organization and got feedback from superior as a reinforcement. The employee that had had a change in responsibility area, had afterwards received one additional resource to support the work, as indicated in the following quote:

Rewarded in the sense that yes, I got one resource more, but otherwise no other rewards given as such.

When looking at the employee's opinions regarding the company's general change capabilities, the main answer was that the capabilities was seen as quite good, but that

there was definitely room for improvements. One employee pointed out that generally when implementing changes, the needs of the personnel should be taken into account to a greater extent. Furthermore, two employees had the opinion that the company has not been good at implementing previous changes, as the following quote describes:

I don't think that [the case company] is the best one to implement any changes. We have so many organizational changes and then we just get the big picture about the organization, but no one is ever explaining how it should work in practice. No, no it is.... I have not seen even one well implemented organizational change in [the case company]. No, no, you would believe that because we are having those so many, we would already learn how to do it. But it's not going like that.

Another employee said that the outcome of a change depends on how much the person in charge cares about the outcome. Also, visible and active leadership is one of the success factors recognized by many researchers (Kotter, 1996; Hiatt & Creasey, 2012; Pucik et al., 2017). The organisational change capabilities was described by the employee in the following way:

What should I say, a part of it yes, a part of it no. I think it's difficult to put [the case company] as whole, because there are a lot of changes done that are a complete disaster. But then, on the other hand, we have lots of changes that are being done that are very positive, and it very much comes down to the person in charge of the change. That's how I see it at least, that how much do you care about the outcome.

In general, the employees had been a part of, or at least seen, a large amount of changes during the years in the company. These changes were changes on a VP and director level, strategy changes, changes to the company name, changes in business units and organisational structures, the placement of teams, changes in roles, responsibilities, and ways of working. Also, workforce reductions were mentioned. However, the implementation of those changes had not always been successful, with some exceptions. Rewarding and reinforcement related to changes did not seem to be a very normal occurrence in the case company. In addition, the organization's change capabilities were on an average level when taking into account all the interviewees' opinions.

Hiatt (2006) maintain that if a company has a poor record of implementing changes, it could present a barrier for individuals to embrace new changes. In addition, Brunninge

(2009) state that an organizations' history in implementing changes can either influence individuals positively or negatively. The findings in this study indicates that some of the interviewees did not give high regard to the organizations' change capabilities. This is a factor that can affect them negatively when deciding to be a part of new changes. Therefore, this is a barrier to the desire stage in the change process, and employees are less likely to embrace the change.

5.3 Knowledge

In this section, the findings related to information on how to actually change are introduced and discussed. The elements are skills and behaviors needed in the innovation ecosystem, and the interviewees understanding of these skills and behaviors. Also, the interviewees opinions regarding information of processes, techniques, systems and tools are presented. As well as, roles and responsibilities. Moreover, the interviewees perspective on the availability of resources are presented. These elements impact the knowledge stage in that change process.

5.3.1 Skills and Behaviors

When interviewees were asked if they have a clear understanding of the skills and behaviors needed in the innovation ecosystem environment, the most common answer was yes. Also, because many of the employees had the opinion that they needed these kinds of skills and behaviors already in their current position in the case company. One employee explained that the skills needed in the innovation ecosystem, the employee also needs when doing project work and dealing with partners in the current job. Another employee talked about this topic in the following manner:

Mm, like I said, so partially this is something I have needed already, these kind of skills and behavior model already in my position today.

On the other hand, one interviewee said that he or she did not have a clear understanding of the needed behaviors and skills in the innovation ecosystem. Moreover, the employee did not have a clear understanding of the new way of working. This indicates that there may be some lack of personalized information in this area, or the

information is not yet consolidated by the case company. The quote below indicates this finding:

First of all, I don't feel that I have a clear understanding of these knowledge, skills, and behaviors, because I don't fully understand what the new way of working is.

The interviewees described various skills and behaviors that were considered useful when working in the innovation ecosystem. Not many specific hard skills were mentioned, but on a general level the interviewees said that technical knowledge, planning skills, and computer skills could be useful. A specific hard skill that was mentioned by one employee was service design:

I know there is a lot of focus on this service design tools also, at least in the beginning of the process in [the innovation ecosystem], and that is something that is taught also outside and has been for some years already utilized.

A reason why many specific hard skills were not mentioned, could be due to the reason that a large variety of knowledge and skills will be needed in the innovation ecosystem environment, as the following employee comments:

It [the knowledge] depends on the project of course, and I think the most beneficial thing is to have people from different organizations, with a different backgrounds and different knowledge. I think that creates the best possible package.

According to Ketonen-Oksi and Valkokari (2019), the value co-creation process is improved if the innovation ecosystem consists of a variety of actors. This seems to be the intention also in the case company, to include a variety of people and actors. Another interviewee also described the need of a large variety of knowledge, skills and behaviors in the innovation ecosystem, as the following quote indicates:

Oh, I think that it will require a lot of different knowledge, a lot of different skills, and a lot of different behaviors in order to make it work. I think then what one single person need is a limited set of that one... then you bring all the other skills and knowledge that you have, others bring something else. In the end, it turns out to something good.

On the other hand, a larger variety of attitudes, behaviors and soft skills were said to be useful in the innovation ecosystem environment, such as open-mindedness, positive mindset, stepping outside one's comfort zone, diplomatic skills, sociability skills,

willingness to learn new things, adaptation skills, collaboration skills, communication skills, teamworking skills, and skills to work independently. The following quote describes some of these skills:

I would say that in general it maybe requires a little bit the skills and capabilities to, how would I say, self-guide your work and then basically be in that the way capable to work alone, but also then be part of the team, and then sharing the knowledge.

One employee said open-mindedness and stepping outside one's comfort zone can already take you quite far. Another employee also talked about open-mindedness and stepping out of one's own box. The attitude of having a positive mindset and adaptation skills were described by the following interviewee:

Oh, yeah, I guess it's a question of mentality that having a positive attitude to ideas that are not your own, and in a positive way coming with suggestions how to modify the ideas, or what to take into account, etc. So, there is something related to that, and maybe yeah, the expectations to the way of working, and willingness and readiness to adapt to a certain process. That now we do like this and that. Now we discuss these aspects, and then we take that.

Communication and information sharing were also mentioned by three of the interviewees. One employee said that people's willingness to share and exchange information is essential, and that it is not great if people keep all information to themselves. Another employee said that communication and collaboration with partners are important, while the third employee also emphasized good communication. One employee also mentioned that diplomacy when discussing and collaborating with different partners is a good skill to have, as the following quote indicates:

Also, to have this kind of (pause) a bit diplomatic way also there to work well together with all of them [the various partners].

Generally, employees felt that they had a good understanding of the skills and behaviors needed in the innovation ecosystem. On the other hand, one employee said that he or she did not have a clear understanding of the skills, behaviors, and new ways of working. Skills considered useful by interviewees were technical skills, planning skills, computer skills, and service design. Also, independent working skills, teamworking skills, communication skills, collaboration skills, adaptations skills, learning skills, sociability

skills, and diplomatic skills were mentioned by interviewees. Furthermore, open-mindedness, positivity, and willingness to step outside one's comfort zone were behaviors that interviewees felt would be needed in the innovation ecosystem.

The only barrier found in this section was related to one employee that said that he or she did not have a clear understanding of new way of working, skills and behaviors needed. According to Hiatt (2006), every individual needs to know the skills and behaviors needed in the future state of the change. Reasons why the employee did not have a clear understanding of these aspects, may be due to lack of information available or the information is not yet consolidated and communicated by the case company. Hiatt (2006) also state that if the information is not yet fully developed, then that is a barrier in the change process.

5.3.2 Specific Information on How to Change

Information on how to change includes the knowledge of new tools, systems and processes to be used in the future state of the change. Also, individuals need to know the new roles and responsibilities. (Hiatt, 2006) When interviewees were asked if they had any information on how to change and more specific information regarding the innovation ecosystem, their answers clearly showed there was a lack of information or communication regarding this area. There was a clear absence of information regarding processes, techniques, systems and tools to be used in the innovation ecosystem. Also, the most common answer was that employees felt there was not sufficient information available regarding roles and responsibilities in connection to the innovation ecosystem.

One employee talked about the lack of information regarding processes and techniques:

No, no I would say no. Because I don't know anything about the techniques and process is to be used in [the innovation ecosystem]. Ok, I have not been so active and looking, but I think as we are moving there next year, maybe people should have a better idea. I don't have.

On the other hand, the employees that had been a part of additional activities in connection to the innovation ecosystem, had more information regarding at least systems and tools to be used in the innovation ecosystem, as the following quote indicates:

Well for me I would say yes, because I'm part of this [innovation ecosystem] project. There we have been presented also some examples how we are working and which process and techniques are being used. But maybe there could be more information easily available for everyone still, I think.

Another employee had acquired some experience and training for a similar kind of settings as the innovation ecosystem, and therefore has some idea of the processes and techniques to be used in the innovation ecosystem, as follows:

There has not maybe been that much information yet. Out from my own experience what I mentioned with innovation sprint and service design facilitation training, I assume that I know more or less what it's going to be like. Then, I also, as mentioned, looked through the, [innovation ecosystem handbook] draft version, but I'm not sure whether more information is needed at this this stage yet, so maybe information will come along the road.

The following interviewee had the opinion the no more information regarding processes and techniques to be used in the innovation ecosystem would be needed at the current stage, but that more information regarding roles and responsibilities was needed, as the quote below demonstrates:

Personally, I don't think that there are more processes needed at this stage. It's not the processes that will run it as such. Not the starting, so I think for now there is enough information available. But then of course job roles and responsibilities for everything that is happening in the [the innovation ecosystem] except for projects, that could perhaps be opened up a little bit.

For the most part, information regarding processes, techniques, systems, and tools seemed to be currently lacking. Also, most of the interviewees said that they had not seen any communication regarding roles and responsibilities in connection to the innovation ecosystem. Therefore, a clear barrier in the change process is identified in the knowledge stage of the change process. This is the barrier discovered that apply to most of the interviewees. As stated by Hiatt (2006), access to knowledge is critical for individuals to be able to progress in the change process.

5.3.3 Availability of Resources for Education and Training

The most common answer by employees, when asked about resources for training and education was that they were hesitant, unsure or worried that there would not be

sufficient resources for these kinds of activities in the innovation ecosystem. One employee talked about a decrease of resources in the training area in the past years:

Generally, I think it's been a decrease of resources in [case company] training area. Maybe now there is some effort made to strengthen that, but I don't know what the outcome will be yet. There has been a bit of a bad trend, it's been a little bit too much savings and layoffs in that area, I think. So, some years ago there were a bit more focus on this kind of skills like, cooperation skills, like a bit more in these personal development skills, more general type. There's been less of such trainings made compared to previous years. So, that I see as a risk.

On the other hand, two employees had the opposite opinion regarding resources for training. One of the employees pointed out that it's a matter of organizing and prioritizing, as the employees describe in the following two extracts:

I think there are [resources]. I think there is a lot of potential, and resources in the people we have, and people coming in, new employees and the existing ones, and it's maybe a bit of a question how to organize, what to prioritize and what to leave out, and what to do. I believe we can manage fine by looking at really the priorities.

I think so. I think there is a lot of... or there are enough people that know what is needed, and are fully capable of actually communicating it, it's perhaps not training. I think it's more preaching about what kind of a behavior is needed. So, I think there is enough in the organization, as such, it's of course not enough with two persons, but outside that there are a lot of people that can help out with this one.

According to Hiatt (2006), availability of resources that aid people to acquire new knowledge is essential. Most of the interviewees were hesitant or unsure if there were enough facilitators and trainers to aid employees. Therefore, this is also a factor that impacts the change process negatively and presents an employee barrier. However, some employees pointed out that it is a matter of organizing and prioritizing. Reasons for this barrier seems to be due to savings and layoff in the training area, and that organization and prioritization is not yet in place.

5.4 Ability

The ability of employees and their performance when working in the innovation ecosystem will be demonstrated once the employees actually have the opportunity to

work in the innovation ecosystem environment. The elements impacting this stage in the change process is the employee's opinion regarding their abilities, challenges related to implementation, and resources for implementation. However, in general the interviewees did not see it as a big step to work in the innovation ecosystem environment, because the employees didn't think that it would be too different from their normal working environment:

Yeah, I think it shouldn't be a big step. I think that environment should be quite similar [to the normal work environment].

Another reason for this answer may be that some employees also assumed that they will contribute to the innovation ecosystem with their current expertise and not too much new knowledge and skills would be required. That would increase the confidence of the employee's ability to cope. Another interviewee saw that it should not be a problem for the employee personally, since the he or she assumed that there will be facilitators present to aid the process:

Yeah, I guess that will be ok. Especially, as I assume there will be facilitators helping, so, as long as my role is not to be a facilitator, it will be ok. Then (pause) it may be that extra facilitators also are needed, and then a new step into something that I'm not so used to but, yeah.

As suggested by Ketonen-Oksi and Valkokari (2019), there should be facilitators to support and provide a structure for sharing knowledge and resources, and to aid actors to make new connections. This seems to be the case in the company, as indicated by the quote above.

5.4.1 Challenges in Implementation

Even though the interviewees themselves did not see it as a huge step to work in the innovation ecosystem environment, they did identify various challenges for themselves and for other participants in the innovation ecosystem. One employee talked about the challenges related to the collaboration behavior in the organization. The employee said that in some parts of the organization people are not used to collaborating outside the company border. This kind of collaboration behavior is not yet natural for some individuals and departments, and that there is still quite a lot of work to be done in this

area. Another employee also talked about other employees' lack of experience in working with external companies and partners:

Yeah, that I see [challenges]... I think there are also quite many people that very seldom have contact with outside companies or partners. There are of course the skills and experiences that you get also during the years when you work in some setting with also externals involved. And if you haven't been in such a setting, then of course you haven't gotten that experience.

Furthermore, one employee also talked about information sharing and the challenges that comes with it, also taking into account various cultures:

In the R&D side we think also a lot about these intellectual property rights, and what kind of information we can share and what we can't share. So, there you a little bit develop a skill about how to talk about things without revealing too many technical details... Even after having also this non-disclosure agreement... anyway you need to think about what you are saying. It's kind of a double security in a way also, even you are covered by a paper then information can leak out anyway. Especially when some cultures in the world are not, let's say, they don't regard legal papers as highly as we do in Finland, for example.

One employee also identified resistance by the colleagues in the own department, and pointed out their comfort with the current state of working:

Well, for sure this having these open eyes it's not always easy because people are so used to, also me, to do things as it has been always done, and in my organization most of the people they have been working for quite many years in the same position, so they are really not eager to have some change. So, I believe that is one that might be, or make it a bit difficult.

Other challenges that the employees identified for themselves personally in the implementation phase was too high workload, late information, and a too fast workflow.

The following interviewees describe it as follows:

If you get this info very late, so it's not so good, we should get this info in early stage always. Sometimes it's a problem in [the case company] we get very late the information, even if info is available... This information flow I think it's [the] most important thing, anyway, transparency.

I have a complex view of things and I might have lot of ideas that I want to be taken forward and a lot of details to comment. So, I guess the assumption will... and expectation will be to have a rather fast flow forward and it might be that I would like to break a bit: that could we discuss this and that a bit more.

To sum up, the challenges identified in the implementation stage was challenges related to lack of experience with external collaboration, challenges with information sharing, resistance by employees, challenges related to high workload, challenge with late information, and challenges with a fast workflow.

Sufficient time for developing new skills is recognized as an essential factor in the ability stage (Hiatt, 2006; Gilley et al., 2009; Burke & Barron, 2014). The time factor was identified in the findings, through the stated challenges regarding late information and a fast workflow. Also, according to Prosci Inc. (2019c), competing priorities can control the work schedule of individuals. In the findings, competing priorities was identified since one employee mentioned that if the workload is too high it would prevent the employee from participating in the innovation ecosystem work. As Rosenberg and Mosca (2011) state, an increase in workload is major reason for resistance. Furthermore, the strong current habits (Prosci Inc., 2019c; Hiatt, 2006) was also recognized in the findings as a factor impacting negatively. One employee mentioned that the employees in his or her department are not eager to change, due to long time working in the same position.

5.4.2 Availability of Resources for Implementation

As in the knowledge stage, resources are also important in the ability stage. Mainly, employees had the feeling that there may be a lack of resources for supporting employees learning of new knowledge also in the implementation stage of the innovation ecosystem. One employee said:

Hopefully there is [resources], but I'm little bit afraid that there is not enough, because this is a very important point, to support employees.

Another employee said that the supporting personnel has much more core work to do, due to previous layoffs:

So generally, in last years and last layoffs a lot of the supporting personnel has been kicked out, so it's for sure made things like this more difficult. Those who are left have much more of the, let's say, core work. That they need to take on. So, I think there can be difficulties there.

Another employee also said that if looking at the organization as a whole then there should be enough resources, but if its only connected to the people working directly with the innovation ecosystem, then the resources will not be enough:

I would say that if you managed to build some kind of network so that you can utilize people that are all over the organization, then yes [there are enough resources]. If it will be limited to the [the innovation ecosystem], then no.

One employee pointed out that it's not just a matter of resources, but also the willingness of employees to embrace the information given:

There are of course two parts of it: are there enough resources to share the information and understanding, and then, is there a willingness to adapt and receive the information, and understanding, and new attitudes, and way of working, etc. But maybe it goes so that some people will be more eager than others, and then gradually it may spread, and people get in contact. But maybe there is some lack of resources, I don't know, even though this [innovation ecosystem] maybe is kind of prioritized. I don't have the overview of the resource situation, but, yeah.

Hiatt (2006) state that if sufficient resources are available in the ability stage, an individual's learning process can be improved. In the current state, it seems that there is lack of resources to some extent, since many employees were hesitant regarding the resource situation. Therefore, this is also a factor impacting the change process negatively.

5.5 Reinforcement

Reinforcement is important for a change to be sustained (Hiatt, 2006). Since the innovation ecosystem is in the initial stage of creation reinforcements has not yet carried out. However, to aid the change process for the case company, the interviewees were asked what reinforcement would be most meaningful to them. The interviewees described various reinforcements and incentives for working in the innovation ecosystem, and the main reinforcement that would motivate employees were if they would feel satisfied with their own achievements, one employee said:

So, I would say that the main part is satisfaction with own work, and with joint work, and the result produced.

This employee also mentioned joint work, which was the second most common reinforcement for employees. Namely, if employees would feel that they are able to work together as a team, and the team would achieve something together. Another employee also talked about this reinforcement:

I was thinking more about this kind of better team spirit among the partners working on a project.

The third most common kind of reinforcement mentioned by the employees were if the employee would have the feeling that they are able to contribute and support. As the following two quotes indicate:

Getting the feeling that I'm able to support, because I'm seeing myself as a support function as a part of the process there supporting things, and getting the final targets set and basically achieved.

It helps if, at least it can be a plus, if it's somehow related to my own area of expertise. It doesn't necessarily have to be it. It can be ok just to otherwise contribute to something. At least I want to feel that I am able to contribute.

Three employees also said that personal acknowledgement of progress or achievement by a direct supervisors or colleague would be a meaningful reinforcement. This would increase the motivation, as the following employee describes it:

Personal acknowledgement, yeah, of course, it's nice to hear from your boss: that good job guys, so definitely that motivates... I think it's good to give people credit where credit is due.

On the other hand, two employees felt that public recognition would be an incentive for them. Another reinforcement that was mentioned by two interviewees was rewards. Even though rewarding was not seen as the main motivation for the employees, it was still seen as a strong reinforcement that the employees' action actually brought some real value to the company. The following quote describes this:

Definitely, I think rewards in money are what people value. So even though it's for sure, it's not the main motivation to work. You want to really make good things and succeed, but it's always nice to get rewards and it helps you much more than warm words that: good job guys. When you really see that, ok, in the numbers in your bank account, then you really know that, ok, somebody valued this. So, that's important.

One employee said that the reinforcement for utilizing the innovation ecosystem framework and working in the innovation ecosystem would be if it improved the employees own work:

For me it's simply if it, let's say, drives my work forward, so if it helps me in a positive way then that's the incentive for me to utilize it. If I see the possibilities in it.

Another employee also said that if there is a possibility to create something new together with different people it would act as a reinforcement:

It would be very nice to work with his [innovation ecosystem] and create something new together with different kinds of people, suppliers and with this organization. I don't have any contact with customers, so I can't say anything about that, but in this current position it would be very nice to create something new.

One interviewee also said that a reinforcement would also be if qualitative and constructive feedback would be given:

It's good with feedback, positive feedback... as long as you feel that this is something real and not only empty words. Maybe a bit of other constructive feedback also that here you could maybe develop even further, but yeah, positive feedback is nice.

Being able to achieve results was also seen as one incentive to work in the innovation ecosystem, and one employee also mentioned that group celebrations would be a good reinforcement if not thinking about current world situation with Covid19:

Group celebrations, definitely. I think we have way too little these kinds of group get-togethers and sauna ilta's [evenings] and those kinds of stuff nowadays. Of course, now that there's Covid19, it's not at all, but before March. I think we have too little of these get togethers. Maybe start to know people a little bit on the personal level also and you don't have to be best friends with your colleagues, but spend a little bit time on the, you know, few events a year. Something else than the pikkujoulu [Christmas] party, and so that would be good, I think that would really boost the team spirit.

To conclude, the main reinforcement was related to satisfaction with own work, and the second most common reinforcement was related to teamwork and team achievement. Also, another common reinforcement was that employees wanted to feel that they are able to contribute to something. Other reinforcements were personal acknowledgement

of achievement or progress by a direct supervisor or colleague, but also public recognition, rewards, improvement of own work, ability to create something collectively, learn something new collectively, constructive feedback, seeing results, and group celebrations. Even though this section and the barriers related to it cannot yet be evaluated, it was mentioned by employees that reinforcements and rewards were not a common occurrence in previous changes, and according to Rosenberg and Mosca (2011), one major factor why individuals resist change is the lack of rewards for successful changes. Also, Prosci Inc. (2019d) maintain that reinforcements in the change process are in many cases overlooked. This finding was presented earlier in chapter 5.2.4.

5.6 Improvement Suggestions

The most common improvement recommended for the innovation ecosystem was related to communication and transparency of information and progress. One employee said that the information about the innovation ecosystem should be simple, open and continuously updates as it progresses. It was also mentioned that interviewees would like to receive more detailed information regarding the purpose and concrete examples. One employee suggested:

It would perhaps be to open it up even more. I don't think there are many persons that actually know what the [the innovation ecosystem] is. That would be my recommendation to actually, in a somehow concrete way, picture what is actually going to go on in that place. What is the plan? Because I think the key is to get people on board in order to make this happen.

The same employee also gave a more detailed suggestion on how create a concrete picture of the innovation ecosystem. The suggestion was a short introduction video. In that case, the employee said that it would be beneficial to cut down on the fancy wording and focus more the actual activities that will happen in the innovation ecosystem. For example, what are the facilities about, what is the framework about, who is going to be in the innovation ecosystem, what will be the outcome, and what will happen after the process is finalized. The employee also said that it would be beneficial to get people positive about this change.

In addition, more information related to own department was desired. One employee suggested that the department heads should be the ones forwarding the information to employees at some point. Since they have the best overview of the tasks that the employees are actually conducting, as follows:

I think best would be from the own department heads. Maybe those guys have also the best understanding how in each department the work is being made. So maybe they can also translate it the best to that department.

Another employee suggested that targeted info sessions could be held to provide more department related information, the following quote emphasizes this:

Of course, not all people, for example production, are sitting in front of the computer all day. They're doing something completely different so I think maybe, in that sense, it's a little bit difficult for them to access this kind of information online, so maybe some... I don't know if it would be common or then sort of targeted info sessions from time to time.

Moreover, the interviewees described various ways of communicating and receiving information, such as frequent updates on company intranet, a dedicated innovation ecosystem platform and information by email. The following quote emphasizes that various ways of communicating information about the innovation ecosystem is needed:

I think keep the progress and development visible (pause), transparent, so to say... Try to bring the progress for everyone in [the case company] still, also in the floor level... and not forgetting the different ways of informing and communicating things. Because I think the communication is really the key factor in succeeding in bringing the change for everyone.

One employee also gave the suggestion to network with some other innovation communities or platforms, while one employee recommended to keep the innovation ecosystem and way of working open and flexible. The following quote emphasizes this point of view:

Be careful with restricting too much the way of working there, because as I said in the beginning, if you want to have a creative and innovative environment you need to also give quite a lot of freedom., I hope it's not... will not be limited to just a handful of projects, which highest management kind of decides which will be there.

One interviewee talked about how the company should be patient when it comes to implementing this change in the organization, and another employee also talked about

remembering sufficient planning before bringing external partners into the innovation ecosystem.

To conclude, the recommendations and improvement suggestions given by the interviewees were mainly related to improving the communication and transparency of the information and progress. Also, suggestions, such as networking with other innovation platforms and communities, and keeping the way of working open and flexible were given. In addition, patience in implementing the change in the organization, and sufficient planning before the start of implementation were recommended.

6 Summary and Conclusion

In this chapter, the study is concluded. The study is summarized and the research question is answered. After that, the theoretical contributions and managerial implications are considered. Then, limitations of the study are recognized and suggestions for further research are given.

Research on innovation ecosystems has increased in popularity, yet little focus has been on individuals in the innovation ecosystem environment. The aim of this study was to increase the knowledge about innovation ecosystems from a people perspective. Also, to add to the knowledge regarding innovation ecosystems in their initial stage of creation. The purpose was to give a more detailed account of individuals in an MNC where the change initiative of establishing an innovation ecosystem is started. The main focus of this study was to identify what the employee barriers are in the implementation of an innovation ecosystem. In addition, the secondary focus was to identify why these barriers are present. A research gap was filled in this study, since individual change in the initial stage of innovation ecosystem creation had not previously been studied.

The outcome of this study is the summary of the barriers and underlying reasons for individual change. The summary is introduced in figure 8 and it extends Hiatt's (2006) ADKAR change management model. Since the findings are based on a single case they cannot not be generalized, but it can serve as a base for future research on changes regarding innovation ecosystems. The main barrier currently lies in the knowledge stage of the change process, since the barriers in this stage were identified by most of the employees. The reason for this may be that the company is still in the phase of designing the solution and developing the new systems and processes (see Prosci Inc., 2019b), and have not yet started the implementation to a greater extent. Therefore, is it logical that the largest employee barrier is currently in the knowledge stage. Lack of information was a common reason for the barriers identified, and according to Hiatt and Creasey (2012) it is common that the senders of the change message and the receivers of that message

are not having a dialog in the initial stages, and the message is rather one sided. This seems to be the situation also in the case company.

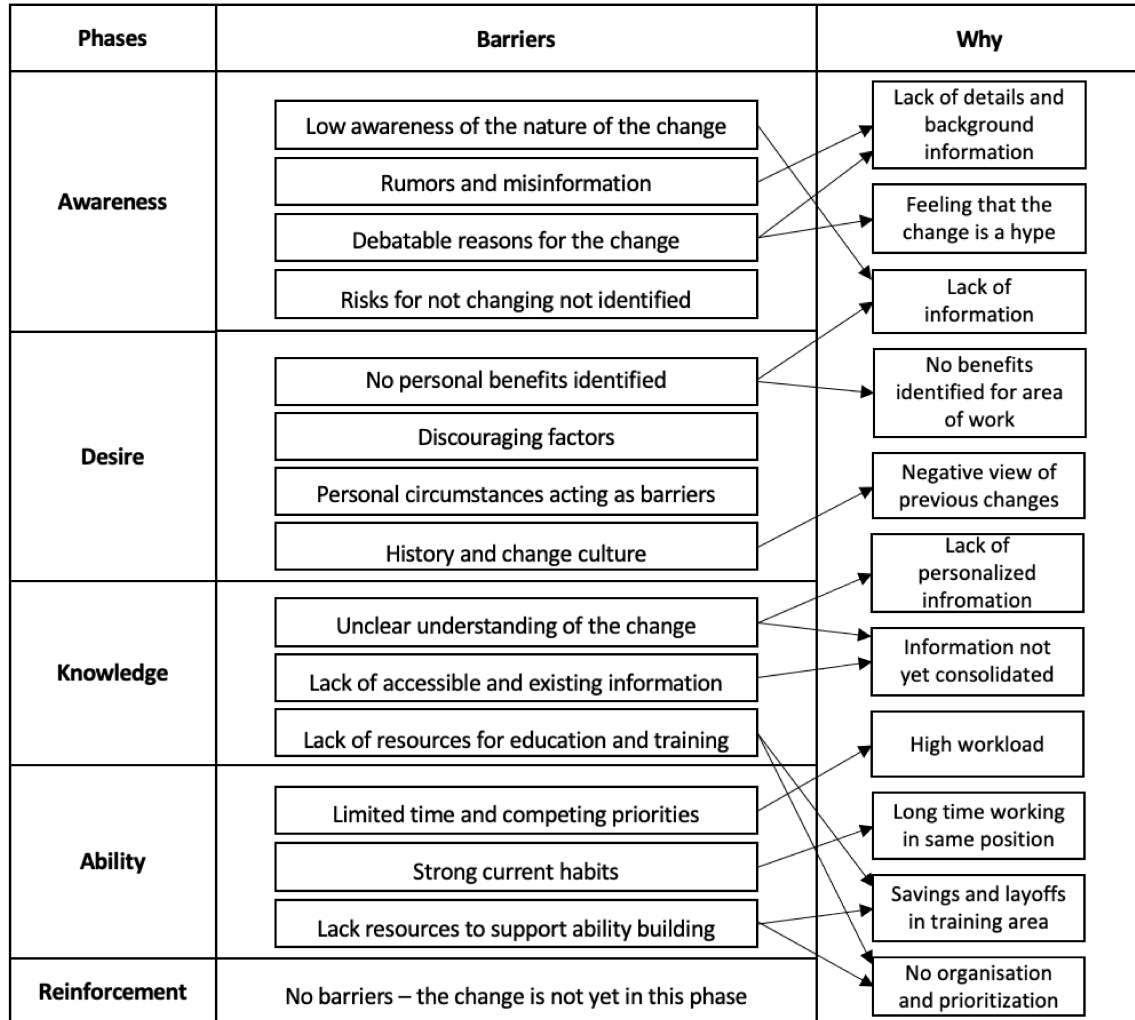


Figure 9. Summary of change barriers and underlying reasons

The study answered the research question and the objectives were met. The main research question was: ‘What are the employee barriers that impact the implementation of new ways of working in an innovation ecosystem, and why?’. The first objective was: ‘To identify where the most significant change barriers for the employees lie in the change process’, and the second empirical objective was: ‘To identify the underlying reasons that hinders the employees progress in the change process.’. The change phases, barriers and underlying reasons for these barriers are summarized in figure 8, which also answers the research question of this study.

6.1 Theoretical Contributions

This research broadens the knowledge of innovation ecosystems. The study answers Durst and Poutanen's (2013) call for more research on innovation ecosystems from the people point of view. Also, the study extends the knowledge on innovation ecosystem in the initial stage of creation, which is a phase of innovation ecosystems that is not yet sufficiently researched (Valkokari, 2015; Autio & Thomas, 2014). Furthermore, this study broadens Hiatt's (2006) ADKAR change management model, which is a framework for facilitating and managing change for individuals. The study confirms many of the factors that create barrier for employees in the change process. Also, the findings in this study extends the ADKAR framework by adding underlying reasons for the presence of the specific barriers. The study provides novel information regarding barriers in the change process of innovation ecosystem implementation. However, as the findings are based on a rather small sample and one single case study it cannot be generalized. Anyhow, it can be a starting point for further research on the topic.

This study confirms Hiatt's (2006) findings that the factors in the awareness stage that impact implementation negatively are rumors and misleading information and questionable reasons for the change. In addition, other barriers found in this stage was a low understanding about the nature of the change and unidentified risks of not changing. According to Hiatt (2006) is it important for individuals to know the risks of not changing. If there are risk related to not changing, it can drive individuals out of their comfort zone and encourage them to change. The underlying reasons for these identified barriers were lack of information, but also the reasoning that the change is a hype. This finding that the change is a hype is specific to innovation ecosystems, in the sense that the concept is relatively new and has increased in popularity. Therefore, it could lead to the feeling that the change is undertaken due to its current popularity. On the other hand, the other factors impacting the awareness stage: comfort with current state, perception of problems, and trustworthiness of the sender (Hiatt, 2006), were not identified in this study. This could be due to the small sample size, but another possible

explanation could also be due to the nature of the change, since many interviewees saw the innovation ecosystem as an interesting opportunity.

In the desire stage of the change, this study confirms Hiatt's (2006) findings that personal circumstances, and an individual's motivators and values have an impact on the change process. Furthermore, the study confirms that the organisational context and success of previous changes impacts the change process negatively if past changes are not perceived as successful, as maintained by Hiatt (2006) and Brunninge (2009). This study also extends Hiatt's (2006) framework, by adding novel information regarding factors that discourage individuals in the innovation ecosystem setting. These discouraging factors identified were lack of resources, restricting area, limiting way of working, bad atmosphere, unclear targets, poor planning, and lack of results. Also, personal situations impacting negatively on the change in the innovation ecosystem setting were physical distance to location of innovation ecosystem, health and poor work relationships. In addition, lack of personal benefits was discovered as a barrier in the change process and also here one reason was lack of information. However, another reason why no personal benefits were discovered was because one interviewee had the opinion that it would not benefit his or her area of work. This is specific to the innovation ecosystem setting, and the projects ongoing in that environment.

As mentioned earlier in this chapter, the main barrier to the change was identified in the knowledge stage. The barriers in this stage were unclear understanding of the change, lack of accessible information, and lack of resources. The findings of this study confirm the factors that impact change in this stage is current level of knowledge, available resources and accessible and existing knowledge, as identified by Hiatt (2006) and Hiatt and Creasey (2012). The unclear understanding of the change and a lack of accessible information were due to the reasons that the information was not seen as personalized enough, and that the information has not yet been fully consolidated by the case company. The reasons for lack of resources was due to the reasons that the support function aiding with training had had layoffs and savings in recent years. Also, lack of organization and prioritization of resources were seen as an underlying reason for the

barrier. Learning capability could not be identified as a factor in this study, since the study was cross-sectional and the change is only in the initial phase.

The factors affecting the ability stage, according to (Hiatt, 2006) was competing priorities and limited time, strong current habits and lack of resources to aid ability building. These factors were identified in this study as well. On the other hand, psychological barriers, physical limitations and intellectual abilities were not confirmed in this study, also here due to the early stage of the change, limited sample, and because the study was conducted cross-sectionally. Competing priorities and lack of time was identified as a barrier, due to the high workload in the supply management department. The reason for strong current habits was because many of the employees had been in the same position for a long time, and therefore were not eager to change. Lack of resources in the ability stage were due to the same reasons as in the knowledge stage, savings, layoff and a lack of organization and prioritization.

6.2 Managerial Implications

This sub-chapter summarizes the improvement suggestions given by the interviewees in the case company. Also, the findings regarding reinforcements suggest what type of reinforcements employees consider meaningful. This also has managerial implications. Since this study is based on a single case, the managerial implications are regarding the case company that the findings are based on. However, the recommendations may also be useful for other actors in an innovation ecosystem setting.

The most common suggestion given by the employees was to improve the communication regarding the innovation ecosystem internally in the case company. The employees wished for increased transparency and frequent updates regarding the progress of the innovation ecosystem. Furthermore, concrete examples and additional information regarding the purpose of the innovation ecosystem was also wished for. Moreover, employees suggested that personalized information for different departments would be beneficial and that this information could be communicated, for example, by the head of department. Concrete examples given for improving

communication were targeted information sessions, frequent updates on company intranet, a dedicated platform for the innovation ecosystem, information by email, and a short introduction video regarding the innovation ecosystem.

In addition, it was suggested that networking with other innovation platforms or communities could be useful. Moreover, it was recommended to keep the way of working in the innovation ecosystem open and flexible. Patience when implementing this change in the organization was recommended, and also sufficient planning before bringing external partners to collaborate in the innovation ecosystem. These improvement suggestions are presented in more detail in chapter 5.6.

Based on the findings on what reinforcements employees considered meaningful, the case company is advised to take the different kinds of reinforcement into consideration. Reinforcements can occur during the process, but also at the end on the change process. The reinforcements indicated by the employees were satisfaction with own work and feeling of being able to contribute, teamwork and team achievement, personal acknowledgement, public recognition, rewards, improvement of own work, ability to create something collectively, learning something new, good and constructive feedback, group celebrations, and seeing results. More details regarding the reinforcements are presented in chapter 5.5.

6.3 Limitations and Suggestions for Further Research

This study has its limitations, as all studies. The most notable limitation of this study is that it is based on a single case with a rather small sample. Therefore, the findings cannot be generalized to all employees undergoing the change to work in an innovation ecosystem. In addition, only supply management and R&D departments were studied and employee barriers may differ in different departments, professions, and companies. Furthermore, the study was conducted in the context of a Finnish MNC, and experiences and opinion may differ in other countries and different sized companies, such as start-ups or SMEs. In addition, this study was conducted as cross-sectional in the initial stage of innovation ecosystem creation. This is a limitation in the sense that the change

process is not finalized. The answers may vary, for example, at the end of the implementation of the innovation ecosystem.

The previously mentioned limitation invites further research on the subject. Future research on the topic could be conducted in different contexts. For example, in different kinds of organizations, such as start-ups, SMEs, NGOs or governmental institutions that are going to be actors in an innovation ecosystem. Also, the finding could be tested in different countries and with people of different nationalities. Also, future research could be conducted quantitatively so that a larger sample could be obtained.

Since this study focused on innovation ecosystems in the initial stage of creation, a suggestion for future research is to investigate the topic of innovation ecosystems from a people perspective once change process is finalized. This would give an overview of the whole change process. Moreover, this could reveal the employee barriers that are present in a more mature innovation ecosystem.

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Appendix. Interview Guide

Background Questions

1. What is your current position in the company? What type of work do you do?
2. How long have you been employed by the company?
3. How old are you?
4. What is your educational background?

The Innovation Ecosystem

5. Could you briefly describe what you know about the innovation ecosystem?
6. What do you think is the purpose of establishing the innovation ecosystem? Why is this change needed?
7. Do you think the reasons for establishing the innovation ecosystem are valid?
8. From where have you gotten information about the innovation ecosystem?
9. Do you feel that the information is currently coming from the right place?
10. How would you like to receive additional information about the innovation ecosystem? How would you like to receive information about...
 - a. ...why this change is being made?
 - b. ...how this change could impact you personally?
11. What do you think could be the benefits of establishing the innovation ecosystem for the organization?
12. Do you see any potential risks if the innovation ecosystem does not become successfully implemented? If yes, what kind of risks?
13. Do you think working in the innovation ecosystem could benefit you personally? Why, why not?
14. What would motivate you to work in the innovation ecosystem?
15. Are there any reasons why you would not like to work in the innovation ecosystem?

16. Are there currently any personal circumstances that would...
 - a. ...drive you towards working in the innovation ecosystem?
 - b. ...hold you back from working in the innovation ecosystem?

17. What knowledge, skills and behaviors do you think you would need to take part in the new way of working in the innovation ecosystem?
 - a. Do you feel that you have a clear understanding of these knowledge, skills and behaviors?
 - b. To what extent do you think you are able to implement these knowledge, skills and behaviors in the innovation ecosystem?
 - c. Do you see any challenges in implementing the previously mentioned knowledge, skills and behaviors?

18. Would you say there is sufficient information available regarding...
 - a. ...processes and techniques to be used in the innovation ecosystem?
 - b. ...systems and tools to be used in the innovation ecosystem?
 - c. ...skills and behaviors needed in the innovation ecosystem?
 - d. ...job roles and responsibilities for working in the innovation ecosystem?

19. Do you think there are enough resources available in the organization to...
 - a. ... provide training on the aspects mentioned in question 18?
 - b. ... support employees learning of the new knowledge, skills and behaviors?

20. What would be a meaningful and relevant reinforcement for working in the innovation ecosystem to you? What incentives would motivate you to work in the innovation ecosystem?

Changes in the Organization

21. Have you been a part of previous changes in the company? If yes,
 - a. What kind of changes?
 - b. Were those changes successfully implemented?
 - c. Were those changes rewarded in some way after they were completed?

22. Do you think the company overall is good at implementing new changes?

Improvements

23. What improvements would you recommend for the new the way of working in the innovation ecosystem, or recommendations for the innovation ecosystem in general? If any.