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Innovation Handovers: Investigating and Explicating the Phenomenon

A Cross-Case Analysis of Four Firms Across Industries

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Submission date: June 2017
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PROBLEM DESCRIPTION

Innovation is imperative for organizations; yet new product developments fail at an alarmingly high rate. We address “innovation handovers” as a potential cause of innovation failure. Given the complexity and interdisciplinary nature of many innovation projects, we believe that researching how innovation projects are handed over between various organizational units, can contribute to a better understanding of why and how innovation activities fail. In this master thesis we seek to define and explicate the heretofore-underexplored phenomenon of "innovation handovers", and investigate how such handovers are carried out in practice, as a part of companies’ innovation processes. This master thesis forms the pre-study for a joint research project between faculty members at the Norwegian University of Science and Technology, the Faculty of Management at Harvard Business School, and the Marriott School of Management at Brigham Young University.

PREFACE

This master thesis is the concluding work of our Master of Science degree at the Norwegian University of Science and Technology (NTNU). This thesis has been written during Spring 2017, within the specialization of Strategy and International Business Development, at the Department of Industrial Economics and Technology Management. The master thesis is linked to an upcoming joint research project between faculty members at the Norwegian University of Science and Technology, the Faculty of Management at Harvard Business School, and the Marriott School of Management at Brigham Young University. We have aimed to lay the groundwork for future research, as this thesis is a pre-study for this joint research project. We would like to thank our supervisor Alf Steinar Sætre for guidance, discussion and feedback throughout the process. Your enthusiasm and interest has inspired our work with the master thesis. We also wish to thank our case companies and the 22 interviewees for their time and contributions.

Trondheim, June 20, 2017.
Oda Dregelid and Sofie Rud Zimmer

EXECUTIVE SUMMARY

The objective of this Master's thesis is to define, explicate and investigate the heretofore-underexplored phenomenon of innovation handovers. Given the complexity and interdisciplinary nature of many innovation projects, we believe that researching how innovation projects are handed over between various organizational units, will contribute to a better understanding of why and how innovation activities fail. Based on literature on handovers in other industries, along with innovation and organizational literature, we have developed a conceptual framework. This framework has structured the empirical investigation in this thesis, where we have performed a qualitative cross-case study on how innovation handovers are carried out in practice, as a part of companies' innovation processes. Here, employees from four Norwegian companies, across industries, have been interviewed.

Our findings indicate that innovation handovers have prevalence, and give insight into how innovation handovers are carried out in practice. Despite the case companies' differences in business models, practices, and innovation work, all case companies have innovation handovers, where a transfer of information, responsibility and/or control for an innovation project occurs between organizational units. We have found that innovation handovers are not straightforward, linear or easy, and should rather be described as an iterative process. Innovation handovers are found to occur both within companies, and with external actors. Further, the execution of innovation handovers varies, and is tightly linked to how the companies structure their innovation work. Here, we have identified tradeoffs between the extent of integration and the number of handovers, and between formalization and flexibility. Also, we found that innovation handovers are highly influenced by factors in the organizational context in which they occur.

In our study, we have identified several challenges that companies face in innovation handovers: different motives, goals, and ways of thinking; ambiguity; lack of psychological ownership and commitment; poor communication; inadequacies in management and leadership; an unsupportive cultures and climates. If these challenges are not overcome, the innovation project can be developed in wrong directions, die out or be terminated. Our study shows that the case companies overcome these challenges through employee involvement, key employees, and goal alignment.

As an exploratory case study, the findings in our thesis prepare the ground for further research. We suggest further research to determine our findings applicability beyond the limitations of our sample. Also, we suggest further research to improve our understanding of innovation handovers, and their relationship to the contexts in which they occur.

SAMMENDRAG

Målet med denne masteroppgaven er å definere, forklare og undersøke overleveringer i innovasjonsprosesser. Sett i lys av kompleksiteten og tverrfagligheten som kreves i mange innovasjonsprosjekter, ønsker vi å undersøke hvordan innovasjonsprosjekter blir overlevert mellom ulike organisasjonsenheter. Dette mener vi vil bidra til en bedre forståelse av de underliggende årsakene til at innovasjonsprosjekter mislykkes. Med utgangspunkt i litteratur som omhandler overleveringer innenfor en rekke andre industrier, samt innovasjons- og organisasjonslitteratur, har vi utviklet et konseptuelt rammeverk. Dette rammeverket har fungert som struktur for det empiriske studiet i denne oppgaven, hvor vi har utført en kvalitativ studie av hvordan overleveringer av innovasjonsprosjekter utøves i praksis, som en del av bedrifters innovasjonsprosesser. I denne forbindelse har vi intervjuet ansatte fra fire norske bedrifter i forskjellige bransjer.

Våre funn tyder på at overleveringer av innovasjonsprosjekter er et utbredt fenomen. Funnene gir også innsikt i hvordan slike overleveringer utøves i praksis. Til tross for at case-bedriftene har ulike forretningsmodeller, praksiser og tilnærminger til innovasjon, har vi sett at alle case-bedriftene har overleveringer av innovasjonsprosjekter, som en del av sine innovasjonsprosesser. I disse overleveringene skjer en overføring av informasjon, ansvar og/eller kontroll for et innovasjonsprosjekt mellom organisasjonsenheter. Videre har vi funnet ut at overleveringer av innovasjonsprosjekter hverken er lineære eller enkle, og heller bør forstås som en iterativ prosess. Det skjer overleveringer av innovasjonsprosjekter både innad i bedriftene, og med eksterne aktører. Våre funn viser at det er forskjeller i utøvelsen av slike overleveringer, og at dette er tett knyttet opp mot bedriftenes strukturer for innovasjonsarbeid. Vi har identifisert at bedriftene er nødt til å inngå kompromiss mellom grad av integrasjon i innovasjonsarbeidet og antall overleveringer, samt mellom grad av formalisering og fleksibilitet. Funnene i studien tyder også på at overleveringer av innovasjonsprosjekter påvirkes av en rekke faktorer i den organisatoriske konteksten der slike overleveringer forekommer.

I vår studie har vi sett at case-bedriftene står overfor en rekke utfordringer i overleveringer av innovasjonsprosjekter: ulike motiver, mål og tankesett; tvetydighet; manglende følelser av eierskap og engasjement; utilstrekkelig kommunikasjon og ledelse; samt kulturer og klimaer

som ikke støtter oppunder overlevering. Hvis man ikke klarer å håndtere disse utfordringene i forbindelse med overleveringer, har vi sett at innovasjonsprosjekter kan utvikles i feil retning, dø ut eller stoppes. Case-bedriftene har håndtert disse utfordringene ved å involvere ansatte, ved hjelp av nøkkelpersoner og ved å sikre felles mål.

Denne masteroppgaven har lagt et godt grunnlag for videre forskning. Videre studier bør undersøke gyldigheten av funnene, utover denne studiens begrensninger, samt ha som formål å ytterligere øke forståelsen av overleveringer av innovasjonsprosjekter.

TABLE OF CONTENTS

1 INTRODUCTION

To survive in today's increasingly competitive marketplace, it is imperative for organizations to succeed with innovation activities (Amabile, 1997; Cooper, 1990; Dul & Ceylan, 2014; Dyer & Song, 1998; Edmondson & Nembhard, 2009; Garvin & Levesque, 2006). A market characterized by rapid changes, high complexity and high turbulence (Vollmer, 2015; Boland & Tenkasi, 1995) forces organizations to "drive new products from idea to market faster and with fewer mistakes" (Cooper, 1990, p. 44). Thus, succeeding with innovation is key for businesses in order to achieve sustained growth and competitive advantage.

Consequently, many researchers have tried to understand the phenomenon of innovation. The literature on innovation contains a large variety of topics, and a wide range of approaches. In particular, researchers have tried to understand how to generate successful ideas and promote creativity (Amabile, 1997, Amabile & Khaire, 2008; Dyer & Song, 1998); how to manage ambiguity (Brun & Sætre, 2008; Brun, Sætre & Gjelsvik, 2008; Gupta, Raj & Wilemon, 1986; Sætre & Brun, 2012) ; how to optimize the process of innovation (Cooper, 1990; Buijs, 2003; Rekonen & Björklund, 2016; Rice, Leifer, & O'Connor, 2002; Beckett & Hyland, 2011); and how to successfully implement new innovative products and services (Baer & Frese, 2003; Buijs, 2003; Damanpour & Schneider, 2006; Fidler & Johnsen, 1984; Rekonen & Björklund, 2016). From this, multiple models, frameworks and theories on how to succeed with innovation have been developed (Buijs, 2003; Cooper, 1990; Dias, Pedrozo, & Silva, 2014; Waldman & Bass, 1991).

New product developments fail at alarmingly high rates (Buijs, 2003; Cooper, 1990; Dougherty, 1992; Garvin & Levesque, 2006; Ogawa & Piller, 2006; Rekonen & Björklund, 2016). Ogawa and Piller (2006) state that newly launched products suffer from failure rates, often reaching 50% or greater. Thus, a large share of innovation investments turns out to be unsuccessful. To avoid costly product failures, researchers continue to investigate how to reduce the risks of new product development. In this regard, communication failures; different ways of thinking, multifunctional teamwork and departmental interfaces (Dougherty, 1992; Edmondson & Lei, 2014; Gupta et al, 1986); organizational routines and organizational culture acting as barriers (Dougherty, 1992; Feldman & Pentland, 2003; Kanter, North, Richardson, Ingols, & Zolner, 1991; Souder, 1988); lack of goal congruence (Moenaert,

Caeldries, Lievens, Wauters, 2000); tough transitions between phases in the innovation process (Rekonen & Björklund, 2016; Rice et al., 2002); and poor management (Bledow, Frese, Anderson, Erez, & Faraj, Yan & Kozlowski, 2009; Waldman & Bass, 1991; Tatikonda & Rosenthal, 2000) have been highlighted as possible root causes of innovation failures.

How innovation projects are handed over between various organizational units during the innovation process is another possible cause of innovation failures. Sætre, LeBaron and Edmondson (2016) suggest studying such "innovation handovers", as these handovers have potential importance for innovation outcomes: "Given the complexity of many innovation projects, it seems reasonable that failures in how innovation projects are handed off between various organizational units, may be the root of many innovation failures" (p. 1). In previous literature, we find that occurrence of such handovers in the innovation process is clearly implied, from Cooper's (1990) stage-gate-model, to the concept of absorptive capacity of Cohen and Levinthal (1990). Also, we find that scholars have touched upon the phenomenon by studying transitions in innovation processes (Beckett & Hyland, 2011; Rekonen & Björklund, 2016; Rice et al., 2002), especially the transition from product development to implementation (Baer & Frese, 2003; Buijs, 2003; Damanpour & Schneider, 2006; Fidler & Johnsen, 1984; Rekonen & Björklund, 2016; Sundström & Zika-Viktorsson, 2009). Nevertheless, the phenomenon of "innovation handovers" has not been directly addressed in previous literature, and is of great interest.

In this master thesis, we address this gap concerning innovation handovers, as first introduced by Sætre et al. (2016), by performing a qualitative cross-case study, where a set of employees from four Norwegian firms were interviewed. This master thesis is linked to a joint research project between faculty members at the Norwegian University of Science and Technology, the Faculty of Management at Harvard Business School, and the Marriott School of Management at Brigham Young University.

This study builds on our own project theses, written during the fall of 2016. In this project thesis, we sought to define and explicate the phenomenon through a literature review. Due to the lack of literature on handovers in the innovation context, we here explored literature on handovers in other industries, including health care, nuclear power plants, NASA, and emergency dispatch centers. This led to the identification of a set of factors that influenced handovers within these industries. We found that all these handovers were executed in

contexts described as complex, dynamic, and of high risk, and highly affected by organizational structures (Cohen & Hilligoss, 2010; Hilligoss and Cohen, 2011; Hilligoss & Moffat-Bruce 2014; LeBaron, Christianson, Garrett, & Ilan, 2016; Mumaw, Roth, Vicente, & Burns, 2000; Patterson, Roth, Woods, Chow, & Gomes. 2004; Sutcliffe, Lewton, & Rosenthal, 2004). As these context characteristics are also found to be prevalent for innovation processes (Boland & Tenkasi, 1995; Cooper, 1990; Dias et al., 2014; Dougherty, 2001; Edmondson & Nembhard, 2009; Rekonen & Björklund, 2016, Rice et al., 2002), we wanted to further explore these factors in an innovation context, through organization and innovation literature, to get insight about what factors that might also influence innovation handovers. From this, we identified a set of additional factors in the organizational context, which we expected would have influence on innovation handovers. These factors were both highlighted as important for innovation work in literature and emphasized in the interviews.

In this master thesis, we have developed a conceptual framework for innovation handovers. The main intention of this conceptual framework has been to provide a structure for understanding innovation handovers, and is therefore an attempt towards describing and delineating an innovation handover and all the factors that are expected to influence such handovers. In this master thesis, we will investigate innovation handovers through a qualitative cross-case study of four Norwegian firms in different industries, based on the conceptual development and insight from the preceding project thesis. A qualitative study has been chosen for this master thesis, as it is considered to be the most appropriate research design for nascent theory (Edmondson & McManus, 2007). Through interviews with employees of different positions, in four companies in different industries, we hope to be able to gain insight into the phenomenon of innovation handovers. To guide our research we have developed the following research question:

How are innovation handovers carried out in practice, as a part of companies' innovation processes?

To address this research question, we first investigate between which departments, teams or units innovation handovers occur; at what phase of the innovation process these handovers occur; and the course of events for what happens in these handovers. Second, we investigate how: teamwork, management and leadership, routines, communication, culture and climate, mental models, and psychological ownership, influence innovation handovers. By

investigating how these factors in the organizational context influence innovation handovers, we hope to gain a better understanding of the phenomenon, and thus be more capable to explicate how innovation handovers are carried out in practice. As innovation handovers are a possible root of innovation failures, such handovers have potential importance for innovation outcomes (Sætre, LeBaron and Edmondson, 2016). Thus, this study represents a possibility for increased innovation effectiveness. As a result, a better understanding of innovation handovers can potentially be of high value for companies.

2 CONCEPTUAL BACKGROUND

In this chapter we present the conceptual background for our thesis. We explore literature, define the phenomenon of innovation handovers, and develop a conceptual framework.

2.1 The Concept of Innovation

Fundamentally, innovation concerns the development of something new. This requires "solving of complex, ill-defined problems requiring the generation of novel, useful solutions" (Rekonen & Björklund, 2016, p 112). We adopt the definition of Van der Ven (1986), who defines innovation as: " the development and implementation of new ideas by people who over time engage in transactions with others within an institutional context (p. 590). Here, noting how an innovation exists from idea to implementation, and that the transactions are the exchanges that tie people together within the organization. In other words, innovation concerns solutions to problems or needs, which are developed by people in organizations, who commit over time.

Further, innovation requires a combination of creativity, feasibility and demand. Developing new solutions requires a certain amount of creativity (Amabile, 1997; Amabile & Khaire, 2008; Rekonen & Björklund, 2016). March & Simon (1993) compare the first step of innovation to the intellective processes of problem-solving, productive thinking, creative thinking and invention. Also, innovation consists of the evaluation and implementation of these ideas and solutions. For innovations to be value adding, they need to be successfully implemented and introduced to the marketplace, or in the organization for internal use (Buijs, 2003). Thus, each innovation project requires creativity combined with "technical feasibility and market demand recognition and interpretation" (Gupta, Raj, & Wilemon, 1986, p. 8). In other words, the creative features of the innovation project must be feasible, and meet an actual demand. In order to succeed with innovation, creativity, feasibility and demand must be integrated - and handovers mark the points of these interfaces in the innovation process.

2.2 The Process of Innovation

Many scholars have tried to understand innovation as a process. The literature provides a wide variety of descriptions, terminologies, frameworks and models that attempt to explain organizational innovation activities. To illustrate, Buijs (2003) refers to a comparison of 90 different innovation models, where out of a terminology of 1,248 terms, 54 unique innovation activities were identified. Many scholars also describe the innovation process to have different phases. The innovation process is commonly described to consist of three phases: a front-end or idea phase; a development or R&D phase; and a commercialization, operationalization or implementation phase (see e.g. Buijs, 2003; Rekonen & Björklund, 2016). Despite many attempts at describing and categorizing the innovation process, it is important to realize that the "innovation process is a set of different, parallel, competing and conflicting processes which all occur at the same time" (Buijs, 2007, p. 204), and is highly dependent on the specific situation (Buijs, 2003). In other words, the innovation process is typically not straightforward.

Many scholars have addressed the importance of innovation process management in order to succeed with innovation work (Beckett & Hyland, 2011; Brun et al., 2008; Cooper, 1990; Rekonen & Björklund, 2017; Rice et al., 2002). The stage-gate model of Cooper (1990) is perhaps one of the most recognized frameworks in this context. The stage-gate model provides a roadmap to facilitate innovation projects, and helps organizations define the objectives and tasks of the innovation project. The model includes evaluation stages, for quality assurance and resource prioritization during the process. However, "traditional stage-gate models, with their formal, sequential, and linear nature, have been argued to be less than suitable for managing projects in contexts of high levels of uncertainty and rapidly changing environments" (Brun et al., 2008, p. 303). Scholars have specifically found that managing transitions between phases in the innovation process is tough (Beckett & Hyland, 2011; Rekonen & Björklund, 2016; Rice et al., 2002). Rekonen and Björklund (2016) find that the transition between the fuzzy front end and product development is challenging. The while Rice et al. (2002) find that also the transition from the product development phase to operationalization is difficult. Further, Beckett and Hyland (2011) identify that "innovation processes are rarely smooth and disruptions often occur at transition points, were one knowledge domain passes the technology onto another domain" (p. 1). Scholars have also emphasized the need to support managers in transitioning between different innovation phases

(Amabile & Khaire, 2008; Beckett and Hyland, 2011; Rekonen & Björklund, 2016; Rice et al., 2002), and pointed to such transitions between phases in the innovation process as crucial for innovation outcomes. Amabile and Khaire (2008) bring forth what they term the "commercialization handover": "Eventually, an innovation reaches a point where it will be best served by people who know how to take it to market. Unfortunately, since the passion for an idea is highest among its originators, projects often lose steam at the handover" (p. 105). On the whole, this encourages our study of innovation handovers as a phenomenon that often occurs in the transition between phases of the innovation process, as first suggested by Sætre et al. (2016).

Innovation is typically a multidisciplinary process. Composing teams of members with different knowledge and technological specialization is increasingly popular for organizations that work with innovation (Amabile & Khaire, 2008; Edmondson & Nembhard, 2009). "Requisite knowledge for new products is ... multi-faceted, multi-leveled, and detailed" (Dougherty, 1992, p. 181). As a result, new product development teams can consist of specialists within engineering, design, production, logistics and marketing, which might increase complexity and present a set of challenges. These challenges are related to limited cognition (Boland & Tenkasi, 1995; Dougherty, 1992), communication (Beckett & Hyland, 2011; Boland & Tenkasi, 1995), and organizational routines (Dougherty, 1992. In other words, team members from different specializations can have different understandings and perceptions of a problem, can find it hard to communicate, and adjust their work behaviours to one another, which might complicate multidisciplinary teamwork. Accordingly, the innovation process holds a multitude of disciplinary interfaces, which need to be handled in order to succeed with innovation. Especially, the R&D-marketing interface is identified as critical (Dyer & Song, 1998; Gupta et al., 1986; Hise, O'Neal, Parasuraman, & McNeal, 1990; Moenaert, Souder, De Meyer, & Deschoolmeester, 1994; Souder, 1981; 1988), where Dougherty (1992) emphasizes that: "The development of commercially viable new products requires that technological and market possibilities are linked effectively in the product's design" (p. 179). From this, Sætre et al. (2016) identify handovers as key events in the multi-disciplinary and multi-interfaced collaboration throughout the innovation process.

2.3 Innovation Handovers

Innovation is a complex and complicated process, which represents a large challenge for organizations. Innovation projects often take months, or even years to complete (Sætre et al., 2016), and are characterized by some periods of stability and clarity, and others of creativity, ambiguity and uncertainty (Rekonen & Björklund, 2016). Hence, the needs of innovation projects change as the process evolves (Kim and Wilemon, 2002; Rekonen & Björklund, 2016). This leads to new tasks, different knowledge and resource requirements, and changes in responsibility and authority as the innovation process unfolds. We expect that these changes, adjustments and developments of the innovation project might occur through handovers between different organizational units, often coinciding with transitions between phases in the innovation process.

2.4 Studying Handovers in Other Industries

To be able to understand the innovation handover phenomenon, we have looked to studies of handovers in other industries. Mainly, we have investigated literature on handovers within healthcare, but literature on handovers in other industries, such as nuclear power plants, NASA and emergency dispatch centers has also been studied. All these handovers are executed in complex, high risk and dynamic contexts, enabled and constrained by various organizational structures (Cohen & Hilligoss, 2010; Hilligoss and Cohen, 2011; Hilligoss & Moffat-Bruce 2014; LeBaron et al., 2016; Mumaw et al., 2000; Patterson et al., 2004; Sutcliffe et al., 2004). These context characteristics are also found to be prevalent for innovation processes (Boland & Tenkasi, 1995; Cooper, 1990; Dias et al., 2014; Dougherty, 2001; Edmondson & Nembhard, 2009; Rekonen & Björklund, 2016, Rice et al., 2002), and thus believed to be relevant for the study of innovation handovers. We believe that by investigating how handovers are conducted in other settings with similar characteristics, factors with relevance for innovation handovers can be identified. In this section, we first give a general overview of the literature on handovers in other industries. Second, we thematically present the relevant findings from this literature.

Understanding Handovers in Other Industries

Handovers within healthcare include the transfer of information, control and responsibility for patients. These patient handovers occur between physicians as a part of shift changes. The literature provides multiple, nuancing descriptions of the phenomenon of patient handovers, and points out closely related names such as “sign-out”, “sign-over”, or “handoff” (Cohen et al. 2012). Cohen and Hilligoss (2010) define patient handovers as “the exchange between health professionals of information about a patient accompanying either a transfer of control over, or of responsibility for, the patient.” (p. 494). This definition entails both the aspect of information exchange or communication, and the aspect of control or responsibility transfer, which are aspects that frequently recur in literature on handovers within healthcare. However, the literature holds a variety of studies and focuses towards such handovers.

In healthcare literature, handovers are studied from different perspectives. These include studying handovers as routines, as critical for communication, and as an encounter between different mental models. For instance, LeBaron et al. (2016) “draw on routine dynamics and ethnomethodology to examine how intensive care unit (ICU) physicians coordinate their actions, flexibly yet intelligibly, as they handover patients at change of shift” (p. 1). In other words, the handovers are understood as flexible routines. In contrast, Cohen and Hilligoss (2010) perform an extensive literature review on handovers in hospitals focusing on standardization. Further, Sutcliffe et al. (2004) identify handovers as a critical point in communication between physicians, and found that communication failures often contributed to medical mishaps. Cohen, Hilligoss and Amaral (2012) study handovers focusing on differences and similarities in ways of thinking, here referred to as mental models, and use social science literature to understand how handovers can be characterized as co-constructions of an understanding of a patient. Also, Hilligoss and Moffat-Bruce (2014) conduct a literature review where they focus on the cognitive aspects of handovers. From the literature on handovers in healthcare, we realize that handovers can be understood from a wide variety of perspectives.

Similar perspectives also recur in the studies of handovers within other industries than healthcare. For example, Mumaw et al. (2000) present an empirical study of nuclear power plant (NPP) operation, focusing specifically on the cognitive aspects of monitoring during normal operating conditions and the challenges related to shift turnovers between operators.

Further, Patterson et al. (2004) perform an empirical study of handovers in four different settings: NASA Johnson Space Center; nuclear power generation plants; a railroad dispatch center; and an ambulance dispatch center, where the main focus is communication. Here, communication strategies employed during handovers in shift changes are studied and described in the different settings. In brief, also handovers in other industries are studied from similar perspectives as studies within healthcare.

In all the studied industries handovers represent high risk of errors and mishaps. Within healthcare, Cohen and Hilligoss (2010) emphasize how: "These crucial points of discontinuity [handovers] seem likely to entail potential increases in patient risks" (p. 493). Correspondingly, Cohen et al. (2012) found that handovers were implicated in 28% of surgical errors, and 20% to 24% of malpractice claims. Also in the contexts of NPP, NASA, and emergency dispatch centers handovers are highlighted as a critical element (Mumaw et al., 2000; Patterson et al., 2004). Handovers have been associated with potential increases in risk, errors, mishaps, and malpractice, and are found to be a critical element in a variety of operations and processes within different industries. Based on this, we seek a further understanding of factors that influence such handovers, in order to gain an insight into the factors that might influence handovers within innovation.

Factors Influencing Handovers in Other Industries

In this section, we thematically explore the most recurring factors in the literature on handovers within health care, NPP, NASA, and emergency dispatch centers, which were found to influence handovers. In brief, by exploring literature on handovers within these industries, we find that it is important not to underestimate a handover as a complex, cognitive and social process, influenced by factors such as communication, mental models, routines, teamwork, management and leadership, and culture and climate.

Communication

Communication is highlighted as one of the main factors that influence handovers. Patterson et al. (2004) highlight how: "information needs to be accurately communicated during patient handovers to meet quality and safety goals" (p. 125). Sutcliffe et al. (2004) emphasize that

mode of communication often is decisive for task outcome, and find that communication failures were associated, or contributed, to 91% of all the investigated medical mishaps. Further, they stress: “Poor communication is not simply the result of poor transmission or exchange of information. Communication failures are far more complex and relate to hierarchical differences, concern with upward influence, conflicting roles and role ambiguity, and interpersonal power and conflict” (Sutcliffe et al., 2004, p. 186). Hilligoss and Cohen (2011) add to this, by underlining how handovers must be seen as more than a simple one-way transmission of information. Lastly, LeBaron et al. (2016) found that outgoing physicians could not share everything they knew about each patient in the handovers: “they tried to handoff the information that was most important, in a way that was mutually intelligible” (p. 6). Also, the study of LeBaron et al. (2016) revealed that for the receiving party: “Too much information was as problematic as too little” (p. 8). In sum, communication is identified as a key factor, which has influence on handovers, and that needs to be investigated in the context of innovation.

Mental models

The participants’ cognitive capacities and mental models affect the effectiveness of handover communication. Here, mental models refer to “how knowledge is stored in memory and how it changes when faced with new information” (Cohen et al. 2012, p. 2), and thus describe the individual's’ construction of knowledge due to limited cognition (March & Simon, 1993; Rook, 2013). Cohen et al. (2012) argue that regarding mental models, there exist two possibilities in handovers: “the mental models of participants are either different or similar” (p. 2). Having similar or different mental models is not decisive in it self, but that what really matters is how mental models are handled during handovers. Here, it is crucial to be aware of what the other party knows or does not know (Cohen et al., 2012). In a handover between participants of similar mental models it is likely that the transfer of information is easier, than in a handover between participants of different mental models. When different mental models are present in a handover, this requires more time for explanation in order to achieve mutual intelligibility. However, “more discussion and argumentation [as in the case for different mental models] can, indeed, generate new possibilities for patients, leading to the co-construction of clinical understanding” (Cohen et al., 2012, p. 2). Hilligoss and Moffat-Bruce (2014) draw on both paradigmatic- and narrative modes of thinking, in order to gain a better understanding of the role of cognition and mental models in patient handovers. Here, each

thinking, increase the likelihood of overlooking improvement opportunities, and run the risk of introducing unintended side effects (Hilligoss & Cohen, 2011; Hilligoss & Moffat-Bruce, 2014). Despite being recognized as a critical point, Patterson et al. (2004) recognize the potential benefits of handover routines: "During a handover, the person who is accepting responsibility has a fresh perspective, which has been shown to increase the detection of fixation errors" (p. 125). To conclude, the flexible nature of handover routines can have both detrimental and beneficial effects.

Other factors

In addition to communication, mental models and routines, other factors that are less prominent in literature on handovers in other industries, but yet of possible relevance for innovation handovers, are also identified. These include teamwork, management and leadership, and culture and climate. First, both the social and relational aspects of handovers, and the coordinative action of handovers, have been highlighted to influence collaboration and teamwork (LeBaron et al. 2016; Sutcliffe et al. 2014). Second, Sutcliffe et al. (2004) found that patient handovers occur in a complex system with "horizontal differentiation of labor, vertical divisions of hierarchy and power" (p. 184). Therefore, handovers are affected and influenced by management to some extent, despite the fact that "physicians had a lot of autonomy in conducting handovers" (LeBaron et al., 2016, p. 6). Third, Cohen & Hilligoss (2010) point to organizational culture in their study, emphasizing that handovers are deeply embedded in the organizational culture and subcultures: "Although individuals may decide for themselves how they want to communicate, their behavior is likely to be constrained by the norms of their particular professional subculture" (p. 496). Further, LeBaron et al. (2016) found that coordination activities, such as questioning, repairing, and hesitating, were an important part of hospital handovers. Such coordination activities were pivotal in order to reveal that something was wrong, and needed to be changed before proceeding with the handover. Such actions are found to be dependent on the organizational culture and climate, and this factor is therefore found to be relevant in order to gain an understanding of innovation handovers. On the whole, since these factors influence handovers in other industries, we expect that they also might have influence on innovation handovers.

mode represents unique ways of ordering experience and constructing knowledge, where the paradigmatic (also 'logico-scientific') is categorical, logical and of low flexibility, and the narrative is temporal, as a plot or causality and of high flexibility. Hilligoss and Moffat-Bruce (2014) find that both modes are important for coping with the complexity of handovers. Also in NPP handovers, where monitoring was identified as a complex and dynamic task, that required active problem-solving activities, the cognitive aspects were highlighted as important (Mumaw et al., 2000). From this, we find that further exploration of cognition and mental models regarding innovation handovers is require

Routines

Handovers are complex social practices, which are deeply embedded in the organizational work as routines. In healthcare, handovers are a part of the everyday work at the hospital. Similarly, in NPP, NASA and dispatch centers, handovers make up an important activity that is frequently repeated as a routine. Common for all settings, is that a handover marks the transition from one shift to another (Cohen & Hilligoss, 2010; Hilligoss and Cohen, 2011; Hilligoss & Moffat-Bruce, 2014; LeBaron et al., 2016; Mumaw et al., 2000; Patterson et al., 2004; Sutcliffe et al., 2004). Despite the frequent occurrence of handovers as a part of the everyday work, LeBaron et al., (2016) find that even though many activities within healthcare are officially standardized handovers at hospitals are typically not standardized: "Most hospitals have no set protocol for handovers and their conduct is left to the discretion of physicians" (p. 6). Nevertheless, the study found that the participants' shared expectations created a basis for handovers. From this the participants could tailor each handover in order "to adapt each performance of the routine to the unique needs of each patient" (LeBaron et al., 2016, p. 1), within the basis of the shared expectations. From this, the handover can be identified as a flexible routine.

The flexible nature of handover routines in these contexts can both represent possibilities of quality assurance and increased likelihood of mishaps. Patterson et al. (2004) state that handover routines are widely considered as a point of vulnerability. Historically, there have been several attempts at standardizing patient handovers, in order to reduce vulnerability and chances of mishaps (Cohen & Hilligoss, 2010). Although there is some evidence that standardization can improve information accuracy and completeness, many scholars adopt a critical point of view, because they believe that standards and checklists can hinder critical

Differentiating Handovers in the Innovation Context from Other Contexts

Based on literature on handovers in other industries, we have identified a set of important factors to consider for innovation handovers. Gaining an understanding of how handovers are conducted in other contexts with high complexity and high consequences for failure, has given a solid starting point for our study of handovers in an innovation context. However, it is important to recognize that there are several differences that distinguish handovers in an innovation context from other contexts.

Innovation handovers differ from other types of handovers, due to its high complexity, time frame, participants from multiple disciplines, and possible lack of goal congruence. First, innovation handovers do not occur through shift changes, which is a common characteristic for handovers in the other contexts (Sætre et al., 2016). Innovation processes typically have a longer duration than episodes of patient care or NPP monitoring, and innovation handovers are therefore believed to have a longer duration. Also, innovation projects have a high possibility of being both postponed and prolonged. Second, the handover of innovation projects often occurs across disciplines, where the delivering and receiving parties do not necessarily share a common knowledge base (Sætre et al., 2016). This is partly contrasting to handovers in healthcare, where "many handovers are between individuals within the same discipline" (Patterson et al., 2004, p. 130). Third, participants in an innovation handover do not necessarily have the same goals and motives for the handover. In the healthcare context, LeBaron et al. (2016) state: "physicians were highly motivated to work together in advancing their common project of patient care, whereas participants in other routines may have different or even conflicting motivations" (p. 18). This is highly relevant in an innovation context, where different units can have different goals related to the same innovation projects, resulting in a lack of goal congruence (Moenaert et al., 2000), and coordination complications (Sætre et al., 2016). Further, an innovation project is often of such nature that it can be partitioned into sub-projects and phases, which is not the case for patient handovers (Sætre et al., 2016). These characteristics distinguish innovation handovers from handovers in health care, NPP, NASA, railroad dispatch centers, and emergency dispatch centers, which underpins the need to explore the innovation handover phenomenon to gain a further understanding.

Summarized, we have identified a set of important factors that influence handovers in other contexts. These factors form a basis for our exploration and investigation of innovation handovers. Nevertheless, since the innovation context differs from the settings of which handovers have been studied in previous literature, we expect that by including some additional factors, identified through exploration of organization and innovation literature, we are able to better understand innovation handovers. Further, innovation handovers is a heretofore-underexplored phenomenon, which as put by Sætre et al. (2016) "offers opportunities for conceptual development in an area that is central to organizing for innovation" (p. 1). Therefore, a conceptual framework for innovation handovers has been developed, and will be presented in the following.

2.5 Presenting a Conceptual Framework

In order to understand and explicate the phenomenon of innovation handovers, we will in this section provide a definition of innovation handovers, and develop a conceptual framework. This forms the basis for our literature exploration and empirical investigation. An excerpt from Cooper (1990) is used as a starting point:

> The sequential analogy [to NPD] is that of a relay race: One runner, perhaps the product manager, runs with the baton for a while, passing it to the next runner, likely R&D. He takes over the project and runs with the baton, passing it on to production, who throws it over the wall to marketing, who, if not busy on more pressing matters, carries the baton across the finish line and into the marketplace. Phrases such as "handover," "passing the project on," "dropping the ball," and "throwing it over the wall" are common in the too many firms that have adopted this approach (p. 50).

Obviously, Cooper (1990) witnessed the phenomenon of innovation handovers in his study. Other scholars have also made similar observations (Beckett & Hyland, 2011; Cohen & Levinthal, 1990; Rekonen & Björklund, 2016; Waldman & Bass, 1991). Even though the phenomenon could have high potential impact on innovation outcomes (Sætre et al., 2016), up until this date, no researchers have given specific attention to such handovers within the innovation process. For this reason, in line with Sætre et al. (2016) defining innovation handovers and developing a conceptual framework of the phenomenon is the first step.

Defining Innovation Handovers

We define an innovation handover as: “the transfer of an innovation project from a delivering unit to a receiving unit. This involves a transfer of responsibility, authority and/or control, and information regarding the innovation project.” Here, the term “innovation project” is used to describe a product or service that is situated at a point in the innovation process, between idea and completion. Our definition of an innovation handover, adopts the definition of innovation from Van der Ven (1986), where innovation is understood as a solution to an end customer, either inside or outside the organization's boundaries. In addition, we underpin that “unit” is used as a collective term for departments, groups and teams within an organization. These units can participate in the innovation handover either as delivering or as receiving parties. This definition is adapted from the suggested definition of Sætre et al. (2016), and follows the same idea as the working definition of hospital handovers, presented by Cohen and Hilligoss (2010). Figure 1 illustrates an innovation handover in its most simple form, where the arrows illustrate the transfer of the actual innovation project, in addition to the transfer of information, and responsibility, authority and/or control, from the delivering unit (unit A) to the receiving unit (unit B). The reversed arrow represents coordinative action, such as asking clarifying questions, from the receiving unit (unit B) to the delivering unit (unit A) during the handover. These four aspects are assumed to be present in all handovers to various extents.

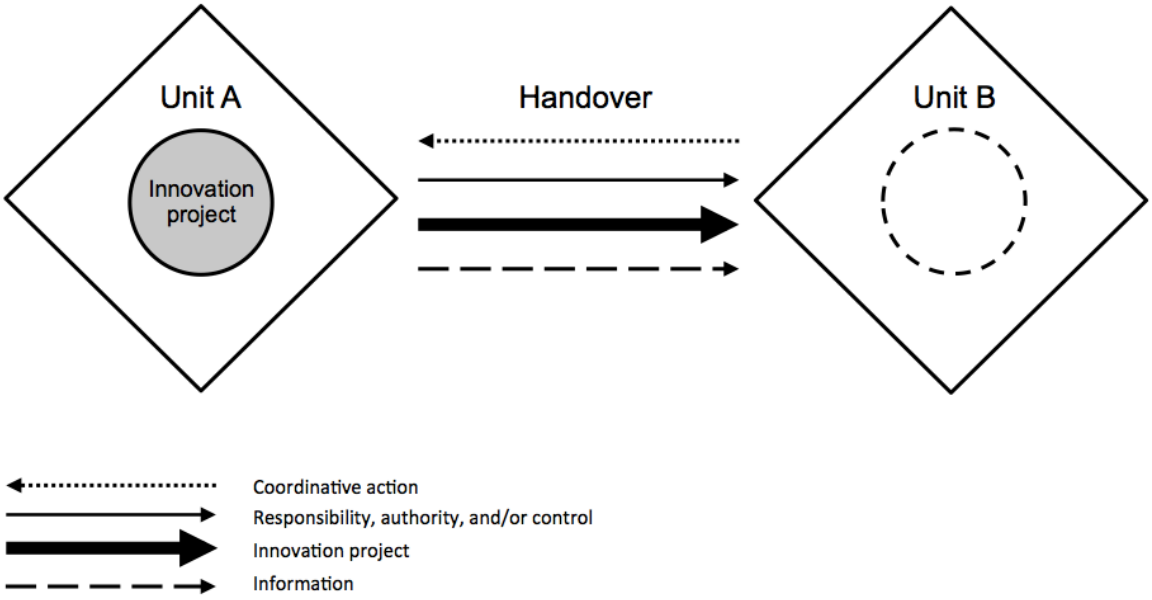

Figure 1: An innovation handover illustrated in its simplest form

In line with Sætre et al. (2016), one or several handovers are believed to occur in innovation work. Organizations are commonly organized in a way where different units, departments or teams have different duties, competencies, knowledge areas, and responsibilities. Also, innovation typically requires different knowledge and disciplines. Consequently, handovers of innovation projects are likely to occur both between and within different units. Further, since an innovation process often consists of different phases, where each phase typically requires specific knowledge and labor, innovation handovers can occur in the transitions between the different phases of the innovation process. As a result, we expect to find innovation handovers between or within units, and between or within phases of the innovation process.

Delineating The Phenomenon

In this section, we make a set of delineations regarding the innovation handover phenomenon, as a further explanation of the presented models. First, we emphasize that transitions between phases in an innovation process does not necessarily imply that innovation handovers occur. In order to be categorized as an innovation handover, the responsibility, and/or control of the innovation project must be given to a new organizational unit during such transitions in the innovation process. Thus, the delivering and receiving units must be composed of different people, at least to some extent, in order to fall under the category of innovation handovers. Second, our definition of innovation handovers does not hold chronology. Thus, handovers can occur both forward and backward in the innovation (i.e. both as progress of the innovation process and as correction). Third, it is important to highlight that innovation handovers are distinct from multidisciplinary teamwork. An innovation handover describes an activity of transfer of information, responsibility and/or control between two units, while multidisciplinary teamwork describes the work activity of one unit, often over a longer period of time. Lastly, we recognize that innovation handovers can have different durations, complexities and degrees of difficulty, due to features of both the innovation project and the organization.

The Conceptual Framework

Innovation handovers occur in innovation within organizations. Thus, it is important to acknowledge the effect of the organizational context in which innovation occurs (Waldman & Bass, 1991). As stated by March and Simon (1993):

> Organizations are systems of coordinated action among individuals and groups whose preferences, information, interests, or knowledge differ. Organization theories describe the delicate conversion of conflict into cooperation, the mobilization of resources, and the coordination of effort that facilitate the joint survival of an organization and its members (p. 2).

In other words, organizations are complex, and involve a variety of factors that we expect will influence innovation handovers. Figure 2 presents a conceptual framework that illustrates a handover between two organizational units in its most simple form, and a set of identified factors in the organizational context that we expect will influence such a handover. The factors include: teamwork; management and leadership; routines; communication; culture and climate; mental models; and psychological ownership. These factors are identified through a study of: literature on handovers in other industries; literature on the concept and context of innovation; and the qualitative data collected for this thesis. This framework sets guidelines both for the theoretical exploration and empirical investigation, towards an extensive understanding of our research question.

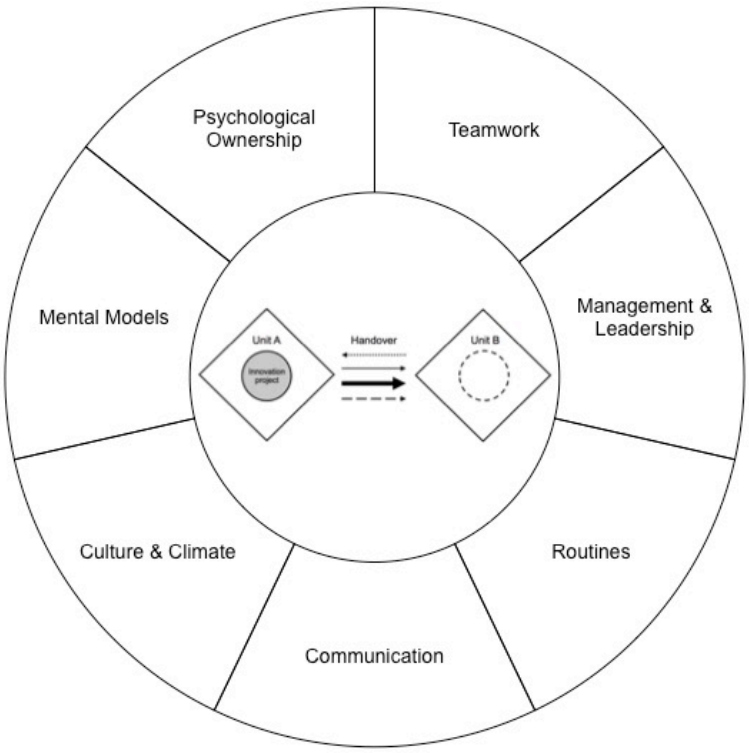

Figure 2: Conceptual framework of an innovation handover

Factors that Influence Innovation Handovers

In this section, we explore organizational and innovation literature, in order to explicate how the factors: teamwork; management and leadership; routines; communication; culture and climate; mental models; and psychological ownership, as presented in our conceptual framework in Figure 2, influence innovation handovers.

Teamwork

Teams with members from different disciplines are the typical unit for innovative work (Edmondson, 1999; Sundström & Zika-Viktorsson, 2009). When organizations are organized in different units with different duties, competencies, knowledge areas, and responsibilities, multidisciplinary teams across these boundaries are found to be a requirement for new product development (Boland & Tenkasi, 1995; Dougherty, 1992; Waldman & Bass, 1991). In order to understand the connection between teamwork and innovation handovers, we will address the topics of work division, multidisciplinary, and role flexibility, as we expect these factors to influence innovation handovers.

Work division. Organizations often deal with complicated and complex problems, such as innovation, which require integration of different fields of knowledge and specializations. Nevertheless, organization work is typically divided into nearly independent parts, where each organizational unit handles the part of their expertise (March & Simon, 1993). There are many benefits, but also barriers, to this type of work structure. In innovation, the different organizational units need to collaborate (Dougherty, 1992; Hise et al. 1990; Souder, 1981; 1988). Here, the interface between R&D and marketing is commonly studied as a barrier (Dougherty, 1992; Dyer & Song, 1998; Gupta; 1986, Hise et al., 1990; Moenaert et al., 1994; Souder, 1981; 1988). Souder (1988) emphasizes the importance of effective collaboration of R&D and marketing in order to succeed new product development. Souder (1981) found that "in many cases, the separation of R&D and marketing into separate departments with separate budgets and operations fostered a lack of collaboration." (p. 69). Nearly two-thirds of the studied projects experienced some type of disharmony in this interface, causing problems that were chronic, persistent and difficult to correct (Souder, 1988). As for handovers, we expect that departmental borders and interfaces, such as the one of R&D and marketing, can act as barriers towards the effective transfer of information, responsibility and/or control across

units. On the other hand, we believe that organizations that are able to manage and facilitate collaboration across departments will have an edge in innovation handovers.

Multidisciplinary teamwork. Innovation requires integration of knowledge, often from a wide variety of disciplines (Boland & Tenkasi, 1995; Cooper, 1990; Dougherty, 1992; Moenaert et al. 1994; Waldman & Bass, 1991), such as engineering, design, production, logistics and marketing. As stated by Amabile and Khaire (2008): "Innovation is more likely when people of different disciplines, backgrounds, and areas of expertise share their thinking" (p. 103). Multidisciplinary teamwork is an attempt to bring the capabilities of multiple units into one, often temporary, unit. Multidisciplinary teams are commonly used for innovation projects. Therefore, we expect that handovers will occur from, to and between multidisciplinary teams. Consequently, we expect that multidisciplinary teamwork have influence on innovation handovers.

Multidisciplinary teamwork entails a set of challenges and complexities (Dougherty, 1992). These challenges arise due to the composition of "individuals with diverse backgrounds, perspectives, problems, and needs" (Waldman & Bass, 1991, p. 178); conflicts and disharmonies between disciplines (Souder, 1981); problems with linking different thought worlds (Dougherty, 1992); and lack of psychological safety (Edmondson, 1999). As handovers per definition occur between different units, we expect that innovation handovers also occur in such interfaces (i.e. backgrounds; disciplines; thought worlds), and therefore will encounter similar challenges as multidisciplinary teamwork.

Providing clear goals is found to act as an enabler for overcoming interdisciplinary challenges. For multidisciplinary teams, Cooper (1990) stresses the importance of providing a clear direction and common goals. As innovation handovers are assumed to face many of the same challenges as multidisciplinary teams, we suggest that having a clear direction and common goals would also benefit innovation handovers. This can be reinforced by drawing on March and Simon (1993), who state that "the greater the elements of variability and contingency, the greater is the burden of coordinating activities that are specialized by process" (p. 180-181). Considering the fact that innovation handovers include both variability and contingency, we expect that the "burden of coordinating activities" will be comparable for innovation handovers as it is for multidisciplinary teamwork. Thus, we expect that also ensuring common goals in innovation handovers will be of high significance.

Role flexibility. In multidisciplinary teamwork, the degree of role flexibility seems to have positive effects on information sharing between organizational units (Moenaert et al., 1994). "Role flexibility refers to the degree of extra functional tasks a project member assumes in the course of the project" (p. 33). This is also named out-of-role behavior (Moenaert et al., 1994). "Stepping into external roles enables team members to better comprehend the information needs of the other party" (p. 33). In other words, by performing activities that originally were designated to employees of other disciplines, information sharing is believed to occur more smoothly across units. In the case of innovation handovers, role flexibility is expected to have similar positive effects on information transfer. Particularly, if members from the receiving unit participate in the delivering unit´s work in advance of the handover, the information received from the handover is expected to be understood more easily than if the delivering unit was isolated before handover. In brief, we expect to find that role flexibility can act as an enabler for innovation handovers.

Management and leadership

Both leadership and management are important for innovation. Many scholars suggest that visionary leadership and effective management are crucial for facilitating the innovation process (Bledow et al., 2009; Dougherty, 1992; Kim & Wilemon, 2002; Rekonen & Björklund, 2016; Rice, et al, 2002; Souder, 1981; 1988; Sætre et al., 2016; Tatikonda & Rosenthal, 1999; Van der Ven, 1986; Waldman & Bass, 1991). As stated by Kim and Wilemon (2002): "Project leaders are pivotal in managing the NPD process." (p. 32). Futher, the role of leaders is also found to play an important role in managing all phases of the innovation process (Rekonen & Björklund, 2016). As handovers occur as part of the innovation process, aspects of management and leadership are proposed to have importance for successful outcome of innovation handovers.

Innovation processes must be facilitated by management, and motivated through leadership. For innovation projects, defining goals, developing plans, and prioritizing work are important managerial activities. This facilitating role of managers is highly emphasized by Amabile and Khaire (2008). Also, Kim and Wilemon (2002) emphasize the importance of effective management, when underpinning how "project leaders serve as linking pins or bridges among the project team, senior management, and other functional groups." (p. 32). Further, the persistence of leadership is also found to be crucial for maintaining the energy

and enthusiasm for the innovation project (Waldman & Bass, 1991). Van der Ven (1986) highlights how leadership is "critical in creating a cultural context that fosters innovation, and in establishing organizational strategy, structure, and systems that facilitate innovation" (p. 602), which is found to build commitment, enthusiasm, excitement, and empower employees. On the whole, innovation processes require both facilitation and encouragement. Similarly, since handovers are identified as a challenging part of the innovation process, both management facilitating and encouraging leadership are expected to be necessary when innovation projects are handed over from one unit to another. However, neither leading, nor managing the innovation process is an easy job. Typically, managerial activities change throughout the innovation process (Rekonen & Björklund, 2016), where especially managing transitions between phases is identified as challenging (Rice et al., 2002). This can be directly linked to innovation handovers; as such handovers often occur in transitions between phases. In brief, we expect that both managing and encouraging innovation handovers will have influence on innovation outcomes.

Leadership, both formally and informally, also has large influence on organizational climate. Waldman & Bass (1991) state that leadership can be seen as "the exercise of influence among individuals, groups, or organizations." (p. 170). Consequently, leaders play an important role in establishing an environment that supports innovative efforts (Rekonen & Björklund, 2016). This is supported by (Bledow et al., 2009), who emphasize the importance of shaping an environment supportive of exploration and exploitation, in order to succeed with innovation. Thus, we expect leaders to have influence on climate also during innovation handovers. In this context, it is important to highlight that leadership can be executed by both formal leaders and informal leaders. Informal leaders are not designated leaders, but have gained leadership as a consequence of their personality, motivation, and abilities (Waldman & Bass, 1991). For innovation handovers, this is believed to have two major implications. Firstly, leadership might be present even though a project leader is not designated. Secondly, other participants than the appointed project leader can also have influence on the organizational climate. In sum, we expect to find that both formal and informal leaders play an important role in innovation handovers.

Routines

Innovation handovers can be considered an organizational routine, again affected by other

organizational routines. Routines are defined as "repetitive, recognizable patterns of interdependent actions, carried out by multiple actors" (Feldman and Pentland 2003, p. 95). In other words, routines are shared tasks that occur in organizations' everyday work (Feldman and Pentland, 2003). These routines facilitate mutual adjustment among employees (LeBaron et al, 2016), comprise organizational memory, and form a truce for intra-organizational conflict (Dougherty, 1992). However, organizational routines require mutual intelligibility in order to be functional: "To move forward with a shared task, they [organizational actors] need to be able to make sense of what others are saying and doing" (LeBaron et al., 2016, p. 1). On one hand, we expect that organizational routines will affect the execution of innovation handovers. On the other hand, innovation handovers can also be considered as organizational routines, since innovation handovers include multiple actors, coordinating interdependent actions, and are likely to occur repeatedly within innovative organizations. In the following, we will further investigate innovation handovers as routines, and how innovation handovers are affected by other organizational routines.

Routines have been studied as a source for organizational learning and flexibility. March and Simon (1993) stress that "in order for an organization to behave adaptively, it needs some stable regulations and procedures that it can employ in carrying out its adaptive practices" (p. 191), and thus organizations need routines to be able to adapt and change. We can better understand how the "same" routines can be a source of flexibility and change, by drawing on the distinction between ostensive and performative routine aspects, as used by Feldman and Pentland (2003). In this distinction, the ostensive aspect of the routine is defined as the idea and guide, while the performative aspect is defined as the enactment or improvisation. Feldman and Pentland (2003) find the "ostensive and performative aspects of organizational routines as recursively related, with the performances creating and recreating the ostensive aspect and the ostensive aspect constraining and enabling the performances" (p. 105), and thus state that each organizational routine has the capability to generate change by simply being a routine. They further extend this by viewing routines as sources of organizational memory and learning, which is further addressed in later sections. Based on this, we propose that innovation handovers, as organizational routines, can provide flexibility and learning in organizations.

In contrast, many scholars claim that routines represent a source of inertia, which inhibits the development of new knowledge, and the capacity to collaborate (Dougherty, 1992; Hilligoss

& Cohen, 2011; Moenaert et al. 1994). Dougherty (1992) states: “organizational product routines reinforce thought world separation, by providing for only limited interaction, and further inhibit the kind of collective action that is necessary to innovation.” (p. 195). Further, Hilligoss & Cohen (2011) emphasize that routines can hinder organizations from adapting to demands of the present situation, by over time producing automatic and mindless actions.

However, in the healthcare context, handover routines are described highly flexible and situational (Hilligoss & Cohen, 2011; Hilligoss & Moffat-Bruce, 2014). Therefore, standardization attempts such as checklists, have been widely criticized: “While standardised, structured approaches are appropriate for certain activities, their usefulness diminishes considerably for practices that entail constructing rich understandings of complex situations and the handling of ambiguities and unpredictable variation” (Hilligoss & Moffat-Bruce, 2014, p. 1). On the contrary, Gawande (2010) claims that checklists can protect against failure and ensure performance levels, and therefore should not be disregarded. He further emphasizes that it is important to understand that checklists have limitations: “In the end, a checklist is only an aid. If it doesn’t aid, it’s not right. But if it does, we must be ready to embrace the possibility” (p. 184). We believe that innovation handovers need to be flexible and situational, in order to adapt to the complex nature of innovation projects. Whether standardization attempts, such as checklists, will hinder or facilitate innovation handovers is yet to be discovered.

Communication

Communication is a critical element of both innovation work and handovers. As suggested by Sætre et al. (2016): “Handovers within complex innovation projects require effective communication of critical details across technologically differentiated specializations” (p. 5). Beckett and Hyland (2011) also emphasize the importance of communication in transition points in the innovation process: “communication is a key component in assisting the smooth hand over of technologies.” Further, looking to studies on handovers in the healthcare sector, effective communication is identified as crucial (Patterson et al., 2004; Sutcliffe et al., 2004). Here, communication failures were found to be a determining factor for the outcome of the handover. Due to the multiple similarities between handovers within healthcare and innovation handovers, we believe that communication failures also can have great prevalence in innovation handovers. Looking to innovation literature, communication highlighted as

crucial (Beckett & Hyland, 2011; Boland & Tenkasi, 1995; Ebadi & Utterback, 1984; Griffin & Hauser, 1992; Moenaert et al., 1994; Monge, 1992; Paletz & Schunn, 2010; Sundström & Zika-Viktorsson, 2009), and lack of communication has been found as a common cause of failure in new product development processes (Souder, 1988). Particularly, many scholars have stressed the challenges regarding technology and market linking (Dougherty, 1992; Gupta et al. 1986; Hise et al. 1990; Moenaert et al. 1994; Souder, 1981; 1988). From this, we expect that communication is also a critical element of innovation handovers, in turn making handovers a critical element of innovation. In this section, we will explore the meaning of effective communication in innovation handovers, by studying literature on communication and drawing on relevant findings from studies on handovers within healthcare. Especially, we will focus on how the complexity of innovation projects complicates communication during innovation handovers.

The complexity of innovation makes communication necessary in order to facilitate coordination of activities. March and Simon (1993) emphasize how effective communication is found to be crucial for coordination in organizations with complex, highly interdependent patterns of activities. Further, they stress: “If some activities are conditional on other activities, the situation becomes more complicated” (p. 46). Since issues of complexity and interdependence are highly applicable for innovation handovers, we expect that coordination and cooperation between units is crucial in order to ensure effective communication in handovers, in line with the argumentation of March and Simon (1993). From this, we expect that communication can be a decisive factor for coordinating activities in innovation handovers.

Communication in handovers can be challenging, both across vertical and horizontal differentiations. March and Simon (1993) exemplify: “communication is easy within a professional group, difficult across professional lines; communication is easy along lines of the formal hierarchy, difficult across such lines” (p. 47). Also, Sætre et al. (2016) point to both vertical and horizontal differences as barriers for communication. Here, vertical structures in organizations are found to have large influence on whether and how information flows in organizations (Sutcliffe et al., 2004). Despite this, communication challenges due to horizontal structures seem to have the largest recurrence in innovation literature. Particularly, scholars have focused on communication and collaboration between R&D and Marketing, as this is found to be both troublesome and crucial for NPD success (Dougherty, 1992; Gupta et

al. 1986; Hise et al. 1990; Moenaert et al. 1994; Souder, 1981; Souder 1988). Different cultures, thought worlds, perspectives, terminology, interpretive schemes and mental models have been highlighted as explanations to the difficulty of communicating across departments (Dougherty, 1992; Griffin & Hauser, 1992; Moenaert et al., 1994) In order to facilitate communication across such horizontal differences and challenges, Paletz and Schunn (2010) stress that "enough of a shared language" must exist. Further, Boland and Tenkasi (1995) state that: "In any communication, the knowing of what others know is a necessary component for coordinated action to take place ... The task of taking each other's knowledge and background into account is a complex process, and can frequently break down (p. 358). In this regard, Dougherty (1992) highlights how new product development failures often occur as a result of different departments' divergent interpretations and understanding. Sætre et al. (2016) support this: "It is reasonable to expect communication challenges to be pervasive among experts from different technical specialties in innovation projects, as well" (p. 3-4). From this, communication is found to represent a challenge in handovers due to both vertical and horizontal differences.

Ambiguity and uncertainty also make communication challenging in innovation contexts (Cummings & Teng, 2003). Sætre and Brun (2012) concur: "It is through the communication of diverging social realities that ambiguity is generated", but following note that: "it is through communication that these ambiguities are resolved" (p. 5). Thus, we propose that communication in such a form that reduces ambiguity and uncertainty is key for handovers. In the literature on communication, there are mainly two schools of thought, which we here find important to consider. On one side, we have the "conduit model", also termed "lean" (Brun & Sætre, 2008), or "paradigmatic" (logico-scientific) communication (Hilligoss & Moffat-Bruce, 2014), where communication is understood as the sending and receiving processes of messages through limited capacity transmission channels. This communication model suggests that reducing noise, or disturbing errors, will improve communication (Boland and Tenkasi, 1995). In other words, communication is only seen as a straightforward transfer of information, with no symbolic or interpretive characteristics. In contrast we draw on the "language game model", also termed "rich" (Brun & Sætre, 2008), or "narrative" (Hilligoss & Moffat-Bruce, 2014), where communication is understood as "fundamentally and inexorably embedded in the situated action of our immediate communities" (Boland & Tenkasi, 1995, p. 353), where meaning is achieved through creating narratives, or plots, where events are linked together in a unified whole (Hilligoss & Moffat-Bruce, 2014). Sætre et al. (2016) emphasize

narratives as important for "knowledge production and in innovation, and in particular in the transfer of knowledge and innovation between communities of knowing" (p. 1). Nevertheless, Hilligoss and Moffat-Bruce (2014) conclude that both types of communication are important for coping with the complexity of handovers in healthcare. Thus, we expect the same for innovation handovers; Narratives should accompany straightforward transmission of messages, in order to overcome departmental and disciplinary barriers and thus hold the level of uncertainty and ambiguity at a minimum.

In innovation handovers, a main goal of communication is to transfer knowledge. As explained by Roberts (2000): "Knowledge transfer occurs when knowledge is diffused from the individual to others" (p. 432). An objective of innovation handovers, is to ensure such transfer of knowledge related to the innovation project from one organizational unit to another. Cummings and Teng (2003) have found that successful knowledge transfer is critical in new product development related activities, but many firms find knowledge transfer to be challenging. Here, scholars especially emphasize the challenges related to transferring tacit knowledge (Cummings & Teng, 2003; Leonard & Sensiper, 1998; Roberts, 2000). Roberts (2000) describes tacit knowledge as "knowledge that is acquired via the informal take- up of learning behavior and procedures; it is often referred to as knowhow" (p. 431). Tacit knowledge is distinguished from explicit or codified knowledge, which is knowledge in an objective and rational form that can be transmitted or recorded either in symbols (e.g. writing or drawings) or in tangible forms (e.g. machinery or tools). However Roberts (2000) underlines that: "while tacit knowledge can be possessed by itself, explicit knowledge must rely on being tacitly understood and applied. Hence all knowledge is either tacit or rooted in tacit knowledge. A wholly explicit knowledge is unthinkable" (p. 431). Tacit knowledge is often semiconscious or unconscious, which makes its possessors unaware of it, or unable to articulate it (Leonard & Sensiper, 1998), and is hard to communicate as it is "deeply rooted in action, involvement and commitment within a specific context" (Cummings & Teng, 2003, p. 44). Thus, tacit knowledge is difficult to transfer. In addition Roberts (2000) emphasizes that tacit knowledge "often requires considerable time to acquire" (p. 433). In brief, transferring tacit knowledge is expected to represent challenges in innovation handovers.

Knowledge transfer in innovation handovers also encounters challenges related to the innovation context, different mental models, and ambiguity. First, in an innovation context, "knowledge is both fluid and embedded in unspecified people, tools, and routines that define

the setting in which knowledge originates." (Cummings & Teng, 2003, p. 44). Further, more deeply embedded knowledge is found to be more difficult to transfer than less deeply embedded knowledge (Cummings & Teng, 2003). As a result, knowledge transfer within innovation is identified to be particularly difficult. Thus, the context in which innovation handovers occur is found to complicate knowledge transfer in such handovers. Second, knowledge transfer is found to be more difficult when there exist large knowledge distances (Cummings & Teng, 2003). This can act as a challenge for knowledge transfer in innovation handovers, since different backgrounds, disciplines, departments, mental models, thought worlds, are expected to be present in these handovers. Third, Van Wijk et al. (2008) stresses how knowledge ambiguity has negative influence on knowledge transfer. In innovation handovers, knowledge ambiguity is likely to be present, since NPD projects and activities usually has a high degree of ambiguity and uncertainty. To summarize, challenges related to the innovation context, different mental models, and ambiguity are expected to complicate knowledge transfer in handovers.

To overcome the challenges related to knowledge transfer, scholars suggest initiatives such as pre-knowledge transfer and ensuring supportive organizational climates, trust, personal relationships, and employee commitment. Cummings & Teng (2003) suggest a pre-transfer as a knowledge-preparation process, where both the source and recipient of knowledge are involved to facilitate knowledge transfer. Further, Leonard & Sensiper (1998) stresses the importance of ensuring a psychologically safety climate, while Roberts (2000) stresses the importance of trust, both to ensure especially the transfer of tacit knowledge. Personal relationships are also found to ease the process of knowledge transfer (Cummings & Teng, 2003). Here, face-to-face contact, socialization processes, and a shared social and cultural context, are found to increase mutual understanding in knowledge transfers (Roberts, 2000). Lastly, commitment is highlighted as an important facilitator for knowledge transfer, because such commitment increases individuals' motivation towards seeing the value of, and developing competencies related to, the knowledge in transfer (Cummings & Teng, 2003). As knowledge transfer is an important goal in innovation handovers, we expect that organizations employ different initiatives to overcome barriers for knowledge transfer in such handovers.

Summarized, communication is found to be challenging, yet crucial for innovation handovers. Aspects such as horizontal and vertical differentiation, in addition to elements of ambiguity and uncertainty in NPD, are identified as possible barriers for effective communication in

innovation handovers. This is important because: "Communication breakdowns among organizational teams handing off innovation projects can adversely affect both the speed and quality of innovation in organizations, thus underdetermined organizational competitiveness." (Sætre et al., 2016, p. 5) Thus, we propose that further research on characteristics of effective communication in innovation handovers is needed in order to understand when communication acts as an enabler or as a barrier.

Culture and Climate

Both organizational culture and climate has influence on innovation work. While culture refers to the underlying values and assumptions, climate refers to the surface level manifestations of these underlying values and assumptions (Baer & Frese, 2003). In other words, culture is more deeply and unconsciously rooted within an organization, whilst climate regards employees' visible shared perceptions and attitudes. Clearly, organizational culture and climate are tightly linked. In this section, we explore literature on both factors and their possible influence on innovation handovers.

Organizational culture, as part of the organizational context, can act both as enabler and barrier for organizational activities (Ahmed, 1998; Amabile 1997; Baer & Frese, 2003; Bartel & Garud, 2009; Dougherty, 2001; Kark & Carmeli 2009; March & Simon, 1993; Moenaert et al., 1994; Souder 1981). On one hand, March and Simon (1993) emphasize how individuals and their differences affect the creation of organizational cultures: "They [organizational actors] weave supportive cultures, agreements, structures and beliefs around their activities" (p. 2). On the other hand, culture affects employees. Here, Dougherty (2001) stresses that culture, or an image of a shared practice, gives organizational actors meaning to their work. Further, Dougherty (2001) emphasizes that: "The image of a shared practice can help people imagine how to solve problems in the situation, even with multiple specialties." (p. 615). Further, Ahmed (1998) stresses culture as a determinant of innovation: "Possession of positive cultural characteristics provides the organization with necessary ingredients to innovate" (p. 31). In other words, organizational culture can act as guidance, also for innovation handovers. However, within an organization, different subcultures might exist. Such subcultures can arise when departments, teams, and units build or refine their own identities (Faraj et al., 2009). Scholars have found that hostile cultures between departments

can hinder effective horizontal collaboration (Souder, 1981). In this way, we expect that culture can both act to support or hinder innovation handovers.

Organizational climate is also found to affect employee behavior. Climates of initiative and positive work relationships are highlighted as energizing, enriching and found to foster human thriving, development, employee engagement, and growth in the workplace (Amabile, 1997; Kark & Carmeli, 2009). Such climates are found to have positive effects on organizational performance (Baer & Frese, 2003; Kark & Carmeli, 2009) and innovation performance (Baer & Frese, 2003). As remarked by Baer and Frese (2003): "smooth functioning can only be achieved when people actively participate" (p. 49). In other words, a climate that fosters employee involvement can facilitate organizational activities. Additionally, organizational climate is found to be very effective on inter-functional communication, through providing mutual trust, interest, support and awareness between different organizational functions (Moenaert et al., 1994). In contrast, Souder (1981) found that unappreciative attitudes between departments often were caused by conditions in the organizational climate. Following, organizational climate can affect employees´ attitudes and behavior in a positive and negative manner. With regard to innovation handovers, we expect that a positive climate can act as an enabler, by motivating employees and reinforcing positive work relationships, also across organizational units. However, as the organizational climate also can act to prevent such positive effects, we expect that this also is the case for innovation handovers.

Especially, a climate characterized by a high level of psychological safety are expected to act as enablers for innovation handovers. Many scholars have found that a climate of psychological safety is positively linked with organizational performance (Baer & Frese, 2003; Bradley et al., 2012; Edmondson, 1999; Edmondson & Lei, 2014; Faraj et al., 2009; Kark & Carmeli, 2009; Kahn, 1990). In general, a climate for psychological safety describes a work environment where employees are safe to speak up, ask for help, admit errors, and discuss problems without being rejected or punished (Baer & Frese, 2003; Edmondson, 1999; Edmondson & Lei, 2014; Kark & Carmeli, 2009; Kahn, 1990). In other words, a sense of psychological safety is likely to enable employees to overcome anxieties, ask questions, and propose new ideas and information (Edmondson, 1999; Edmondson & Lei, 2014; Kahn, 1990). In the case of handovers, where the main goal is to transfer information, responsibility, authority, and/or control in a sufficient manner, it is crucial that employees feel safe to contribute. Especially, participants need to feel safe to ask questions, raise critical views and

make objections in order to succeed with a handover. Here, we refer to literature on handovers within health care, where such coordination activities were found to be key for successful handovers (LeBaron et al., 2016). Otherwise, unnecessary uncertainties can be transferred to the receiving unit, and the likelihood that the receiving unit needs to go back to the delivering unit in order resolve and clarify these uncertainties, will increase. Also, the likelihood of overlooking important aspects of the handed over innovation project might increase. In the worst case, if errors and weaknesses are not detected later in the innovation process, the innovation project might fail. Based on this, we identify a climate of psychological safety as crucial for succeeding with innovation handovers.

Psychological safety is further found to be a critical contingency construct for multidisciplinary teamwork (Edmondson, 1990) and collaboration in organizations (Bradley et al., 2012). This again underlines the importance of psychological safety in innovation handovers, where collaboration across units and disciplines is key. As emphasized by Faraj et al., (2009), it is important to notice that psychological safety represents an emergent state, which is a description of a cognitive, motivational, and affective state at a particular time. Such emergent states are dynamic in nature and change according to input, processes, outcomes and context. Based on this, each handover will have its own climate of psychological safety, which is at least partially independent of the climate of psychological safety in the organization as a whole, or in specific departments or teams. We propose that establishing a psychologically safe climate in each handover will enable the collaboration during handover.

Initiating efforts towards establishing a psychologically safe climate will benefit innovation handovers. Edmondson (1999) describes how the phenomenon of psychological safety is typically tacit, taken for granted, and not given direct attention either by individuals or by the organization as a whole. In line with Sætre et al. (2016), we propose talking about assumptions in innovation handovers, as this hinges upon a psychologically safe environment (Edmondson, 1999). Also, Bradley et al. (2012) emphasizes the importance of encouraging divergent opinions in order to establish a psychological safe climate. Turning to innovation handovers, agreeing upon openness towards divergent opinions is believed to act as an enabler, as it increases psychological safety between the participants, and thus facilitates the execution of handovers.

Mental Models

Understanding the function of employees' different ways of thinking in innovation handovers is key. "Mental model refers to a person's mental representation of a system and how it works" (Huber & Lewis, 2010). Boland and Tenkasi (1995) characterize organizations as: "a process of distributed cognition in which multiple communities of specialized knowledge workers, each dealing with a part of an overall organizational problem, interact to create the patterns of sense making and behavior displayed by the organization as a whole" (p. 351). As a result, it is important to take employees' ways of thinking into account, when seeking to understand the phenomenon of innovation handovers. In this section, we seek to investigate the topic of different mental models.

In innovation handovers, different mental models are present. By mental models, we adopt the definition of Rook (2013), who defines mental models as: "a concentrated, personally constructed, internal conception, of external phenomena (historical, existing or projected), or experience, that affects how a person acts" (p. 42). The concept of mental models arises due to the fact that the human intellective capacities are limited, in comparison to the complexities of the problems that individuals and organizations face. In other words, the human cognition sets up "simplified models that capture the main features of a problem without capturing all its complexities" (March & Simon, 1993, p. 190). This is also commonly labeled bounded rationality, as illustrated by Baer, Dirks and Nickerson (2013), who stress that: "no single actor is likely to possess or to be able to easily accumulate the range of information and breadth of knowledge needed to span the problem space (p. 197). Generally, all individuals have their own simplified models and bounded rationality. Further, Rook, (2013) describes how mental models capture an individual's comprehension of a specific domain in their mind and, therefore, a mental model becomes an important construct for organizations and management to understand in order to enhance their learning (p. 39). As a result, mental models must be taken into consideration in order to understand how people think and act during innovation handovers. In an organization, employees within the same disciplines and departments will typically have similar mental models, due to similar knowledge, backgrounds and perspectives. This is found to create shared mental models (Cohen et al., 2012, Hilligoss & Cohen, 2011; Roberts, 2000; Rook, 2013), also termed: different thought worlds (Dougherty, 1992; Griffin & Hause, 1992); communities of knowing (Boland & Tenkasi, 1995); and communities of practice (Brown and Duguid, 1991; Dougherty, 2001).

Such shared mental models leads employees within the same disciplines and departments, to have similar perspectives on time frames, formality, language, perception, culture, and power (Dougherty, 1992). As a result, of different mental models, each department develops a qualitatively different understanding of product innovation (Dougherty, 1992).

When departments meet to collaborate different mental models can act as barriers (Dougherty, 1992). Since shared mental models lead to departmental similarities within departments, it can also lead to departmental differences between departments with respect to how people think about, and practice their work. Innovation handovers are organizational activities based on collaboration between different departments, which leads to the presence of different mental models. These differences, when brought together in multidisciplinary teams, can lead to difficulties related to cognition (Boland & Tenkasi, 1995; Dougherty, 1992), communication (Beckett & Hyland, 2011; Boland & Tenkasi, 1995), and organizational routines (Dougherty, 1992). Paletz and Schunn (2010) state that: "diverse groups may have more difficulty in creating shared mental models" (p. 85). This is reinforced by findings of Boland and Tenkasi (1995), who state that: "Thought worlds with different funds of knowledge and systems of meaning cannot easily share ideas, and may view one another's central issues as esoteric, if not meaningless." (p. 351). Further, these shared mental models are strengthened through what is termed "perspective making", which is "the process whereby a community of knowing develops and strengthens its own knowledge domain and practices" (p. 356). In this way, employees with shared mental models become more capable of doing knowledge work. However, through perspective making, the differences between employees of a shared mental model and other mental models are strengthened. From this, perspective making is on one hand a necessary antecedent of innovation, as knowledge work. On the other hand, it is the process of perspective making that separates thought worlds from each other. In brief, as innovation handovers typically involve different disciplines, different mental models can hinder collaboration.

Innovation requires a shared understanding of knowledge, however ambiguity is likely to arise when employees of different mental models collaborate. According to Brun et al. (2008), "ambiguity can be understood as different interpretations of the same piece of information, caused by actors interpreting the information from different frames of reference" (p. 304). In other words, different mental models increase the likelihood of ambiguity, as interpretations develop through mental models (Dougherty, 1992). Thus, as described by Brun and Sætre

(2008) “ambiguity is reduced when the actors share these bases” (p. 579). In other words, ambiguity will be reduced if employees have similar mental models. From this, we expect that ambiguity might act as a barrier for innovation handovers, where a mutual understanding of a problem is key.

To overcome the barriers of different mental models in collaboration, scholars stress the importance of “perspective taking”, narratives, and a common vocabulary (Boland & Tenkasi, 1995; Brun & Sætre, 2008; Edmondson & Nembhard, 2009; Hilligoss & Moffat-Bruce, 2014; Sætre et al., 2016). Perspective taking is defined as the process “where distinctive individual knowledge is exchanged, evaluated, and integrated with that of others in the organization” (Boland & Tenkasi, 1995, p. 358). Through perspective taking employees with different mental models are able to take each other into account and achieve mutual intelligibility. In other words, perspective taking can bridge gaps between different mental models. The extent to which “group’s members possess an accurate understanding of the mental models of other members”, is also referred to as cross- understanding, and affects group processes and outcomes by influencing the content and efficacy of members’ communications (Huber & Lewis, 2010). Here, we find it important to highlight the close link between narratives, perspective making, and perspective taking, where narratives have a strong intermediary function in this relationship by bringing to surface and challenging the implicit assumptions and the interpretive structures that characterize different mental models. This is argued as a first step to overcoming barriers related to different mental models (Boland & Tenkasi, 1995). Further, it is important to recognize that differences in vocabulary and language between groups of different mental models can hinder collaboration across these groups (Edmondson & Nembhard, 2009). In brief, we believe that awareness of the different mental models and different languages, that are present during handovers, is the first step towards handover success. Also, we expect to find that organizations benefit from incorporating perspective taking activities and narratives into the handover processes as a facilitator for both communication and collaboration across mental models.

Although different mental models represent a possible barrier for innovation handovers, it also represents a set of opportunities. “As innovation increasingly depends on contributions from the knowledge-frontier of multiple disciplines, handovers across disciplines become an opportunity not just for perspective-taking and knowledge-transfer but also for perspective-making and knowledge-generation” (Sætre et al., 2016, p. 5). Additionally, according to

Dougherty (1992), successful collaborative on innovation activities can "allow new possibilities for discovery and new facts" (p. 182). Drawing similarities to the health care context, Cohen et al. (2012) found that "when there is enough uncertainty about a patient (as frequently occurs in critically ill patients), more discussion and argumentation can, indeed, generate new possibilities for patients, leading to the co-construction of clinical understanding" (p. 2). Based on the discussion above, we expect that having different mental models is not necessarily good or bad, but what matters is how they are handled during the innovation handover.

Psychological Ownership

Psychological ownership promotes desirable employee attitudes and behaviors in organizational work (Ahmed, 1998; Breiting, 2008; Dawkins, Tian, Newman & Martin, 2017; Furby, 1978; Liu, Wang, Hui & Lee, 2012, Pierce, Kostova, & Dirks, 2001; Pierce, Kostova, & Dirks, 2003; Pierce, Jussila & Cummings, 2009; Pierce & Jussila, 2010; Sundström & Zika-Viktorsson, 2009; Van Dyne & Pierce; 2004), and is therefore believed to play an important role for innovation outcomes. The theory of "psychological ownership" in organizations, was introduced by Pierce et al. (2001), based on broader literatures concerned with the psychology of "mine," possession, and property (e.g., Belk, 1988; Furby, 1978). Pierce et al. (2003) define psychological ownership as: "the state in which individuals feel as though the target of ownership or a piece of that target is 'theirs' (i.e., 'It is *mine*!')" (p. 86). Psychological ownership reflects the individual's awareness, thoughts, and beliefs regarding an object, often called a "target", which can be both material —like an object or thing—and immaterial in nature—like an idea (Pierce et al., 2001; 2003; Van Dyne & Pierce, 2006). In an innovation context, a target can typically be an idea, a task, or an innovation project (Dawkins et al., 2017). Through the review of literature on psychological ownership, the term "mental ownership", as introduced by Breiting (2008), has also emerged. Breiting (2008) describes: "Obviously, there are similarities between mental ownership and psychological ownership as both appear to pursue the same mental or psychological mechanisms related to the subjective elements of developing a feeling of 'mine' to something" (p. 165). Thus, in this thesis, we will treat the two terms synonymously, and utilize the term psychological ownership throughout the text.

Psychological ownership differs from legal ownership (Breiting, 2008; Dawkins, 2017; Pierce et al. 2001; 2003). As described by Dawkins et al. (2017) "legal ownership is recognized by others and is upheld by the legal system, while psychological ownership is most commonly conceptualized as a self-derived perception, thereby recognized primarily by the individual" (p. 164). Further, Pierce et al. (2001) argue that: "psychological ownership can exist in the absence of legal ownership, and vice versa" (p. 307). From this, psychological ownership is separated from legal ownership, and studied as its own construct.

Psychological ownership is further distinguished from other closely related constructs and phenomena. Pierce et al. (2003) describe how: "The state of psychological ownership (i.e., 'mine-ness' or 'our-ness') is complex, and is composed of a cognitive and affective core". Dawkins et al. (2017) extend this by arguing that that psychological ownership is the emotional attachment to the object or target that exceeds its cognitive evaluation. The construct of psychological ownership is closely linked to feelings of possessiveness and connection (Pierce et al., 2001), feelings of responsibility (Dawkins et al., 2017), in addition to energy, care, and concern (Pierce et al., 2003). However, it is important to note that scholars have emphasized the distinction of psychological ownership to closely related constructs, such as organizational commitment, affective commitment, perceived insider status, organizational identity, and job satisfaction (Dawkins et al., 2017). Further, psychological ownership is distinct from, yet might be related to, the Not-Invented-Here (NIH) syndrome. Katz and Allen (1982) define the NIH syndrome as: "the tendency of a project group of stable composition to believe it possesses a monopoly of knowledge of its field, which leads it to reject new ideas from outsiders to the likely detriment of its performance" (p. 7). As explained by Burcharth and Fosfuri (2014), scientists may be biased in their judgment on internally versus externally developed knowledge, in a way that makes them predisposed to promote their own capabilities, in a form of self-enhancement. In other words, the NIH syndrome is rooted in the perception that one self's contributions or ideas are better than contributions or ideas from others. From this, one might reject external contributions. With respect to innovation handovers, such tendencies might represent a barrier. If the receiving unit is not open to, nor willing to work with, innovation projects from other units, and thus does not feel psychological ownership towards the received innovation project, this is believed to reduce the likelihood of an effective handover. Similarly as for psychological ownership, the NIH syndrome stems from affect and cognition (Burcharth & Fosfuri, 2014). Nevertheless, while psychological ownership describes the feeling of "mine"

to an object or target, the NIH syndrome describes the feeling that “mine is better than yours”. Psychological ownership is also closely related to the theory on escalation of commitment of Staw (1981), who describes how individuals commitment is not necessarily objective, and that there is a “tendency to escalate commitment above and beyond what would be warranted by the "objective" facts of the situation” (p. 584). Staw (1981) describes how “individuals can become committed to a course of action simply because they believe consistency in action is an appropriate form of behavior” (p. 584). Clearly, psychological ownership, the NIH syndrome and escalation of commitment concern related issues, yet describe distinct phenomena.

The construct of psychological ownership can exist at individual, group and organizational level (Dawkins et al., 2017; Mayhew, Ashkanasy, Bramble & Gardner, 2007; Pierce et al., 2001; Pierce et al., 2003; Pierce & Jussila, 2010). By definition, psychological ownership describes an individual's cognitive-affective state (Breiting, 2008; Dawkins et al., 2017; Pierce et al., 2001; Pierce et al., 2003). However, scholars argue that psychological ownership also can be conceived at a group level (Dawkins et al., 2017; Pierce & Jussila, 2010), where “individuals come to a single and shared mindset as it relates to a sense of ownership for a particular object” (Pierce & Jussila, 2010 p. 810), thereby feeling that something is collectively “theirs”. Further, feelings related to possession of the organization as a whole is termed organization-based psychological ownership (Dawkins et al., 2017; Mayhew et al., 2007). As, a result, psychological ownership can exist at several levels in an organization.

Psychological ownership play important roles in shaping organizational behaviors and work-related attitudes. First, psychological ownership can enhance commitment to the organization (Ahmed, 1998; Dawkins et al., 2017; Van Dyne & Pierce, 2006), and to a problem or task (Sundström & Zika-Viktorsson, 2009). Second, it can create a sense of responsibility for the target (Furby, 1978; Sundström & Zika-Viktorsson, 2009; Van Dyne & Pierce, 2006). Third, psychological ownership can improve both quality and level of participation, engagement and motivation (Breiting, 2008). Lastly, Van Dyne and Pierce (2006) emphasize that also job satisfaction, organization-based self-esteem, and work behavior is influenced by psychological ownership. Conversely, scholars have identified that these processes also can be self-reinforcing, so that psychological ownership and its effects on organizational behaviors and work-related attitudes mutually support and develop each other (Ahmed, 1998; Breiting, 2008, Dawkins et al., 2017; Pierce et al., 2003). In addition, initiatives such as early

involvement and shared goals (Bessant & Tidd, 2015); information (Pierce et al., 2003); and control (Pierce et al., 2003; Liu et al., 2012) are also found to promote feelings of psychological ownership. From this, psychological ownership both affects, and is affected, by many work-related attitudes and organizational behaviors, and is thus believed to play an important role in innovation and for innovation handovers.

Despite scholars linking psychological ownership to many beneficial organizational behaviors and work-related attitudes, the phenomenon is also found to have negative effects. Pierce et al. (2003) explain how psychological ownership can have a dark side:

> Much like the overly possessive child, individuals may be unwilling to share the target of ownership with others or may feel a need to retain exclusive control over it. Such behaviors, in turn, will likely impede cooperation. People may also become preoccupied with enhancing their psychological possessions and may become, for instance, obsessed with improving their "toys" at the cost of their family or community (p. 101).

In other words, too much psychological ownership might promote undesirable behavior and hinder cooperation. Further, psychological ownership is also found to cause resistance to organizational change (Brown, Lawrence & Robinson, 2005), in addition to protective behavior, personal sacrifices and stress associated with the felt responsibility (Pierce et al., 2001; 2003). Also at the group level, psychological ownership might have negative effects: "While selfishness, reluctance to share, obsession with control, and not letting go, are often associated with personal feelings of ownership, we expect similar behaviors in the group's relationship with individuals and groups outside of the focal group" (Pierce & Jussila, 2010, p. 825). Further, Pierce et al. (2003) found that individuals that feel strong ownership in groups "may engage in deleterious acts such as sabotage, stalking, destruction, or physical harm as opposed to letting others control, come to know, or immerse the self into the target of ownership" (p. 101). Furthermore, also territorial behavior is suggested to be an outcome of psychological ownership. This is found to affect employee behavior towards the target of which they feel is their territory and towards others outside this territory both positively and negatively (Brown et al., 2005; Pierce et al., 2009). Lastly, having too much psychological ownership of own projects can also be related to the Not-Invented-Here syndrome. Katz and Allen (1982) find that when employees actively participate in their own contributions and

commitments over time, they feel responsible and "may come to rely more heavily on their own knowledge, views, experiences and capabilities, thereby reducing their attentiveness to outside sources of information and expertise." In innovation handovers, occurrence of the NIH-syndrome is therefore expected to act as a barrier for effective handover. Also the concept of escalation of commitment, is related to excessive psychological ownership, and can lead to biased attitudes and decisional errors (Staw, 1981). Consequently, psychological ownership can have both positive and negative effects, thus indicating that organizations should strive for psychological ownership that fosters commitment and motivation, and avoids negative effects (Pierce et al., 2003).

Turning to innovation handovers, where psychological ownership is considered a factor of influence, finding the right balance of psychological ownership at both parties of a handovers is believed to be key. We expect that psychological ownership towards the innovation project; both within the delivering party and the receiving party will affect the outcome of the innovation handover. More specifically, too much psychological ownership at the delivering unit, and too little at the receiving unit, is assumed to be disadvantageous for the handover. Especially, ensuring that the receiving unit feels ownership towards the received innovation project is, from a theoretical perspective, considered crucial. In sum, we expect that psychological ownership in both units of innovation handovers will play an important role.

Summary

To summarize, we have in this section studied organizational and innovation literature, in order to explicate how the different factors of our conceptual framework might influence innovation handovers. Although our findings may give some indications of the nature of innovation handovers, we find that empirical investigation is absolutely necessary to gain a deeper understanding of the heretofore-underexplored phenomenon of innovation handovers.

3 METHODOLOGY

In the following, we present the methodology of this master thesis. Here we will describe our research design and data collection. We conclude this section by assessing the quality of our study.

3.1 Research design

In this section, the research design of this master thesis will be presented. The rough outline of the research process is presented below. However, it is important to note that our research process has been more iterative than linear. Several early decisions and phases have been revisited and revised throughout the research period.

- **Conduct literature review:** A literature review was conducted
- **Define research question:** Based on the literature review, the research question was defined
- **Choose research design:** A multiple case study with semi-structured interviews was chosen as research design
- **Selection of cases:** Four case companies were chosen on the basis of a set of selection criteria.
- **Create interview guides:** Interview guides were created through an iterative process
- **Conduct and transcribe interviews:** Interviews were conducted and transcribed
- **Conduct analysis process:** The cases were coded and analyzed
- **Answer research question:** The findings were presented and discussed, and through this the research question was answered
- **Find implications and conclude:** Implications for future research and practitioners were given

Literature Review

A literature review was conducted as part of the design phase, in line with Yin (2014). This literature review was conducted in order to explore the phenomenon of innovation handovers,

and forms the theory development that has lead to the conceptual background and conceptual framework presented in Chapter 2.

As innovation handovers are heretofore-underexplored in previous literature (Sætre et al., 2016), and fall under the category of nascent theory, which concern "topics for which little or no previous theory exists" (Edmondson & McManus, 2007, p. 1161), a narrative approach, which provides an initial impression of the topic area, was chosen. This less focused and more widespread review of the literature is believed to yield a comprehensive background for understanding a topic that has not been subject to previous research. Further, our literature review follows a thematic approach. This approach allows integration of theoretical and empirical literature, which was important for our study.

As no literature was found specifically on the topic of innovation handovers, we needed to adapt other approaches towards the phenomenon. We started by exploring literature on the concept and context of innovation, in order to gain a better understanding of this field of research, and investigate if the phenomenon of innovation handovers was indirectly implied in previous literature. In this process, we found some literature with relation to innovation handovers, such as literature on: the nature of innovation projects and processes; transitions between phases in the innovation process; interfaces between different participants, units and disciplines involved in innovation activities; and innovation failures. This literature supported the expectation that the phenomenon of innovation handovers actually has prevalence in practice, and thus provided motivation for our study in both project thesis and master thesis.

After exploring literature on the concept and context of innovation, we investigated literature on handovers in other industries, with many similar characteristics as the innovation context. Our academic supervisor, professor Alf Steinar Sætre, introduced us to a set of such literature, in order to understand the concept of handovers. Here, we mainly explored literature on handovers within healthcare, supplemented by some literature on handovers in other industries, such as nuclear power plants, NASA and emergency dispatch centers. Through this literature, we identified a set of topics that were likely to also have importance for handovers in an innovation context. This led to the identification of organizational and innovation literature on: teamwork; management and leadership; routines; communication; culture and climate; and mental models. Here, we further selected a set of subtopics with high relevance for innovation handovers, in order to structure and limit this literature review. This gave

guidelines regarding the breadth and depth of the literature review. In addition, the literature review evolved throughout the research period, as we identified additional topics through interviews with employees in the case companies and found that it was necessary to revise the already existing topics. As a result, this literature review is conducted as an iterative process, where literature and interviews were visited and revisited as an ongoing process throughout the research period. From this, we arrived at a final set of factors that we expect have influence on innovation handovers. These factors are: teamwork; management and leadership; routines; communication; culture and climate; mental models; and psychological ownership, and are included in the conceptual framework presented in Chapter 2.

Search and Selection Process

We identified both theoretical and empirical papers for our literature review, by using several approaches. First, our academic supervisor provided a collection of articles. In addition, he referred us to the proposal of Sætre et al. (2016). This proposal further referred to a supplement of highly relevant articles. From these sources, we identified an additional set of articles through chain referral sampling, i.e. using one article as the basis to find other relevant articles to review. Second, we performed keyword searches in databases. For the most part, we found suited articles and publications through "Oria", which is a collection of databases made available by NTNU. In addition, "Google Scholar" and "ResearchGate" were used as complementary sources for literature search. To exemplify the keyword search process, we illustrate the process of searching for literature with relation to innovation handovers in Table 1.

Table 1: Example of keyword search combinations for literature on "innovation handover"

Keyword 1		Keyword 2		Keyword 3
"handover" "handoff" "hand over" "transfer" "transition" "giveaway"	AND/OR	"responsibility" "authority" "control" "information" "management" "leader"	AND/OR	"innovation" "project" "new project" "innovation project" "product" "new product"

“discrepancy” “discontinuity” “divergence” “distinction” “different” “delivery” “deliver” “change” “alter” “communicate” “inform”		“leadership” “project leader” “role” “unit” “department” “division” “work division” “responsible team” “personnel” “group”		“idea” “creativity” “knowledge” “process” “phase” “NPD” “new product development” “development” “intrapreneuring”

As Table 1 illustrates, a set of different keywords were used in this and other search processes. For the most part, we included two, three or four keywords in the search combinations. Also, truncated words (i.e. innovat*, manag*), were used in order to capture different variations of one specific word. Further, quotation marks were used to encapsulate expressions, when this was found necessary or beneficial. As the advanced search function was used, we were able to filtrate searches. We started off as narrow as possible, and extended the search process by eventually removing constraints. Similar search processes were also performed for the different identified topics. In this search process, we have retrieved articles and papers from various journals, such as “International Journal of Innovation and Technology Management”; “European Journal of Innovation Management”; “Harvard Business Review”; “Administrative Science Quarterly”; “Journal of Applied Psychology”; “MIT Sloan Management Review”; and “The Journal of Product Innovation Management”. Chain referral sampling was also conducted for the retrieved articles from the keyword database search. Third, we especially checked the citations of older articles, in order to find more current publications on similar topics.

In order to locate literature for this review, some selection criteria were used. First, we wanted to include articles and papers that were as up to date as possible. Second, we were attentive with respect to the credibility of both journals and scholars. Third, we prioritized articles and papers that addressed the overlap between innovation and the topic of interest. Carrying out keyword searches helped us discover a fair portion of the selected literature.

Qualitative Research Strategy

As qualitative studies are found most appropriate for studying phenomena that are yet not well understood (Edmondson & McManus, 2007), this master thesis follows this approach. In line with, Edmondson & McManus (2007) and Hollingshead & Poole (2012), the goal of our study on innovation handovers is to propose tentative answers for novel questions regarding the how and why behind a given phenomenon. To ensure methodological fit, we have chosen an exploratory case study, as the main research design, with an open-ended research question and data collection through interviews (Edmondson & McManus, 2007). Also, this research design was chosen with the intention to identify possible research questions and procedures for subsequent research (Yin, 2014), here especially for the intended joint research project as proposed by Sætre et al. (2016). Accordingly, our research mainly has an inductive approach, where theory development is the outcome of data collection and analysis (Bryman, 2012; Hollingshead & Poole, 2012). However, as theory, both on handovers in other industries, and on organizational factors that might influence handovers, has been the starting point for our research, we have some deductive tendencies in our study. In line with Hyde (2000), we believed that a balance of induction and deduction is valuable for our study. Also, as innovation handovers are heretofore underexplored, we have focused on conducting our study from a learning orientation, where we tried to be adaptable along the way.

Case study

This qualitative, exploratory research is a multiple case study of four Norwegian companies. This is done in order to investigate how innovation handovers are carried out in practice, as a part of these companies' innovation processes.

Unit of analysis

To be able to answer our research question, we have chosen companies with innovation processes, as the units of analysis for this thesis. In line with Yin (2014), we found this to be most appropriate, as it corresponds to our research question. Only by having case companies with innovation processes as our unit of analysis, we are able to get insight into how innovation handovers occur in such companies, and how these handovers are affected by factors in the companies' organizational context. As companies' innovation processes and

handovers can involve external actors, we have chosen to define our unit of analysis in a way that includes all our case companies' activities, thus also including the innovation processes and innovation handovers that the case companies are a part of in collaboration with external actors.

Multiple case study

A case study was chosen as the most appropriate research design for investigating the phenomenon of innovation handovers. This is in line with Yin (2014), as innovation handovers is a complex, social phenomenon, which is believed to be best understood through a holistic and real-world approach. Also, a case study seems most appropriate due to the researchers not having control of behavioral events, and since both historical and contemporary events are studied in order to answer our research question (Yin, 2014). Further, this research design is suitable to answer research questions starting with "how" (Yin, 2014), which is true for our study.

Since neither the unit of analysis, nor the studied phenomenon, is considered to be unusual, rare, or critical, we found that a multiple case study would be the most beneficial and robust research design for our thesis. Such research design allows for collecting multiple companies' insights and perspectives on the innovation handover phenomenon, and thus being able to analyze data both within each company and across companies (Yin, 2014). For us, since an important part of our study was to gain a deeper understanding of the heretofore-underexplored phenomenon, and how it occurs in practices, one of our main goals was to clarify whether our findings were valuable or not, which is best done with multiple case companies (Eisenhardt, 1991). Also, we believed that studying multiple case companies could give us, as researchers, a larger basis for investigation, and thus be able to make suggestions that are more grounded in empirical evidence.

Case selection

Our case companies were chosen based on a set of selection criteria. First of all, our main criterion for choosing case companies was that the companies had a strong focus towards innovation. This was believed to be a necessity, in order to be certain to get sufficient input on innovation processes, innovation work, and innovation handovers. Our second criterion was that the companies' innovation projects were dependent on several units, as

this is a central part of the innovation handover definition. Third, we wanted to choose case companies where we could interview several employees of different positions, disciplines, and departments. We also wanted companies from different industries, as we believed this would provide wide insight into different practices regarding innovation processes, work, and handovers. Based on this, we ended up with a sample of four case companies: Manufacture Co.; Energy Co.; Retail Co.; and Bank Co., A larger pool of case companies could be desirable, as this could have given additional insight when addressing our research question. However, this was not easily achievable in this master thesis, due to being constrained on time to one spring semester, when aiming for in depth investigation of each case company.

In our study, we have utilized a generic, fixed, a priori, and purposive sampling approach (Bryman, 2012). In other words, we established the criteria for case selection, and made arrangements with specific companies that were identified as appropriate cases in order to be able to address our research question, before we collected data. Also, we emphasize that replication logic has been a focus for our study, as we expected that the cases would predict some similar and some contrasting results when investigating similar situations, across the case companies in line with Yin (2014).

Anonymity

In this thesis, the case companies are treated anonymously, by using pseudonyms. This was done on request from some of the case companies, and therefore chosen in a consistent manner for all case companies. When choosing pseudonyms, our main focus was to illustrate the case companies' industry context. Also, we wanted to choose pseudonyms that easily distinguished the case companies from one another. Further, as a result of the anonymity, we have omitted details regarding the case companies and their innovation projects. However, as our focus concerned innovation handovers, we believe that describing only the nature of the companies' innovation projects, rather than detailed descriptions, has been sufficient for research purposes. Therefore, we believe that not being able to identify the companies has had minimal to none effect on our findings, and our corresponding discussion. Conversely, we believe that by ensuring the interviewees that their responses were treated anonymously, the interviewees might have perceived it easier to share information.

3.2 Data Collection

Data was collected through semi-structured interviews and documentary information of the four case companies. In total, we interviewed 22 persons in 20 interviews.

Semi-structured interviews

In total, we conducted 20 semi-structured interviews in the period from February 10th to May 15th 2017. The interviews were mainly performed through personal meetings at the headquarters of the case companies, while some were carried out by video conference calls or over telephone. All interviews were conducted in Norwegian, as this was the native language of all interviewees. In all interviews both researchers were present. The interviews varied in duration, lasting from approximately 20 minutes to 2,5 hours. In 19 of the 20 interviews, the interviewees consented to be audiotaped. Notes were taken in all interviews. Also, we ensured to inform the interviewees about our interview purpose, and that we would treat all collected data confidentially.

For each case company, we wanted to interview employees in different positions, in order to identify possible divergent viewpoints on innovation handovers. We especially focused on ensuring interviewees from both sides of innovation handovers, thus employees in both delivering and receiving units. Overall, we have interviewed employees in positions such as: CEO, Manager, Engineer, Project Leader, Researcher and Technician. In line with Yin (2014), who suggests that "any case study finding or conclusion is likely to be more convincing and accurate, if it is based on several different sources of information, following a similar convergence" (p. 120), we ensured to conduct multiple interviews of employees within the same company. This was done to access the necessary amount of information, and gave the opportunity to cross-reference and corroborate information. Due to the previously described anonymity, all interviewees are referred to by their professional title and respective company. We think that this has not limited the presentation of the findings in this thesis, as these titles are believed to provide enough information about the interviewees' basis and reasoning when answering questions. Table 2 presents an overview of the conducted interviews.

Table 2: Overview of case company interviews

Company	Position	Date and Place	Duration [min]	Number of transcribed words
Manufacture Co.	CEO	February 10th	150	6002
Manufacture Co.	Automation Engineer	March 28th	21	1840
Manufacture Co.	Project Engineer	April 4th	35	3463
Manufacture Co.	Project Leader	April 6th	28	2405
Energy Co.	Department X Manager	February 24th	89	8525
Energy Co.	Engineer and Leading Engineer in Department Y	February 28th	73	3990
Energy Co.	Project Manager, Department Z	March 22nd	54	3281
Energy Co.	Head of Department X	March 29th	65	4045
Energy Co.	Principal Researcher, Department W	March 29th	45	2435
Energy Co.	Leading Advisor, Department V	April 3rd	50	4767
Retail Co.	Assistant Director, Marketing & Innovation	February 17th	86	5379
Retail Co.	Marketing Consultant, Marketing & Innovation	February 17th	73	3895
Retail Co.	Director, Product Development	March 29th	35	3017
Retail Co.	Project Leader, Product Development	April 5th	24	2192
Retail Co.	Technical Manager, Production	April 5th	61	5361
Bank Co.	Business Development Manager and Project Coordinator	February 27th	99	9999
Bank Co.	Project Leader	March 23rd	45	6600
Bank Co.	Project Leader	April 6th	42	1716
Bank Co.	Leader, Discipline X	April 28th	35	1722
Bank Co.	Leader 2, Discipline X* *has previously worked in a local office	May 15th	24	1878

All conducted interviews were semi-structured, and open-ended. This means that the interviews were based on a pre-prepared interview guide, which was specifically tailored to each interviewee. The final, general version of the interview guide is presented in Appendix

X. Also, the interviews were conducted in a conversational manner, which led to some adaptation during the questioning. Through semi-structured interviews, we were also able to ask follow-up questions to the interesting topics that arose during the interviews. The intention of the interview guide was to facilitate the execution of the interviews, and ensure that all topics of interest were covered. Thus, the interview guide ensured that all interviews were conducted in a similar manner. The questions in the interview guide were initially based on topics from the literature review conducted in our project thesis, Autumn 2016. In addition, we were interested in general information about the companies, their innovation work and the roles of the interviewees. Further, the interview guide was adapted to each interviewee, and was adjusted as our learning process evolved. When adapting the interview guide to fit the background and position of each interviewee, our focus was to get in-depth information in certain areas, where we believed this employee had valuable insight. In other areas we encouraged the interviewees to speak and resonate more freely around certain topics. After conducting a number of interviews, we experienced a learning process that caused us to alter the interview guide by adding new topics and questions. This is in line with the suggestions of Edmondson & McManus (2007) regarding research on nascent theory, and enabled us to uncover topics such as psychological ownership and personal relationships, which turned out to be of high relevance for our study.

We recognize possible weaknesses of such semi-structured interviews. First, we recognize that we might have influenced interviewees to some extent, thus adding this as a possible bias. This despite of our focus on asking open, non-leading questions in the interviews, in order to avoid coloring the findings, and to facilitate for the interviewees' personal reflection, in line with Flick (2004) and Edmondson & McManus (2007). Second, the collected data may vary depending on each interviewee's level of knowledge and the relevance of the interview questions. Third, as we sought to cover a broad range of topics in the interviews, we realize that the direction of the interview conversations might have changed either too soon or too late. Last, we experienced that on occasions the interviewees had difficulties relating to some of the topics that we asked questions about. This sometimes resulted in descriptions and information that were off topic, and set us in a position where we had to interpret whether the interviewees had understood the question correctly or not, and give further description and ask follow-up questions. In sum, some bias related to the execution of the interviews needs to be taken into account.

The interpretation of the interviews is also a possible source of bias. Before interpreting the collected data, all recorded interviews were transcribed, with the interviewees' approval, in line with recommendations of Bryman (2012). Transcribing the interviews made it possible to analyze the data in a structured way, as described in the section "Data Analysis". Since all interviews were conducted in Norwegian, we realize that when translating to English some linguistic nuances might have been lost. Further, we tried to interpret all statements in the context of each interviewee's background and their respective company. We noticed that there might be some bias in the interviewees' explanations and answers to questions, due to a possible intention of portraying their respective company and department in the best way. Bias is also added due to the fact that in response to questions, interviewees might have referred to specific situations or actions, that are not representative for their company's general practice. Also, when interviewees described situations from the past, there might be a bias due to interviewees not remembering the situations correctly. In brief, we realize that there might be bias related to the data collected through interviews in this study, and how we have interpreted this data.

Documentary information

While our main source of evidence has been interviews with employees in the four case companies, we have also used documentary information as a secondary source of evidence. This is in line with Yin (2014), who recommends having at least two or more sources of evidence in case studies. The documentary information used for this thesis includes publicly available information from the companies' websites, and news articles concerning the case companies. Also, the case companies provided us with internal material, such as documentation of routines and procedures, presentation slides, and annual reports, in addition to limited access to information from the companies' digital innovation portals. The information from the internal material is not publicly available. The documentary information served as a source for interview preparations, quality assurance of interview responses, and to provide additional input and details on specific topics.

3.3 Data Analysis

To analyze the data provided in the interviews, pattern matching was chosen as the main analytical technique. Pattern matching "compares an empirically based pattern–that is, one based on the findings from your case study–with a predicted one" (Yin, 2014, p. 143). The analysis process was divided into six steps: establishing constructs; interview coding; grouping constructs; revisiting constructs; case description; and cross-case analysis.

The first step was to establish analysis constructs, based on the work that had been done in the project thesis where we identified relevant topics, and additional topics that emerged through the interviews. As the goal of our analysis was to investigate how these topics could act as factors that influence innovation handovers, which is neither straightforward nor take a certain 'value', we found wider constructs to be more appropriate than specific variables. An overview of these initial constructs is given in Appendix X. Second, we coded the transcribed interviews, following the pattern matching process. Each interview was coded separately and manually with respect to the established constructs. As we were two researchers, we divided the interviews among us. After each researcher had completed the coding process, we exchanged interviews so that each researcher controlled the coding of the other, including altering and adding codes. This was done in order to reduce inconsistencies from individual bias, thereby creating triangulation, as recommended by Yin (2014). The third step concerned grouping the data on each construct, which provided an overview of the data on each construct within each firm, and thus made it possible to compare the firms. Fourth, we revisited the constructs. Here, we found it necessary to merge similar constructs, and remove certain ones, to be able to focus on the constructs that appeared to hold the most interesting findings. These revisited constructs are presented in Appendix X. In the fifth step, we wrote case descriptions presented in "Empirical Findings", where we gave an overview of the findings on each construct for each firm respectively, based on the analyzed data. Last, we conducted a cross-case analysis, presented in the "Discussion"-chapter. Here, we compared the findings on each construct across the four case companies.

3.4 Quality of Study

In this section, we seek to assess the quality of our research design through the four common tests for all social science methods: construct validity, internal validity, external validity and reliability (Yin, 2014).

Construct validity

In our study, we have had focus on construct validity. We have sought to ensure that our constructs describe what they were intended to, in line with (Yin, 2014), in order to give a correct and precise observation of reality. Here, we have focused on facilitating for similar construct understanding, employing multiple sources of evidence, and maintaining chain of evidence. First, as previously described, the risk of interviewer and interviewee having different understandings of the same constructs in the interviews was taken into account. Here, we tried to ensure that our own understanding of the constructs was thorough, by exploring sufficient amounts of literature that addressed the construct topics. Through this, we were able to describe and give examples to facilitate for mutual understanding of the constructs between the interviewees and ourselves. This was especially useful when talking about constructs with terms that are not used in daily language, such as psychological safety and psychological ownership. Also, we focused on following up the terminology of the interviewees. For instance, this was done when the interviewees used other terms than *handover*, such as *handoff*, *delivery*, and *implementation*. Second, multiple sources of evidence were used to increase construct validity, as suggested by Yin (2014). For all case companies, we conducted four or more interviews. We also supplemented the interviews with documentary information. This allowed for data triangulation, and thus corroboration of the findings. Third, as recommended by Yin (2014), we focused on maintaining chain of evidence in our study, and we argue that an external observer should be able to track back the steps of our study.

Internal validity

As our study is exploratory, where we have sought to understand more about the heretofore-underexplored phenomenon of innovation handovers, without establishing causal relationships, internal validity is not found relevant for our study (Yin, 2014). In our study,

the main focus has been to investigate the phenomenon, and how it might be influenced by a set of organizational factors. In order words, we have not sought to determine causal relationships, nor reach specific conclusions on how these factors influence innovation handovers. Instead, our intention has been to lay the groundwork for future studies, by developing propositions and hypotheses based on our exploratory cross-case study.

External Validity

Despite the exploratory nature of our study, we believe that our findings might have some external validity. Innovation handovers were found to occur in all of the four case companies. We also found that the case companies' presented similar issues and challenges regarding such handovers, and that there were similarities in how the investigated factors influenced handovers. As the case companies have different characteristics, such as size, technology-level, age, products, and industry, we believe that the phenomenon of innovation handovers, and the identified issues, challenges, and factors, can have prevalence also for other companies, of similar and other characteristics. This is found to be a benefit of exploratory multiple case-study design, which can be more robust than single case-study design (Yin, 2014). Further, through replication logic and a solid theoretical foundation, we have tried to increase external validity (Yin, 2014). However, we do not present any conclusive findings in this study that can be widely generalized, due to the study's exploratory nature. Once again, recognizing that our study serves best as a foundation for future research.

Reliability

We have had focus on describing the deployed methodology with both sufficient precision and detail in line with Yin (2014), in order to increase the reliability of our master thesis. Based on this, we believe that others can repeat main operations in our study. However, we recognize that findings might vary as a result of different nuances in deployed methodology, and might vary even though the exact same methodology is deployed.

As we conducted semi-structured interviews, there does not exist specific, detailed list of questions for each interview, but rather a flexible, common interview guide. Also, we asked additional questions based on the interviewee answers that naturally vary between interviews. Further, we tried to provide similar explanations and examples to guide the interviewees

during the interviews, but these are not included in the interview guide. As a result, this makes it harder to replicate identical interviews, which again affects the reliability of the study. However, by utilizing an interview guide, that provided a set of topics and general questions, we ensured relatively similar procedures and questions for all interviews. As a result, conducting interviews that are very similar is believed to be possible, despite the fact that conducting identical semi-structured interviews is not. Further, all interviews have been transcribed, meaning that it is possible to track all questions and answers from the interviews. We have also documented more or less all activities that have been conducted as part of our research with place, date, and also interviewee contact information for interviews. These records will serve as guidance for any researcher attempting to replicate our study. As a result, these records increase the reliability of our study. However, due to the required anonymity of our case companies and interviewees, these records could not be included in this thesis.

4 EMPIRICAL FINDINGS

In this chapter, we present the empirical findings in the case companies.

4.1 Manufacture Co.

As the name indicates, Manufacture Co. operates in the manufacturing industry. The company is a small, family-owned business, with less than 50 employees. Despite its small size, the company has a strong position in its target market. Manufacture Co. is located in a small town in Western Norway, and has a strong connection to the local community. Here, they have had their headquarters and production facilities since the company's foundation almost 80 years ago. Manufacture Co. is mainly a supplier for larger companies, and has their suppliers in low-cost countries. By developing and producing highly complex and innovative products of high quality, they have a distinct position in the B2B market. Manufacture Co. has a strong focus on maintaining close relationships to suppliers and buyers. Also, they participate in several research networks, in order to maintain their position in the fast developing and highly technological market.

Innovation

Due to the rapidly changing and highly technological market, innovation is imperative for Manufacture Co. As the CEO puts it: "For us it [innovation] is a part of our DNA. Everybody needs to think about how we can create new knowledge, opportunities and projects. ... This is the case for all levels of our organization." The company believes that being one step ahead of existing technology is key, in order to compete with the strong competition worldwide - to be able to survive, they need to push the limits of what has been done before. This often implies "being willing to take technological risk" (CEO). The CEO also underlines the importance of "planting technological seeds in an innovation project, that can be used in future projects". In this way, the company always tries to promote their innovation capability. Furthermore, "Manufacture Co. does innovation *for* and *with* their customers" (CEO). Through close relationships and collaboration, they are able to create new, complex, high-tech products in new ways. In this regard, their small size is seen as an advantage, because being able to

mobilize and respond quickly to requests in the market is an important point of differentiation.

Innovation process

At Manufacture Co. the innovation process can be characterized as dynamic and flexible. The innovation process varies from project to project, and is described as dynamic. The CEO emphasizes: “We do not like sequential processes.” A common feature for all projects is that the employees work in small, multidisciplinary teams throughout the process. Nevertheless, at Manufacture Co. “everybody knows everything” (CEO), meaning that employees are involved to some extent in all projects. The innovation process is typically initiated by a customer need. After the customer has approached Manufacture Co., the company put together a small team, with a designated project leader, that works closely with the customer to tailor a solution. In this process, they also include their suppliers, in a close dialogue, to make sure that the solution is feasible in all parts of the value chain. Throughout the innovation process, there is a large amount of testing and adjusting, with both suppliers and customers, making the innovation process everything but linear and formalized. When the solution is fully developed, the product is produced at Manufacture Co.’s production facilities. The projects vary in complexity and duration: “Sometimes our customers come with a very vague idea of what they want, and other times they can come with a request that is fixed, pre-designed and engineered to the final detail” (Project Engineer). Manufacture Co. highlights that they prefer projects where they have more room to maneuver and innovate.

Innovation handovers

At Manufacture Co., the multidisciplinary team is involved in the innovation process from beginning to end. However, their innovation projects require that the project team collaborate with customer, supplier and Manufacture Co.’s production facility. In these interfaces in the innovation process, there are several handovers, which vary in nature. The Project Engineer describes this: “There are many occasions where we throw the ball back and forth between us and them [customer]. There are these smaller and more diffuse transitions, and also we have some bigger ones.” Also, as described by the company CEO: “we have handovers, but the processes run into each other, it is more like a continuous flow.” This illustrates how the handovers are often not straightforward, nor clear-cut. Manufacture Co. also points out that

they have experienced both challenges and failures related to handovers: "There exist examples of failures linked to handovers. We have probably made 1000 mistakes there" (CEO). Manufacture Co. also utter a need for measures and routines associated to handovers in the innovation process. Regardless, Manufacture Co. believes that their close cooperation and communication with customers and suppliers, in addition to the close proximity of all employees, simplifies handovers in the innovation process. Especially that all parties have some kind of insight in all projects, in advance of handovers, is by Manufacture Co. stressed as a factor that simplifies handovers.

We have identified the most clearly defined and formalized innovation handovers at Manufacture Co. in the following:

- **Handover from customer to product development team:** In this handover, information about an idea or customer need is handed over from the customer to the selected project leader at Manufacture Co. Here, a legally binding agreement is made, including both signing a contract and placing the order. At this point, Manufacture Co. gains responsibility and control of the innovation project. In the case of new customers, this handover typically happens in two steps, because the first contact with a new customer goes through an employee with special market responsibility, before the project leader takes over: "I am responsible of the first contact with the [new] customer, and I continue to have this responsibility until the contract is signed and the engineers begin the development work" (Project Leader). This handover marks the initiation of the product development.

- **Handover from product development team to supplier:** The second handover at Manufacture Co. is from the product development team at Manufacture Co to the supplier that produces the highly customized production equipment. Here, the supplier receives information about the production equipment specifications, and then takes over responsibility and control of the innovation project: "When we are finished with the design [of the production equipment] we put the order. ... For producing the production equipment we have standards that specify dimensions, material type, etc. This is an input to the detailed construction, that our suppliers need" (CEO).

- **Handover from supplier back to product development team:** When the production equipment is produced at the supplier, it is handed back to Manufacture Co.: “We meet up at the supplier´s office when it is ready for testing. Once it has been approved and quality tested, it is handed over to us” (CEO).

- **Handover from product development team to production facility:** The product development team has responsibility and control over the innovation project until the point where the first approved product is produced at Manufacture Co.’s production facility. Before mass production, the customer is involved, in order to approve the final product. Sometimes a third party is also involved to certify the product. From here, and throughout the production period, the production facility holds the control and responsibility for the innovation project.

Teamwork

At Manufacture Co., teamwork across disciplines is an important aspect of their innovative work: "A multidisciplinary team typically consists of employees with different backgrounds, such as materials, processes, mechanics, automation, robotics, and design. It is very multidisciplinary" (CEO). As Manufacture Co.’s innovation projects become increasingly complex, the company tries to make their innovation process as integrated as possible, involving all relevant employees throughout the innovation process: “It [the innovation process] has become so integrated. There is not just a handshake, and then the project moves on” (CEO). When relevant employees are involved throughout the process, the company has experienced that they can more easily identify issues before they turn into problems, and thus avoids the need to return to correct previous mistakes. A Project Leader in the company also emphasizes the importance of early involvement in the innovation process: “We need input from everybody, already from the beginning. If an engineer has come up with a really good product, but employees in production have to spend extra time adjusting the product before packing, we have failed.” By doing this, Manufacture Co. reduces the possibility that different parts of the innovation project do not fit together, in the interface where one unit hands over the innovation project to the next unit.

Since Manufacture Co. is a very small company, the employees know each other well, and are used to working with each other. Also, the employees are described as flexible, regarding

roles and responsibilities. The CEO describes a situation where all employees, the CEO included, needed to help out manually in the production for 3-4 weeks, due to an error. This situation illustrates how the company has a good team spirit, and how employees are willing to jump into new roles if needed. In handovers, this means that the employees in the delivering and receiving units are familiar with each other, both on a personal and professional level. To sum, working in multidisciplinary teams is pointed out as key in Manufacture Co.'s innovative work, in order to succeed with developing their highly complex projects. More specifically, the integrated multidisciplinary teams are found to ease the handovers in the innovation process.

Management and Leadership

Due to the flat organizational hierarchy at Manufacture Co., management also participates in innovation projects on the same level as other employees. A project leader, with administrative responsibilities, is assigned to each innovation project. The project leaders also have operative responsibilities and tasks, within their respective projects. Typically, one project leader will be assigned all projects ordered by the same customer. This is said to facilitate innovation handovers with the customers, because the parties over time have become familiar with each other, on both a personal and professional level. Further, project leaders at Retail Co. can contribute in other projects than the one they are responsible for: "We have project leaders who lead a project, but at the same time they are specialists in a colleague's project" (CEO). This is due to the company's small size. In handovers, this means that all employees have some prior knowledge of all innovation projects, something that is recognized as a facilitator for information transfer.

The CEO also has a flexible role at Manufacture Co. His main focus is to see the big picture of their business, but he might also function as a supplementary resource in innovation projects, when this is needed: "We [management] should not be locked in specific projects, we should rather be supplementary resources, bringing access to large networks that our technology specialists do not have the same access to. We [management] try to have insight into all our projects" (CEO). He adds: "If they have problems in production, I am likely to be involved as an adviser on the technology." The CEO further highlights the importance of motivating the employees: "Maybe the most important thing, is to ensure that we have

processes that make people think unusual, that they can use the physics in a new way." Thus, both the project leaders and the CEO at Manufacture Co. have high flexibility in their managerial roles, which is an important aspect of the company's dynamic organizational structure and business model. Furthermore, motivational leadership is emphasized as important both in innovation work and handovers.

Routines

Manufacture Co. believes that their small size, flexibility and ability to mobilize quickly, gives them a competitive edge. This is tightly linked to their business model, which is based on a low degree of formalization in processes and routines. The CEO in the following statement expresses this:

> We recognize the power of being a small organization. ... The fact that we are small means that we have a high innovation, rate compared to other larger companies. Having too many people in an organization creates a need to be more formalized. This is something that we think can kill innovation, so we are afraid of being too many.

Nevertheless, Manufacture Co. operates by a set of routines. The company needs to comply to certain regulations and rules in the manufacturing industry. To comply with these regulations, it is practical to follow a set of procedures and routines. In addition, the company has established routines to better control their general business: "Fixed frames are good for controlling risk and costs ... Routines are used most as a check, because there is no single routine that is perfect for all projects" (CEO). Further, the Project Leader describes that they have routines for different events and milestones in the innovation process, but requests a higher degree of formalization:

> Today it [our innovation process] is a bit informal, and at least slightly different from the written routines and procedures. Also, these routines and procedures are not updated very frequently or attentively. We do things the same way as we have done for a long period of time. We do things quite

> casually. This works fine for us, because we are a small business. ... But we could become even more effective and efficient with more formalization.

Also for handovers, the same Project Leader requests more routines. Nevertheless, Manufacture Co. has some routines for handovers: a system for reporting; third party certification; and certain specifications and documentation regarding quality. Specifically, these routines aim to secure that the information transferred in handovers is complete, and that the quality of the innovation project is at an acceptable level. The reporting system is a type of feedback loop, where both parties in the handover go back and forth, in order to ensure that they have a mutual understanding. This is especially used in the handover from customer to product development team, and the handover from product development team to supplier. The third party certification is based on involving a third party to do additional tests and write a report, before the handover is formally accepted. This is especially used in the handover from the supplier to the product development team at Manufacture Co., and in the handover from the product development team to the production facility. Also, Manufacture Co. must adhere to certain specifications and documentations regarding quality and requirements in the handovers that involve their suppliers and customers. Despite of this, more practical routines for handovers would "set more requirements on how to do things, in order to be sure that it is done properly and thoroughly enough, each time" (Project Leader). Routines are something that affect the innovation process and innovation handovers at Manufacture Co., yet a higher degree of formalization is at Manufacture Co. perceived as a potential for improvement, as long as it does not affect the company's flexibility and responsiveness.

Communication

Manufacture Co. emphasizes how their small size also simplifies communication within the company. The Automation Engineer expresses: "In our company the distances are short. It is not hard to ask one another for help, since we are so few employees." Also, Manufacture Co. highlights personal relationships among the employees in the company as a factor that contributes to making communication easier:

> The personal relationships are important, especially in the idea- and development phase, when developing new products. This eases the communication, and helps us understand each other well. This is an important factor for doing things quickly and efficiently, and with a good result (Project Engineer).

Manufacture Co. also point out the high value of personal relations when communicating with external actors. The company has close relationships to customers, suppliers and research networks. Some of these relationships have lasted over more than a decade. As stated by the CEO: “We visit our most important suppliers and collaboration partners at least once a year, where we have plenty of time to talk about opportunities. This builds trust.” Typically, Manufacture Co. has designated project leaders with responsibility for specific customers. This is emphasized as an important factor to create personal relationships over time, and ease communication. Further, the company’s communication with research networks generally occurs in a very informal manner, through weekly meetings, Skype or e-mail. The company points out communication and relationships as facilitating factors in their innovation work, where they work with many actors in a dynamic environment.

Communication and personal relations are also highlighted as facilitators in innovation handovers. As stated by the CEO: "Handovers are simplified by having the social and trust components in place. If something does not work out, we sit down together and discuss it openly.” Further, he explains: “As the boss, I need to get to know the boss over there [other side of the handover].” For instance, in situations where Manufacture Co. experiences challenges in handovers with external parties, the close relationship between the CEO in Manufacture Co. and the other parties’ CEO might be utilized to make agreements:

> It might sound a bit strange, but if an engineer in one company approaches an engineer in the other company, he will not always get through. Then I can call the CEO of that company. ... I can explain what we want and why, and then they will agree. ... We have to use our network.

Manufacture Co. has a strong focus on having close communication in handovers, especially in the handovers: from customer to product development team; from product development team to supplier; and from supplier and back to product development team. In these

handovers, the parties often arrange visits to one another prior to the handovers, in order to prepare for the handover. These meetings are pointed out as important to enable effective communication, both prior and during a handoff, where Manufacture Co. realizes the importance of both parties understanding each other. Further, in the internal handover from the product development team to the production facility, the company emphasizes the importance of involving and communicating with the right employees prior to the handover. To summarize, Manufacture Co. highlights both close relationships and sufficient and effective communication as essential in their innovation work, and in innovation handovers.

Culture and Climate

Innovation is a central part of the organizational culture at Manufacture Co., where they have built up a common understanding that innovation involves trying new things and failing along the way. The CEO expresses: “We care about the soul of our business. The way we solve problems day by day represents the spirit of our business. ... There is no separate department located in its own tower working on it [innovation], it is on all levels.” He further underlines the importance of enforcing a culture where all employees dare to think differently, even though this includes taking risks:

> We are only human beings, and we make mistakes. We rather want employees to try many things and make a few mistakes along the way, than to be afraid of making mistakes. ... There is room for disagreement, but it must be done with respect.

The employees at Manufacture Co. further describe their workplace as a place where employees help each other, and value different opinions. The Automation Engineer states that: “We know each other well, so we know about what we should ask each other ... We know who we should go to if there is a problem.” Further, the Project Leader emphasizes: "For us it is a prerequisite that everyone expresses their opinion. We are all aware that we all have different competencies, and that this combination of expertise makes us competitive.” In sum, Manufacture Co. focuses on ensuring a psychologically safe climate both in innovation work and innovation handovers, where all questions and opinions are valued, and mistakes

and disagreement are not seen as negative, but rather seen as a possibility to learn something new.

Mental Models

Employees from different disciplines, and with different ways of thinking, work closely together in innovation work at Manufacture Co. The company especially recognizes that engineers and practical technicians have different mental models. Here, the Automation Engineer, who has background as a practical technician, highlights that it is easier to work with employees who have some practical technician background, than employees with a theoretical engineering background:

> We have a project leader with a background within mechanics, which is a more practical background. So, for me, it feels different working with that project leader, than with someone who only has a theoretical background. ... On some things it is easier to work with that project leader. ... Theory and practice are not always the same. They [engineers with theoretical background] do not understand the practical things.

The Automation Engineer notices how these different mental models influence the cooperation between employees. Conversely, employees at Manufacture Co. point out the company's small size and close integration as factors that promote the understanding of other employees' perspectives. The Project Leader emphasizes: "We are all aware that we have different skills, where it is the combination of everyone's expertise that gives us power in the market." This collaborative attitude, in combination with close collaboration, makes employees more familiar with each other's mental models, which in turn makes employees understand each other more easily.

Also in collaboration with external actors, Manufacture Co. has experienced the presence of different mental models. Sometimes the innovation project team needs to collaborate with designers from customer companies. The CEO explains how designers and engineers often have different perceptions of what is most important in the development of new products -

designers tend to focus on the visual aspects, while engineers tend to focus on functional and technical aspects. He recalls:

> In one project we collaborated with a very skilled designer, but he had a different idea for the product than us. Designers often want their fingerprints on their work. So we could get something [from this designer] that was very difficult to produce due to mechanical constraints.

However, the CEO further emphasizes that the presence of different mental models and focus areas often leads to better products: “When working with typical industrial designers, we are often amazed of what they consider to be important, that we might have disregarded. But, we really believe that they [the designers] know a lot of things that we do not." Also the Project Engineer addresses this topic:

> We humorously say that the industrial designs are terribly hard to work with, because they often suggest things that are demanding and difficult to produce, and not quite what we have been thinking in the first place. But we think that this collaboration can be the decisive factor for whether the finished product will be a success or not.

Furthermore, Manufacture Co. has experienced challenges related to different mental models in the handover from customer to product development team. In this handover, the marketing unit at the customer, as the delivering unit, might have different mental models than the receiving unit at Manufacture Co: “ The customer’s marketing department is often very focused on time and costs ... But I think that most product developers can live with a little time and cost overruns, as long as a complex project is successful.” Noticeably, the employees at Manufacture Co. recognize the different mental models both collaboration and handovers, and recognize that this might play an important role for the end outcome.

In comparison, the CEO points out that employees often experience both collaboration and handovers as easier when external actors have a more similar mentality to Manufacture Co. He exemplifies:

> Everyone says that are limits of what we are able to innovate. The advantage of collaborating with one of our suppliers is that they are just as crazy as us. Birds of a feather flock together. You can not collaborate with traditional people when making really innovative products"

The CEO considers these similar mental models as beneficial in the company's collaboration with their suppliers, but still underlines the advantages of having different perceptions and focuses in the innovation process, as this often leads to rewarding discussions and better solutions.

Psychological Ownership

The employees at Manufacture Co. experience psychological ownership to most of the company's innovation projects, as the employees, in general, are involved in all projects to some extent. Project engineer emphasizes how employee involvement is a decisive factor in creating ownership:

> This company is quite small, and we involve each other quite a lot, at least to some extent in all projects. So in this sense I feel that we all have some ownership of most projects here ... Through involving many employees, many employees feel ownership to what we are doing.

It is clear that what the project engineer talks about here is psychological ownership—a sense of commitment, engagement and attachment towards the innovation project—as it can not be legal ownership that he is referring to. The Project Leader also comments how employees' role flexibility make employees willing to contribute in all projects. Further he adds that, as a result, employees are not too strongly attached to any singular project. "In a small business, where development resources have many roles and hats, employees are more humble that all competencies are not their special competence." Consequently, the Project Leader claims that if other employees make new suggestions that differ from the original idea or thought, this does not cause conflict situations at Manufacture Co. However, the Project Leader exemplifies that when collaborating with buyers and suppliers, "the temperature can get hot if we start making other suggestions than their original suggestions", which he claims is the case if one has too much psychological ownership:

> An example of this is a project we had with a big customer. They had an engineer who had been working to the same problem for three years without solving it. In the project, we presented a number of solutions on the problem, but the engineer always arguments for why our proposals were bad. On one of our solutions, he did not have enough arguments, and then presented the solution for his manager. After verifying with another engineer, we decided to go for this solution. It should be said that the first mentioned engineer do not work there anymore.

It is evident that Manufacture Co. has experienced challenges related to excessive amounts of psychological ownership towards projects, when collaborating with customers. Especially, in the handover from customer to the project team this is pointed out as a challenge. Within the company, however, this is not found to be a challenge.

Even though employees at Manufacture Co. feel some sense of ownership towards all projects, Manufacture Co. has experienced that certain factors can promote psychological ownership of specific projects, and in turn influence motivation. First, the longitude of which you have been working on a project, and the effort you have put into it, is found to promote feelings of ownership towards a project. The Project Leader exemplifies:

> We have found that there are always some types of projects that our engineers think are more interesting to work with than others. One of our engineers has done almost all the work with this one customer of ours. I notice that when he is working on this project, he has an extra glow.

In other words, when employees at Manufacture Co. have worked on a project for a long time, and put a lot of effort into the project, they feel a stronger attachment towards the project. This leads to both feelings of ownership and motivation. Thus, the time and effort put into the innovation project can have impact on how psychological ownership of an innovation project evolves, also in handovers. In this way, creating psychological ownership after a handover can be challenging as Manufacture Co. describes psychological ownership as something that develops and matures, along with time and effort put into the innovation project, rather than something that is handed over alongside the innovation project. Second,

employees at Manufacture Co. emphasize that projects that are really complex, and require skills and abilities to master, can provoke feelings of ownership and increase motivation towards the project. For handovers, transferring this type of attraction can be challenging because the employees in the different units can have different preferences and interests.

Manufacture Co. also recognizes the difference between employees' feelings of ownership and legal ownership. Project Leader explains that in the beginning of the development process, Manufacture Co. splits the development costs with its customer. In this way both companies have legal ownership of the innovation project at this point. When asked if these divided the development costs affect the employees' feelings of ownership, he claims that this does not affect the employees' feelings towards the innovation project. "Our engineers are not really concerned about it. They usually work with very complex issues. They have more than enough just worrying about the technical solutions, without being concerned of the economic aspects" (Project Leader). Thus, at Manufacture Co., the legal ownership does not directly affect employees' feelings of ownership towards innovation projects. Handovers at Manufacture Co. exemplify this in an illustrative way. Psychological ownership does not arise automatically, nor instantly, after formal contracts are signed and the legal responsibility of the innovation project is handed over. Conversely, psychological ownership is something that is said to evolve when the employees work with, and "attach" themselves to innovation projects. Handovers are points where legal ownership is transferred, but since psychological ownership is not found to be directly linked with legal ownership, it cannot be transferred in a similar manner, and does not necessarily arise instantly in handovers

4.2 Energy Co.

Energy Co. is a large, multinational company that provides a wide range of energy solutions in both B2B and B2C segments. The company´s headquarter is located in Norway, but they have facilities across the world, which counts up to 30 000 employees worldwide. Energy Co. has a leading position within their industry, and has a very good reputation for having high quality products and processes. Energy Co. is involved in the entire value chain through their close relationships with suppliers and buyers. The company has a 50 year old history within

the energy industry, and has since the origin, expanded their portfolio, while maintaining their commitment to developing new technology.

Innovation

Innovation is an important part of the business model of Energy Co. The company invests heavily in research and development activities, and their employees are some of the best-qualified engineers and technologists. Leading Advisor in Department V expresses: “For us, innovation means that we need to think visionary. Sometimes this requires something completely new. If it is challenging, we manage to find solutions as long as we have enough time.” A typical innovation project at Energy Co is large, complex, elongated, and largely knowledge-based: “Our innovation projects typically consist of technology and knowledge concerning the product, while other companies make the actual design and production based on our innovation” (Leading Advisor, Department V). Energy Co. does innovation in close collaboration with their suppliers and buyers, and they focus on innovating for use in their own operation. The majority of these projects are incremental innovations. The same Leading Advisor describes: “We always reach a little longer. We improve the technology slightly, incrementally. It is a demanding and slow process.” For Energy Co., innovation is all about constantly improving their products and processes, and at the same time developing completely new energy solutions.

Innovation Process

At Energy Co., the innovation process is structured, controlled and formalized. The processes can have duration of up to ten years. The company has a customized innovation model, with many resemblances to Cooper's (1990) stage-gate-model, which is applied by all departments and business. Consequently, the whole company works with innovation in more or less the same way. Leading Advisor in Department V expresses: “It is crucial to ensure that we have a good process as a foundation”. Furthermore, since Energy Co.’s projects are complex, large, technologically challenging, and of long duration and high cost, it is necessary to collaborate across disciplines and departments, and with suppliers, buyers, and research networks: “Technological development occurs as a crosswise professional process, in our department and others. It also occurs in the interface with external professional environments” (Engineer,

Department Y). Projects at Energy Co. are typically of such magnitude that they are divided into smaller innovation projects, and distributed between different departments. Also, Energy Co. generally outsources a large part of the development process to their suppliers, with whom they work closely. Manager of Department X addresses this: “We do not make the products that we sell by our selves. We always have to go through a supplier and back to Energy Co.” This is an important part of Energy Co’s business model, which enables the company to focus on their core business.

The innovation process at Energy Co. consists of multiple phases and decision points. Innovation projects are initiated from both internal and external ideas, in addition to needs from customers and suppliers. To ensure that all projects have an actual utility in the end, the company focuses on having a specified customer in each new innovation project. At the point of the innovation project’s initiation, the company establishes a business case, and a corresponding project plan, based on the idea or need: “In an early phase of a project, a small group is established, and they grow in number as the project progresses” (Leading Advisor, Department V). Through the innovation process, this business case evolves through the different levels of the company’s customized stage-gate-model, often outsourcing parts to suppliers, with whom they collaborate closely. Here, the project passes through several decision points and milestones. As the innovation project progresses, the costs increase dramatically, as highlighted by Manager of Department X: “In the early phases [of the innovation process] you don’t really use that much money. But beyond that, you start spending huge amounts.” After the development phase, Energy Co. makes the final sale to the customer and implements the project in the customer's operations. As stated by Project Manager in Department Z: “I think it is really important to identify a customer. It is also important that we, already in an early phase, can describe how the implementation can be executed, and also who will produce, and who will do the marketing and selling.” In general, Energy Co. develops its complex, high technology innovation projects through a formalized and controlled innovation process, in close collaboration with customers and suppliers.

Innovation handovers

Energy Co. has experienced several challenges related to innovation handovers. These challenges include mismatches between the different parts that make up an innovation, and that the developed technology or solution did not fit an actual need or have an actual utility.

Project Manager in Department Z remembers how: “Employees in my department experienced developing algorithms that were not wanted by the employees in our operational unit. They [the operational unit] did not want to use the new software. ... Here, it was hard to implement what they [the employees in Department Z] had developed.” Principal Researcher in Department W has a similar experience: “The technology was developed by researchers and IT-people. But, it did not have a good connection to the work processes out there [in the operational unit]. ... It ended up just being something extra that did not fit their regular work”. Consequently, the company has recently restructured, in order to minimize the number of handovers in the innovation process, and accordingly hoping to reduce some of the related challenges.

An important aspect of minimizing the number of handovers, is having continuity in the innovation teams:

> We have found that it is very important to include all actors who will be important later on in the project, as soon as possible in the process. So that we don’t suddenly one day throw the technology over to somebody who has not even heard of it. ... We are talking about passing the baton in a relay race. But for us, we cannot just throw the baton to the next guy, and ask him to run. Then he will not run. We need to have a really long exchange zone. It really cannot become long enough. Ideally you would run together from cradle to grave. So you almost run next to each other the whole way. And along the way you gradually take over. That is what works, ownership (Manager, Department X).

Even though Energy Co. tries to involve all relevant actors from an early point, their projects are of such size and complexity, that they require a lot of different competencies and resources along the way. Organizing in a way that involves *all* actors throughout the whole process would not be possible, nor suitable for this type of innovation projects. As described by the Manager of Department X: “What we make ourselves is limited. We have to buy some necessary services from other major companies. Usually we develop in collaboration with others.” As a result, Energy Co. still has handovers in their innovation process after restructuring. These handovers are seen as necessary, due to Energy Co.’s business model,

and the complexity of the company's high-tech innovation projects. In the following, the two most clear-cut handovers that were identified at Energy Co. are presented:

- **Handover from the unit with the idea or need to project team:** Ideas or needs regarding new innovation projects, can come from several actors: external firms, suppliers, Energy Co.'s own operational unit, and the operational units of Energy Co.'s customers. In these handovers, the party with the idea or need meet with the relevant unit at Energy Co., to transfer information about the idea or need, and some amount of responsibility and control. The amount of responsibility and control varies, depending on the extent of which the party with the idea or need will be involved in the development process. The duration of this handover is typically not that long.

- **Handover from project team to operations:** When an innovation project is fully developed, it is handed over to the operational unit, where the innovation project is implemented. Here, the end users in the operational unit receive information, and take over control and responsibility for the innovation project. This handover can have a long duration, up to several years. Energy Co. often includes employees from operations in the development phase, and members of the product development team when implementing at the operational unit. Energy Co. has experienced that when doing so, the innovation handovers go smoother.

In addition to these clear-cut handovers that are formalized as a part of Energy Co.'s innovation model, the company draws in, and ties together, different competencies and resources during the innovation process. This is not a straightforward process, as it requires flowing information between all involved parties, and shifting responsibility and control of different parts of the innovation project. The innovation process consists of lots of testing, feedback and adjustment, which have an important function to facilitate collaboration and ensure progress. Also, this varies a lot from project to project. To sum, despite restructuring, Energy Co. has handovers as a necessary part of their innovation process, and the company works towards making these handovers well functioning.

Teamwork

Multidisciplinary teamwork is an important aspect of the innovation process at Energy Co. Leading Engineer in Department Y describes the company's innovation work as: "a process across different disciplines, both in our department and the rest of the company. Innovation also happens in the interface with the external professional community." As a result, collaboration across departments and disciplines is of great importance, and as stated by Head of Department X: "collaboration across disciplines is something we [Energy Co.] will see even more of in the future". The fact that Energy Co. is a large company, with lot of different competencies and resources, enables the company to "see the same challenges from new angles" (Head of Department X). On the other side, collaboration across departments and disciplines has been found to be challenging, due to inherent differences, and low awareness of one another:

> I think it is simply the fact that you do not have the knowledge. You do not know the people and the environment. Therefore, you do not know what they can contribute with. ... It is difficult to want, or seek, collaboration with someone you do not know is there (Project Manager in Department Z).

In other words, it is hard to collaborate with someone you do not know personally or professionally. As an initiative to address this, Energy Co. has initiated rotation of employees between some departments at Energy Co. This is highlighted as something that increases and improves collaboration across departments, and is something that more employees request.

As innovation projects in Energy Co. are often large and complex, and organized as collaboration with both suppliers and customers, there is not a multidisciplinary team working on an innovation project from beginning to end. Rather, teams are put together to solve specific challenges at specific points in the innovation process, whilst the project leader follows the overarching project throughout the process. Relevant expertise from different disciplines is drawn into the innovation project along the way: "It is pretty dynamic. We establish a project and replace team members along the way" (Project Manager in Department Z). This is further elaborated by Head of Department X: "The project leader is typically a technologically savvy person, but he is not a specialist within all fields. Innovation at Energy Co. requires expertise from different disciplines and departments that the project leader draws

in to solve problems.” Project Manager in Department Z states that: “The ideal situation would be to have the same employees from a to z”. However, Energy Co. is not able to organize such teams, due to their long duration and the complexity of their projects, and handovers therefore become necessary.

For handovers, Energy Co. has found that collaboration of both parties prior to handovers between the project team and the operational unit is key:

> Now we think it is important to involve all the employees that we include all those who later come into play as important people, as early as possible in the process. We do not suddenly throw the innovation project over to someone who has never heard of it before. (Manager, Department X)

Because Energy Co. does not have one singular project team throughout the innovation process they see the need to ensure collaboration and involvement prior to handing over innovation projects. This is exemplified by Principal Researcher in Department W, where users of the innovation project were involved already at the prototype stage: “We invited many of the users to test and give feedback on how it [innovation project] would function when implemented. When we did this, it started to get easier. All because the involvement happened early." While early involvement from the receiving party is found to be important, it has also been identified as resource intensive: “Involving is time consuming and takes up a lot of resources, and it can be really challenging to gather everyone. But if the result is that we get a higher hit-rate, I think it is worth it” (Head of Department X). Summarized, involvement and collaboration prior to handover is found to be an enabling factor.

As handovers at Energy Co. typically occur across disciplines and departments, the company stresses the importance of measures, KPIs and goal alignment. As stated by Head of Department X: “Previously, working across departments has led to employees feeling punished because they have not delivered anything in their own department.” Energy Co. has found that measures and KPI’s that address performance only within departments can hinder employees from making an effort in innovative work across departments. As a result, measures and KPIs for innovation that promote and encourage work across departments, is requested. Further, goal alignment for each innovation project is also emphasized as critical: “In teamwork, it is important that you have the same picture of what you want to achieve”

(Manager, Department X). At Energy Co., where the innovation projects are large and complex, and require the collaboration of several disciplines and many employees, goal alignment is considered to have high importance.

Management and Leadership

Energy Co. has a hierarchic structure with formalized levels of management across departments and units. The innovation model, with established routines and procedures, steers the innovative work at Energy Co., and is enforced through the different levels of management. At Energy Co., a project leader with technological background typically runs the multidisciplinary innovation projects. The project leader is responsible for managing the project, and maintaining a clear direction. Especially the project leader plays an important role in involving relevant competencies when this is needed: “Innovation at Energy Co. requires a lot of expertise from different disciplines, which the project leaders draws into the project to develop the solution” (Head of Department X). Further, Head of Department X states that the project leader, and his or her manager, plays an important role in the execution of the innovation project: “How many questions are asked? ...Have you done all the right checks? It is all in the hands of the project leader, and the project leader needs to involve the right people to get there.” Involving the right competencies is thus highlighted as an important responsibility of the project leader.

In innovation handovers at Energy Co., the same project leader generally has responsibility for the innovation project, both before and after the handover. The project leader therefore plays an important role in the innovation handover, as a point of continuity. Leading Advisor in Department V describes how today’s practice differs from the company’s practice before restructuring: “One year ago there was one [Project Leader] from R&D who transferred the responsibility to another [Project Leader] from the Technology department. Now the same person is responsible all the time, so he actually transfers responsibility to himself (Leading Advisor, Department V). This is found to facilitate innovation handovers, here exemplified in a handover from the project team to the operational unit: “I think it was key. ... It was so important that we had a "lighthouse", a person who was really committed” (Principal Researcher, Department W). In brief, Energy Co. has found that having the same project

leader before and after handovers, especially in the handover from project development team to operations, acts as an enabler.

Routines

As Energy Co. is a large company with a formalized innovation process; there are many routines, processes and systems. As described, they use their innovation model for more or less all projects, giving the company a template for their innovative work. This gives employees across departments the same perception of what work needs to be done, and at what point in time. Also, Energy Co has requirements for documentation and evaluation of their innovation projects: “The innovation process here at Energy Co. is very robust. We have a lot of focus on involvement and assurance” (Head of Department X). Although the innovation model leads to many routines, the employees feel that they have flexibility and elbow room within the limits of each innovation project, which facilitates innovative work.

Innovation handovers are also a formalized part of Energy Co.’s innovation model. When, and where in these innovation process these formalized handovers occur, is specified in the innovation model, based on the technology readiness of the innovation project: “We operate with guiding documentation, which gives clear rules for how things should be done, and how they should be documented. I think we work more by the book than others. We do nothing on our own initiative or randomly” (Manager, Department X). Further, he adds that despite this, some flexibility is needed: “How we do handovers is linked to how we organize our company, and our innovation model ... We must see each handover as it is, and based on this, assess what is appropriate." Especially, the degree of involvement is stressed as one of the aspects that need to be adjusted and customized to fit the specific innovation handover within the routines at Energy Co. The routines for involvement is exemplified in the following handover, from project team to operation:

> In the final phase of a project, there is a lot of training and courses. It is important that those who take over the technology, the operators, are well prepared. The operational unit is therefore, as a rule, involved to ensure a smoother transition and to prepare them. These people typically have few duties in the beginning, but closer to implementation they get more duties. This

> is an important feedback loop, where get feedback from operation even before we implement (Engineer, Department Y)

Summarized, Energy Co. has a formalized handover routine in a formalized innovation process, where involvement is specially highlighted as something that needs to be tailored to each specific handover.

Communication

At Energy Co., communication across disciplines is essential in order to manage their complex innovation projects. Despite Energy Co. being a large company, where “everybody does not know everybody” (Head of Department X), having personal relations within the company is pointed out as a key factor for succeeding with communication. As stated by the Leading Engineer in Department Y: “It is very much about people. It is important to get people to talk to each other. It really boils down to personal qualities and personal limitations”. Clearly, communication and personal aspects are highly linked. Here, having a network within the company is pointed out as valuable. As stated by Project Manager in Department Z: "It requires a fairly large network, and it takes a lot of time. ... The fact that people believe in what you do and trust you is really important. ... People need to trust you if you want to get something done”. Energy Co. stresses the importance of communication and relationships within the company.

Energy Co. also has a strong focus towards maintaining good interaction with their partners outside the company. This includes research networks, customers and suppliers. As an example, regular contact with the end customer is highlighted: “It is all about minimizing the distance between expectations and the actual end result for the users. ... At some point of maturity [of the innovation project] you will get a lot of critical questions. Then, it is really important that we have a good dialogue with our customers” (Principal Researcher, Department W). Communication and personal relations are identified as antecedents also for close collaboration with external partners, which is crucial for Energy Co. to succeed with their complex innovation projects.

Turning to innovation handovers, communication and personal relations also play an important role. Leading Engineer in Department Y emphasizes: "A challenge associated with handovers is ensuring sufficient communication between the business areas." The company focuses heavily on early communication between the delivering and receiving parties prior to handovers, as this communication is said to contribute to a smoother handover. In order to succeed with such communication, Energy Co., also here, highlights personal relationships and trust as important factors: "If you do not have a good relationship to the customer and the users of the innovation project, they might just throw you out before it is adequately implemented" (Department X Manager). Having relationships across such handovers is found to create trust and reduce uncertainty, which is especially essential for the receiving party, which receives an innovation project that someone else has developed. In this manner, close relationships and trust is found to facilitate the communication, which again facilitates the innovation handover.

Culture and Climate

Energy Co. is a large company, and naturally there are some differences across departments, with respect to organizational culture and climate. The different departments typically have separate budgets, where the battle for resources is said to stimulate a competitive culture: "There is an inherent competition to justify what your department is doing" (Engineer, Department Y). However, the focus on technology, innovation and quality is a common denominator for the whole company, which is reflected in the organizational culture. This, on the other hand fosters a collaborative culture across departments, something that is important for the company's ability to succeed with their complex innovation projects.

As the projects at Energy Co. typically are characterized by high cost and high risk, the company has enforced a culture where employees work thoroughly, accurately, and by the established rules and procedures, in order to minimize these costs and risks. As stated by Manager in Department X: "We can not mess with our projects. We can run into millions of extra costs if something goes wrong. We need to have everything verified as early as possible, so we can be confident that it works out." Despite high cost and risk, Principal Researcher in Department W explains:

> We are working on creating an innovation culture, where it is allowed to fail. This is a hot topic in Energy Co. nowadays. People begin to realize that if we want to succeed with innovation, it should not just be considered ok to fail, but maybe it should be celebrated as well.

Also in handovers, Energy Co. indicate that the culture of collaboration across departments, and the common focus towards quality, accuracy and thoroughness have positive effects, as this brings the employees in the handover units closer to each other. The handovers at Energy Co. often require the collaboration and cooperation of different departments, and the fact that all employees recognize the importance of high quality and accuracy, is said to facilitate this collaboration. Further, the employees acknowledge the importance of having a climate where questions are allowed and mistakes are encouraged in innovation handovers. The Project Manager in Department Z describes this, with respect to the handover from development to implementation:

> It is pretty complex. ... There are a lot of technical challenges that you cannot foresee. If you have done similar projects earlier, you know some of what is coming, but you still have to handle the rest along the way. You have to be dynamic and flexible. You have to work constructively to try and solve the problem, without blaming each other.

To summarize, enforcing a supportive culture and climate is pointed out as key for successful handovers at Energy Co.

Mental Models

As Energy Co. is a high technology company, the majority of the employees have backgrounds within engineering: “Most of the employees here are engineers, and in that respect they have the same professional background, also in operations” (Engineer, Department Y). Accordingly, employees at Energy Co. recognize that they have quite similar mental models throughout the company, which is said to facilitate collaboration. However, Head of Department X stresses the risk of losing focus on important aspects of a project due to similar mental models: “Things can fall between the cracks when a researcher meets

another professional of the same caliber." Having similar mental models is therefore, in Energy Co., highlighted as something with both advantages and disadvantages.

Even though the majority of employees at Energy Co. have similar backgrounds, the employees recognize certain differences between departments related to the shared mental models within departments. “We have a lot of different departments. ... We often run into discussions between these [departments]” (Engineer in Department Y). Also, Project Manager in Department Z notice the differences in mental models between employees in this department and other departments:

> In my department we notice it every day. There are many employees at Energy Co. who are not keen on dealing with our business area. Partly because they do not know about it, or care about it, and they think that what they are doing is more important.

Also in handovers, different mental models between employees in the delivering and receiving unit can have impact on the handover. The Engineer in Department Y expresses the handover from innovation project team to the operational unit can be challenging, due to different mental models between the two units:

> From development to the operational unit there are challenges. We bring new technology, and therefore also uncertainty. Many employees [at operational unit] are very skeptical. ... This is a barrier. The operational unit will not accept the innovation project if it is not guaranteed to pay off a lot.

Leading Engineer Department Y also highlights this challenge in the handover from innovation project team to operational unit: “To get something implemented is really most dependent on getting the user [receiving unit] to see the value of it.” Also, Principal Researcher in Department W recalls a project where the receiving party of a handover were very skeptical in the beginning: “They were all thinking: Here come those researchers again. Many were most interested in doing what they always had done.” Here, the different mental models were found to act as a barrier for the handover. However, when the delivering unit included a representative from the receiving unit the handover went more smoothly: “We wanted them [operational unit] to use our innovation. So, luckily we got one of them

[operational unit] into the project, and he actually took over eventually. Then it became easier to communicate with the others." To sum, at Energy Co. differences in mental models are found to act as a barrier for innovation handovers.

Energy Co. has also experienced challenges related to different mental models in collaboration with actors of different disciplines. In addition to engineers, employees at Energy Co. with other backgrounds and disciplines also occasionally have affiliation to the innovation processes at Energy Co. Manager of Department X recounts an experience with the procurement department, where the R&D team wanted to buy new and better, but more expensive, equipment. While the R&D team considered this to be a necessary investment due to the improved features, the procurement department was more concerned with increased costs and resources. Further, Energy Co. has also observed that different mental models have affected their collaboration with external actors. Many of these situations concern a mismatch between expectations related to the innovation projects: "They value the innovation project based on the technology functioning exactly as intended. For us, the technology is only a cost before we know it works. We have different expectations" (Head of Department X). To summarize, at Energy Co. different perceptions, expectations and ways of thinking are found to sometimes complicate handovers, but yet found to play a necessary part of innovation work.

Psychological Ownership

Psychological ownership is emphasized as one of the most important aspect for succeeding with innovation projects at Energy Co, and particularly innovation handovers. As stated by Engineer, Department Y: "It is important that people believe in the ideas and feel ownership to them" and Project Manager in Department Z: "Feeling ownership is vital. You have to be motivated, and want to get it done." The importance of psychological ownership is also heavily emphasized with respect to handovers:

> I think it [psychological ownership] is very important. If someone does not feel ownership both before and after [the handover], then it will stop abruptly. So, ensuring that the receiving party are aware of how important it is that they continue to put effort into it [the innovation project] is key. Also, I am sure that

> if the receiving party is not interested, then it [the innovation project] will die (Leading Advisor Department, Department V).

Psychological ownership is crucial for handovers. If the receiving party does not feel ownership towards the received innovation project, the work on the innovation project might not be followed through after the handover. This is exemplified by Principal Researcher, Department W, who describes a handover where the project development team were handing over a new technology to users in the operational unit: "The technology was developed by technicians, researchers and IT people. But they [the users] did not feel that the new technology was necessary in their daily work processes. ... It ended up just being an unnecessary addition." Here, the receiving unit did not feel that the technology was necessary, and therefore felt no attachment or ownership towards it. As a result, the innovation project ended up being something that was not used by anyone. Head of Department X has also experienced similar challenges and explains that: "

> Those who develop the technology are very engaged in it, it becomes like a baby to them. While they are promoting the technology [in handovers], the receiving party is preoccupied with other tasks, so the technology [that is handed over] only becomes a part of their [the receiving party] toolbox. In this way, the dedication to the technology partly disappears.

Thus, for innovation handovers, securing psychological ownership of the innovation project in the receiving unit is crucial.

Energy Co. point out employee involvement as effective in creating psychological ownership. Manager of Department X explains how they work to create psychological ownership at Energy Co.:

> We work together. So that the receiving unit see the big picture of what we are trying to do. ... When we bring something new, there is typically considerable resistance throughout the unit. So you have work for quite some time. ... Gradually, more and more people think that this [the new innovation project] is a good idea.

In other words, when employees are involved in the innovation project over time, this creates psychological ownership towards the innovation project. Here, two forms of involvement have important functions. First, involving employees from the receiving unit in work on the innovation project prior to handovers is stressed. Head of Department X has experienced that employees in the receiving unit are not interested in the innovation projects prior to handovers, and become skeptical when receiving the innovation project: "The problem [in handovers] is that users are not involved in the innovation project before it is at a certain maturity level. They are often more concerned with what is going on tomorrow, so they do not think much about what is coming further ahead. And then at some point they become skeptical." Therefore, at Energy Co. employees from the receiving unit are generally involved in the phase of the innovation process prior to handovers to build up interest, engagement and feelings of ownership. Second, involving employees from the delivering unit, after the handover, is also found to play an important role. The Project Manager in Department Z emphasizes this: "We try to organize so that some of the employees that have been involved in the development of an innovation project also participates in implementation. This makes the implementation more effective and it goes a lot easier." In sum, Energy Co. has recognized that involving employees from the receiving unit prior to handovers, and conversely involving employees from the delivering unit after handovers helps handovers run more smoothly because it builds up psychological ownership.

Further, Energy Co. has found that individuals with especially strong psychological ownership of innovation projects can play an important role in handovers. These employees are strongly motivated to get things done, and can function as advocates that motivate others. Principal Researcher in Department W describes how such individuals, with strong engagement and psychological ownership, play a crucial role in engaging and creating psychological ownership among employees in the receiving unit in handovers: "The fact that we had employees who supported the project, and really pushed it forward was important. This made things happen" (Principal Researcher, Department W). Also having key employees in the receiving unit can be decisive for the outcome of a handover:

> We have experienced that ownership of the innovation project disappears when engaged employees on the other side [receiving unit] get exchanged. It is a real bummer when this happens, because up until that point you might have spent years and millions on the project (Project Manager, Department Z).

In sum, this shows how employees with strong psychological ownership can create psychological ownership, engagement and motivation towards the innovation project in the receiving unit after handovers, which is said to make handovers go more smoothly.

While having employees with strong psychological ownership can be a facilitator for innovation handovers, it is also found to impede handovers when employees have too much psychological ownership. According to the Leading Advisor in Department V: “You have individuals who can make handover processes more difficult." Here, especially the people who have put a lot of their effort and time into the innovation project are pointed out:

> Very eager people, who have worked a lot on an innovation project, might have too much faith in what they have been working on. They become excessively positive, and end up with tunnel vision. Then they end up being not receptive to anything that might be slightly negative. At that point, it might be better to disengage those people from the innovation project, because they are not able to see the challenges. (Leading Advisor, Department V)

As illustrated, Energy Co. has recognized that employees with strong engagement and attachment towards an innovation project can develop psychological ownership towards it, and if these feelings of ownership become too strong, these employees might lose sight of the bigger picture. In particular, the inventor, or the holder of an idea, is emphasized as an employee who potentially can develop excessive feelings of ownership:

> There is a discussion about how long the inventor should be a part of the innovation process. In some cases it can be important that he does not participate for too long, because the innovation project may become too narrow. The inventor does not want to make changes to the innovation that differs from what his basic idea was. So I think that it might be important to disengage the innovator from the project after some time. And by including more employees and more competencies, it is easier to take it [the innovation project] to the next level (Leading Advisor, Department V).

Engineer and Leading Engineer in Department Y make similar observations. They emphasize the importance of including the idea holder in the beginning of the innovation process, because often there are no other employees who fully understand the idea at that point. Eventually, when the idea has become an innovation project, it is important to disengage the idea holder from the project. This is especially relevant regarding the handover from the unit with the idea or need to the project team. Accordingly, Energy Co. has a focus towards preventing innovation processes from being negatively affected by employees with too much psychological ownership.

Lastly, Energy Co. has identified that uncertainty has great influence on employees' psychological ownership and motivation towards innovation projects. The Engineer in Department Y point out how:

> Motivation towards innovation projects is important. There is often uncertainty related to whether you are going to work on the innovation project in the future. If the project is stopped, then all your effort is worth nothing. Because of this there is an unavoidable uncertainty.

Consequently, Energy Co. recognizes the importance of clarifying expectations, as this contributes to reducing uncertainty. Project Manager in Department Z explains this:

> I think it is important that we describe all the details early on: How are we going to make this product; how are we commercializing; how are we getting into the market; and how do we ensure that we have a customer. We need to know that what we are doing is interesting, in order to actually want to participate.

Also, the nature of innovation projects can be decisive for the level of uncertainty. Project Manager in Department Z explains that their projects are often more strategic than other projects, and that they often do not have a specific customer. He emphasizes that: "These strategic projects are probably a bit more difficult to support and feel ownership towards than business-driven projects." In this way, uncertainty can hinder employees from developing feelings of ownership, an aspect that is important for Energy Co. to be aware of when operating in an uncertain industry.

4.3 Retail Co.

Retail Co. is a large company in the B2C market, providing a wide range of consumer goods. They have offices and production facilities in various location across the world, and approximately 15 000 employees. The corporation's headquarters are located in the capital of Norway. They have a large set of subsidiaries, with offices and production facilities on several locations around Norway and other countries. In a global context, they are one of many actors, whereas they have a strong and significant position in the Norwegian market. They have control over the entire value chain, and a large set of suppliers and distributors.

Innovation

At Retail Co., there is a mutual understanding of the high importance of innovation: “Innovation is one of the most important things we do, and we have a culture for innovation. It lies within us” (Assistant Director, Marketing & Innovation). The company has a high innovation rate, releasing a set of new products every four months. “All our innovation projects have high status and priority.” (Assistant Director, Marketing & Innovation). This is important, in order to stay updated and relevant for their customers, as the consumer market has rapid changes in demand and is influenced by trends. Retail Co. calls themselves a “market-pull” rather than a “technology-push” organization. The company does not develop new technology, but rather new products based on customer insight. This quote from the Director of Product Development: “We launch a lot, and we are doing very well.”, shows how Retail Co. is confident in their innovative work.

Innovation Process

Retail Co. works with innovation in a formalized, typical stage-gate process (as of Cooper, 1990), tailored to fit the company's innovation projects. “We have standard routines for all the activities in the process, and when they should occur” (Project Leader, Product Development). Here, Retail Co. defines the team organization, budget, project scope and objectives. An innovation board controls the process. At each decision gate in the innovation process, the innovation board decides if the innovation project is ready to proceed to the next

stage. As put by the Director of Product Development: “It is all about doing the right things, the first time, quickly, with high accuracy and with minimum use of resources.” For all projects, a multidisciplinary team consisting of at least one product developer, a technical developer and a marketing specialist, work together from idea to launch. These form the core project team, but other relevant actors are also included in the project team already from an early phase: “We organize our innovation process in a multidisciplinary manner. Production and procurement are also involved as of a very early phase of the process. The whole value chain is included in our innovation activities” (Director, Product Development). Despite the fact that the innovation projects at Retail Co. are typically considered to be low-tech, they consist of elements from many disciplines, with high interdependence. Therefore, insights from different disciplines and departments are needed to obtain all relevant input.

Retail Co. focuses heavily on short time to market, and frequent launch of new products. This adds pressure to shorten the duration of the innovation process. The innovation projects are always initiated in a pre-stage gate, where the team members work creatively with ideas that have origin from focus groups, market research, and -screening. Thus, the ideas are always further developed internally at Retail. Co., as stated by a Marketing Consultant in the Marketing & Innovation Department: “No ideas are born great, they need work and development over time and from multiple disciplines.” Retail Co. follows a formalized innovation process model, where all relevant disciplines are involved from beginning to end. In their opinion, this helps to ensure that they work on the right things in an efficient manner.

Innovation handovers

The strong focus towards an integrated innovation process, where the same employees work together from beginning to end in multidisciplinary teams, minimize the amount of handovers at Retail Co. Especially employees in administrative positions describe innovation handovers as obsolete for the company’s innovation process: “I do not think there are a lot of handovers along the way. There are very few, because we have collaboration throughout the whole process” (Assistant Director, Marketing & Innovation). Also, the Director of Product Development shares this opinion: "We do not have transfer meetings and stuff like that. For us, this is obsolete.” Further, a Marketing Consultant in the Marketing and Innovation department emphasizes this:

> Mostly, the same people work together in the stage-gate. We want to avoid, if possible, that new people come in along the way. We want everyone to have gone through the idea phase, so that they understand the reason why we are launching this product, that they have felt the feeling on their body. We try to avoid explaining something new to new people, so that we can have a nice flow. By doing this, we save time, and we do not have to struggle with bad communication. Also, this makes people willing to prioritize the project, and gives them ownership to the project from the beginning.

While employees in administrative positions in the company describe innovation handovers as something of low relevance, and not up to date with respect to their business model, employees in more operative positions describe handovers as a relevant topic for their daily work. As stated by the Technical Manager in Production: "It is really easy for those who sit far away from where it really happens, all the processes and the routines, to say that this is not a problem. They are very good at the overarching structure, but they are not that close to the actual execution." He further ads: "I think we [production unit] see it a bit differently from an implementation perspective, than what they [administration] do from a strategic perspective." Working in Retail Co.'s production unit, the Technical Manager is closely involved in a specific handover from the product development team to production. Here, he highlights how:

> There are probably 50 things to be done, but which three factors, or five, or the one factor that determines whether it [the handover from product development team to production] is going to succeed or not. That specific factor, I do not think we know. Not here at production, at least. And I do not think we know that in Retail Co. either. ... For many years we have been looking for measurement indicators to say whether this process [handover to production] is good or bad.

To summarize, there exist different perceptions on the relevance of innovation handovers at Retail Co. While employees in administrative positions describe innovation handovers as not applicable to how Retail Co. innovates, employees working closer to the actual execution of the activities in the innovation processes, identify innovation handovers as a relevant challenge in their daily work. In the following, we present the identified innovation handovers at Retail Co.:

- **Handover from product development team to production facility**: When a new product is fully developed and ready for production, the product development team hands over information, responsibility and control to the production facility at Retail Co. This handover goes on over a period of time, where the product development team works together with the production facility to initiate production. This involves a lot of testing and adjustments. When the production efficiency has reached an acceptable level the production facility accepts responsibility and control for the new product. The Technical Manager of Production stresses that sometimes, finding that acceptable level is not straightforward: “When all project activities are done, but you have not reached the target [acceptable level], can we at that point say that the project is ready to be handed over to production? ... Is it the right time for a handover or not?" There do exist some checklists and manuals for this handover, but they are not widely used.

- **Handover from product development team to Marketing**: When the innovation project has been handed over to the production unit and the production of the product is up to full speed, the product development team hands over the responsibility for the marketing aspects of the product to a marketing representative. This marketing representative has typically been involved throughout the innovation process. This handover is described as informal.
- **Handover from Marketing to Sales:** This handover happens in a large sales meeting. Here, representatives from Marketing present all the newly developed products to the sales department at Retail Co. This meeting only occurs a few times a year, and there might be up to 1000 participants: “Employees in marketing have prepared themselves. They have the stage and the podium and they present all the news. ... This is one type of handover, because here employees from Sales get the information they need for the new product launch”(Assistant Director, Marketing & Innovation). This handover is the first time the whole sales department receives information about the newly developed products. Only a few of these Sales representatives have participated in the product development process, and are familiar with the products before this meeting.

Teamwork

At Retail Co. multidisciplinary teamwork is the essence of their innovation work. This teamwork always includes three main pillars in the core project team: Technical, Marketing and Product Development. The employees in these departments have different knowledge, competencies and backgrounds. Typically, either an employee from Marketing or Product Development is chosen as project leader. As stated by the Project Leader in Product Development: “An innovation is dependent on three thing to succeed: the consumer wants it, the product sells, and the production is as cheap as possible. You must have a parallel development for all three parts.” Thus, the innovative work at Retail Co. always includes employees from these departments, who work together to develop the best solutions: "Through multidisciplinary work you get the best solutions, because you get a professional understanding of many different parameters” (Project Leader, Product Development). At Retail Co. they operate by the idea that: “You get the best solutions in the interfaces” (Technical Manager, Production). The company emphasizes the importance of both involving the right competencies, and working together from beginning to end, in order to succeed with innovation: "The fact that team has worked together the whole time, ensures that the project is on the right track, and is realistic and producible” (Project Leader, Product Development). As a result, handovers at Retail Co. do not occur between two parties that have not worked together before. The high focus on involvement and teamwork across disciplines and departments, throughout the process, minimizes the number of handovers in the innovation process. Also, this minimizes the extent of each handover since both parties have collaborated in advance. This is exemplified further:

> If you start developing a product that you think the consumer wants, and later on you start thinking about how to produce it, the product will definitely be more expensive to produce. Then you will be dependent on luck, to get a product that is optimal for the production facilities. If you don’t think about production in an early phase you will end up with solutions that costs more than it tastes (Project Leader, Product Development).

In addition to the three project team members from Technical, Marketing and Product Development, each discipline typically has its own sub team, that assist the core project team. Here, all employees with influence on the innovation project and employees who need

information are included. These sub teams are also created at the beginning of the innovation process. In addition, a representative from Sales is also drawn into the project team, typically in a later phase of the innovation project.

While working in a multidisciplinary manner is very resource intensive, the disadvantage of not doing so, is found to be too large for Retail Co. Even though the Director of Product Development stresses how: “Involving all disciplines and functions into the work in an early phase is an investment. If it is unnecessary to involve all these employees, it is an overinvestment.” This disadvantage is exemplified in the following:

> Product Development might realize that what they had developed is not what consumers want, but too late. Then you would be forced to do a penalty lap, to make changes. And marketing, who might have used a lot of time making design sketches, would later realize that this is impossible. So, the development might go faster without multidisciplinary teamwork, because of fewer discussions and disagreements, but the penalty laps that you would have to take, would make it more time consuming (Project Leader, Product Development).

Summarized, for Retail Co. involvement is an important aspect of the innovation process, even though it might be resource intensive and time consuming.

Another highlighted aspect of working in innovation project teams at Retail Co., is flexibility. There is a strong focus towards employees participating in different types of projects and roles: “You cannot just do what you are specialized in. ... We encourage people to be a Jack of all trades, who can work within different departments and product group” (Director, Product Development). Typically, employees change position and responsibilities within Retail Co. Further, “there are interfaces here [in the innovation project teams] between departments, so sometimes project team members have to go a little further into an interface than usual" (Project Leader, Product Development). Role flexibility within teamwork is therefore a characteristic of innovative work at Retail Co. This is something that becomes especially recognizable in the handover between the innovation project team and the production facility. Here, representatives from both parties of the handover work together for some period of time, in order to optimize production. While the members of the innovation project “almost live next to the production line” (Project Leader, Product Development), the

representatives from production need to be compliant and be willing to rethink and rearrange in order to optimize production.

Management and Leadership

At Retail Co., the employees recognize that there are certain management levels, but that the perceived hierarchical differences from staff to management levels are small. As presented, Retail Co. works with innovation in a formalized stage-gate process. This is supervised by the management formally through the innovation board at given points in the innovation process, but also more informally on a daily basis, through meetings, phone calls and updates. During the development phase of the innovation projects at Retail Co., the role as a project leader is designated to one of the members of the multidisciplinary project team. The company favors project leaders with a combined technical and commercial profile. This project leader works closely with the other team members throughout the whole innovation process. Retail Co. has a strong focus towards organizing for effective team processes, here emphasizing the central role of the project leader. As well as having operative responsibilities in the project, the project leader manages the innovation process and facilities the teamwork. The Project Leader in Product Development underlines this: “It is important that the team members communicate well. It is something a project leader should focus on, and address.” Discussions might arise as a result of different viewpoints within the project team. This is also the case for handovers, where Retail Co. has experienced that the different parties in the handover can have different goals and understandings. Here, Retail Co. highlights the important role of the project leader, to ensure that the different parties realize that discussions are good, and also often necessary in order to come up with the best solutions. The handovers at Retail Co., mark points in the innovation process where shifts in responsibility and control occur, and these handovers therefore have managerial implications. This is exemplified in the following statement from the Assistant Director of Marketing & Innovation with respect to the handover from innovation project team to production:

> If something happens in production, for instance that the product has a feature that it is not supposed to have, then the production facility is responsible, and has to take the following extra cost. And the project team has no responsibility. But if there is an issue with the delivery from the project team, then it is the

> project team's responsibility up until the point where it is put into production. From then it is the production facility's responsibility.

To summarize, with respect to management and leadership, especially the project leaders at Retail Co. have an important role in guiding the innovation work and the innovation handovers at Retail Co. Projects leaders are again supervised and overseen by higher levels of management at Retail Co.

Routines

Retail Co. has a highly formalized innovation model, which guides their innovation work. However, being a dynamic company in a fast-paced market, they need to be able to not always follow stringent routines in their daily work. As stated by the Assistant Director in Marketing and Innovation: "No projects are the same, and there will always be some unknown issues along the way. For that reason, we try to have guidelines, so that project leaders know what to keep in mind." Routines at Retail Co. guide the innovative work, but are not always strictly followed. The Marketing Consultant describes how routines often need to differ across the company:

> We work a lot with routines. In one of our units they have a different way of writing product descriptions than they do in one of the other offices. We try to find a similar way of working. Sometimes it works, and sometimes it does not. Due to certain product characteristics, doing things differently might be the best option.

Also, how an innovation project team follows the routines, might vary between different units and different project leaders at Retail Co.

With respect to routines, Retail Co. has the same mentality in handovers of innovation projects: "The process goes a bit back and forth. You need to test, and then go back again. It is much more like teamwork, than a routinized sequence. You need meeting places where you discuss things, rather than only following manuals" (Director Product Development). However, Retail Co. has developed specific interface documentation, routines and checklists

for the handover from the product development team to the production facility. The Technical Manager at the production facility describes this handover as follows:

> We have a common procedure for the handover to the production facility. There are a lot of checklists that concern the innovation project. Generally, the project group is present at the start of production. We have to check that everything is in accordance with what we agreed, and all involved parties need to give their consent. ... Before we start production we have a meeting where the project team goes through everything with the employees at the production facility. ... We go through a checklist.

This description of the handover from the product development team to the production facility differs from the one given by the Assistant Director of Marketing & Innovation:

> The handover should take place after three regular productions, at the most. This is not a very formal thing. ... The project leader should make sure that everyone agrees and that all paperwork is filled out. There is no formalism around it. First the project belongs to the project leader, and then it belongs at the production facility. ... I know there is a note to be signed by project members and the production facility, but how often it actually happens, I am not sure."

Also here, the employees at Retail Co. have diverging perceptions. While the Technical Manager of Production perceives routines to play an important role in this handover, the Assistant Director of Marketing and Innovation does not see this handover as equally formalized. The Technical Manager in Production explains how: "The project development team prefer having more flexibility, but this complicates the handover for us. The flexibility makes the handover more unclear." In contrast, the Project Leader in Product Development emphasizes how teamwork affects the extent of formalization in the handover: "We work together regardless of who owns the project. Everyone is prepared to help out to solve problems that arise. So for our part, we do not see handovers as a big deal." Obviously, the different departments perceive the tradeoff between formalization and flexibility differently.

Communication

At Retail Co. they work with innovation in multidisciplinary teams, which involves close communication between team members. Even from an early phase in the innovation process, effective communication across all relevant disciplines, is pointed out as a necessity:

> Innovation is very multidisciplinary, and sometimes it is not easy to see that we need to include all disciplines in each project meeting, but we do. We cannot communicate sequentially with product development and production. We need to gather all disciplines to see what is possible. ... We need to think about production, logistics, sales, risk, and everything. It is intertwined. (Assistant Director, Marketing & Innovation)

Retail Co. emphasize that having the same team members working together throughout the whole innovation process, is essential in order to achieve good communication. As stated by the Marketing Consultant in the Marketing & Innovation unit:

> We want to avoid, if possible, that new people come in. ... We try to avoid explaining something new to new people that have not been a part of the team since the beginning, so we can have a nice flow. Then we save time, and we do not have to struggle with bad communication.

Communication in Retail Co. is also affected by personal relationships. A Project Leader in Product Development explains this link: “How well people communicate is related to personal chemistry. It is something that we must focus on.” The innovation project teams at Retail Co. consist of employees with different backgrounds, but also different personal characteristics. According to Retail Co., it is important to take this into account in order to promote good communication within the innovation teams.

In handovers, both formal and informal communication is highlighted as essential. The Marketing Consultant in Marketing & Innovation explains how the company has a focus on clarifying expectations prior to handovers: "The clue is that everyone knows what to do, and what is required of them. ... Being clear in this communication is crucial, and this is often a vulnerable point". The same Marketing Consultant adds that Retail Co. does have routines and

templates to facilitate communication concerning such expectations in the beginning of the innovation process. Furthermore, informal communication is also pointed out as important in handovers:

> What goes on in the hallway is very important. ... When things go fast, you cannot introduce difficult manuals. ... It has to go back and forth. You test something, and then you go back again. It is much more team-oriented than sequential. You must have meeting places where you can discuss things, not just manuals (Director, Product Development).

At Retail Co., both the innovation process and innovation handovers are found to be very dependent on personal relations and personal characteristics. Good personal relations simplify the communication and the transfer of information, responsibility and control in innovation handovers, while bad communication can act as a barrier.

Culture and Climate

As mentioned, Retail Co. sees innovation as a central part of their organizational culture. The Project Leader in Product Development describes this in the following:

> Innovation has a central role in our company, as it is one of the most important initiatives for growth, and for being constantly updated for our customers. It is so permeating. Everyone understands the importance of innovation. We do not encounter much resistance. I have heard about other companies where you have a lot of resistance towards innovation because you do it less often and people do not see the benefit of doing it.

Retail Co. systematically uses tool and methods that strengthens the innovation culture. The fact that all relevant employees participate in the pre-stage-gate-phase of the innovation process is emphasized as an example of an activity that helps to build such an innovation culture. The Marketing Consultant describes this pre-stage-gate-phase as: “It is a lot about having good energy, building an innovation culture." The focus towards multidisciplinary teamwork in the innovation process has also become part of the culture at Retail Co. The

employees describe that the whole company work towards a common goal, and that this creates a culture where employees help each other. However, we also observed cultural differences across departments, especially between the administration at Retail Co.'s headquarters and one of the production facilities. To some extent, the two departments have different beliefs around their own activities, different focus areas and concerns, in addition to having different languages and habits. Also, employees from the two departments have expressed different perspectives on innovation handovers, as presented earlier. For handovers, these differences is indicated as something that might lead to different sub goals and focus areas, while the overarching common innovation culture on the other hand has been identified to bring the different units closer together.

Having a supportive climate is also emphasized by Retail Co. Director of Product Development states: "It is important that you do not get criticized and punished if you make mistakes. Innovation is a very risky sport. Half of the products we launch do not succeed. Therefore, we must have a climate where employees feel safe, valued and seen." As indicated above, such a climate is at Retail Co. pointed out as a necessity in order to succeed with multidisciplinary teamwork and handovers within the innovation process.

Mental Models

Retail Co. realizes that there are different mental models across the company. These differences are found to be present between departments and within project teams. The Project Leader in Product Development explains:

> The different departments have different focus areas. Marketing is most concerned with consumers, trends in the market, and what competitors do. Product Development and the Technology Department may be more concerned of what is possible with today's production equipment.

Since these disciplines always work together in the innovation project teams at Retail Co, the different focus areas influence the innovation work to a great extent. The employees at Retail Co. have experienced that the different mental models also at times can cause disagreements and misunderstandings. Assistant Director in Marketing & Innovation describes:

> An employee from the Production unit, who is used to working on the production line is not used to presenting PowerPoint presentations, and does not necessarily realize that this type of presentation is what the project manager wants when he or she asks for something to be presented. Also, often in such situations the project manager has not communicated well enough, because in the head of the project manager it is completely natural and self-evident.

Further, the Technical Manager in Production emphasizes that diverging ways of thinking across departments can affect employees' motives in innovative work: "Marketing and Product Development want to launch many new products. We [the production unit] want both effective production and new products, but there is an extreme push." However, the combination of disciplines is emphasized by employees as one of Retail Co.'s competitive edges in innovation, and employees highlight that teamwork across these disciplines normally is well functioning. Project Leader in Product Development emphasizes that the common innovation goals across all departments, boost the collaboration in innovation work:

> All departments are measured on innovation. If production only were measured on efficiency, cost improvement, and that kind of thing, innovation would only be a hassle for the employees, because very often test runs reduce productivity and increase costs. Measuring all departments on innovation, and setting innovation as a goal for all departments helps everyone to be motivated to work with it.

In brief, the different mental models at Retail Co. sometimes make innovation work more cumbersome, but simultaneously have great value in reaching the best solutions.

Also in innovation handovers, different mental models are found to be beneficial, but sometimes troublesome. The different mental models that exist in the company typically meet in innovation handovers, as such handovers mark the points where the different departments and disciplines join together. The Technical Manager in Production identifies the different mental models as a possible source of frustration, but also better solutions: "If you do not realize that people have different interests, then I think you might get frustrated in these kinds

of processes. ... You need to realize that the good solutions come in the interfaces [between different perceptions].” To sum, if there is low awareness of the different mental models this is found to be troublesome for the innovation handovers, but with awareness the different mental models can lead to better solutions.

Psychological Ownership

At Retail Co., psychological ownership is pointed out as a necessity in innovation work. The Marketing Consultant in Marketing and Innovation emphasizes:

> When you work in multidisciplinary teams, in the stage-gate-model, the most important thing is that you want to participate and prioritize it [the innovation project]. Prioritization, commitment, and feelings of ownership towards the innovation project are the most important things to get things done in a good way.

The fact that employees have psychological ownership, and are willing to prioritize and commit to the innovation project is highlighted as crucial in all innovation work at Retail Co., and is pointed out as a prerequisite for handovers. However, psychological ownership can also lead to undesirable effects. Retail Co. has experienced that too strong feelings of ownership has lead the company to make wrong prioritizations regarding innovation projects, as described by Assistant Director in Marketing and Innovation:

> I think some of the reason why we fail is that someone really has a passion, and a strong belief that it [the innovation project] is going to be a success. And then these people manage to convince many more, who ends up being a little blinded. This does not only happen to project leaders, but also happens to management, who sometimes cheer on projects they believe in.

Here, employees with psychological ownership towards an innovation project have failed to recognize the shortcomings of the innovation project, and therefore steered the innovation work in the wrong direction. As a result, Retail Co. realize that psychological ownership is necessary when developing successful innovation projects, at the same time as strong psychological ownership towards the “wrong” projects can lead to innovation failures.

Retail Co. emphasizes that involving employees throughout the innovation process is an important factor in creating psychological ownership, also in handovers. The Marketing Consultant explains that by involving all relevant employees early on in the innovation process: “people are willing to prioritize the project and feel ownership of it from the start.” Further, the Technical Manager in Production pinpoints involvement as essential in creating psychological ownership:

> I think the fact that we [the production unit] are part of the project from day one is crucial for making good innovations. ... I think that having [psychological] ownership of everything from the project to the product, to the machines and the production process is important. To ensure that we have it [psychological ownership] it is important to involve all the employees who will participate in the process from day one.

Thus, for both handovers and innovation work, involving employees is found to play an important role in creating psychological ownership to innovation projects.

4.4 Bank Co.

Bank Co. is a medium-sized company with 1000 employees. It has a set of local offices located in, and in the region around, one of Norway’s largest cities. The company is part of an alliance of banks, which sets some limits regarding the company’s business model. The alliance forms a platform of cooperation amongst the banks. Bank Co. operates both in the B2C and BTB markets, which both are rapidly changing, with a strong focus towards digitalization and automation. Bank Co. has a strong customer orientation, and has through its 200 year history taken a large social responsibility for the local community. Today this constitutes an important part of their business model and gives the company a competitive edge.

Innovation

The banking industry is rapidly changing, especially towards digitalization. This forces Bank Co. to prioritize innovation: “We are in the world of finance, where things move and change, and we constantly need to adapt. We are trying to increase the pace of our innovation” (Project Leader 1). Manager of Business Development also expresses this: "The delivery rate has increased. We have more delivery plans, and a more complicated information process.” Mainly, innovation at Bank Co. is based on improving the current business, such as work processes, software and systems. This requires the involvement of employees in developing and implementing new solutions. In addition, Bank Co. is very customer oriented. The Manager of Business Development states that: “In the alliance, we have decided that everything we do shall benefit the customer, and make the company better for them. That is why we need to do innovation near the customer.” In practice, this means that each local office also takes part in innovation activities. Also, Bank Co. participate in some innovation projects in the bank alliance, and in turn receive fully developed solutions from the alliance to implement in their own business. Bank Co. need to innovate to keep up with the rapid changes in the market.

Innovation Process

The innovation projects at Bank Co. vary in size, complexity and duration. However, a common denominator is that they often changes systems, work processes and routines to some extent. The strong focus on customers strongly influences the innovation projects at Bank Co.. Innovation projects are generally initiated from customer needs, or internal needs and ideas for improvement. Here, time to market is often crucial. The Manager of Business Development stresses: “Time to market is our biggest challenge, I think. The fact that it [the innovation process] takes time.” Especially, being part of an alliance is highlighted as something that constrains the speed of the innovation process. Bank Co. does not work by a standardized and formalized innovation process model. As expressed by the Manager of Business Development: “We have a process outline that we try to work by. But, I do not want to say that we work like that. We can have an intention that this is the course, but it always gets more messy.” A project leader runs innovation projects from the Business Development unit. This unit is responsible for identifying what they call “performance issues”, which are needs or ideas for improvement, and further on initiating and facilitating innovation projects

that target these issues. The project leader brings in relevant resources as the project evolves, especially focusing on involving employees from the units that have identified the need, or come up with the idea, through their daily work. These employees will typically be the end user of the finished innovation project, and therefore involvement both in an early phase of the innovation process and in the implementation phase, is considered important. As described by Project Leader 1: "When involving many employees, and it becomes as multidisciplinary as it is today, nobody is unaffected. Everybody wants to express their opinion. Every discipline, from lawyers to real estate." The fact that innovation projects at Bank Co. require involvement of a wide range of disciplines, is something that complicates the innovation process, especially when innovation projects often require that some employees change their work processes. As a result, change management is a large and important part of the implementation of the innovation projects at Bank Co..

Innovation Handovers

At Bank Co. there are handovers both within the company, and between the company and the bank alliance. The company has found handovers to be challenging, and handovers have therefore become a topic of awareness and caution. One aspect that makes handovers at Bank Co. challenging is the large amount of new innovation projects. The company has recently developed a digital portal, where all innovation projects, of different maturity, are listed and described. This portal gives an overview of all ongoing innovation activities and initiatives. Nevertheless, the large extent of innovation activities and initiatives makes it difficult to prioritize what to do, when to do it, and how to allocate resources. As described by the Manager of Business Development: "We receive so many innovation projects. ... We have looked at what we have been able to realize, and what we have left to do. We see that we have a lot of unrealized potential." Also, the innovation projects at Bank Co. differ widely in size, complexity and content, which creates new challenges for every handover. Further, since the innovation projects at Bank Co. often lead to changes in employees' daily work, the company has a strong focus on avoiding that employees get tired of innovation.

In the following, we present the innovation handovers at Bank Co.:

- **Handover from bank alliance to Bank Co:** Innovation projects that are developed in the bank alliance, are handed over to Bank Co. for further development or implementation. All these handovers occur between a designated employee in the

bank alliance and the Project Coordinator, in the Business Development unit, in Bank Co. The size and complexity of the innovation project has significance for the handover: “Some deliveries are small, weekly deliveries, that require less preparation from both the Business Development unit and the bank alliance. Other innovation projects may be larger and more complex, and therefore require more preparation” (Project Coordinator). In these handovers, information about innovation projects is transferred, in addition to responsibility for implementation and/or further development of the innovation project in Bank Co.. These handovers occur via the digital portal, telephone and meetings.

- **Handover from Business Development unit to project team:** Bank Co. creates multidisciplinary project teams when an innovation project is large and complex. Here, the company selects an employee from the Business Development unit to be the project leader of the new project team. In this project team, Bank Co. always try to include some prominent employees from the basis organization.

- **Handover from the basis organization to Business Development unit**: This handover occurs when employee in a unit in the basis organization have a “performance issue” that they want the Business Development unit to help them solve. Here, information about the need or idea for improvement is handed over from the basis organization to the Business Development unit. Project Leader 1 in Business Development describes this: “These handovers can occur in a very informal manner. Like a request. I may meet someone in the hallway, and since they know what role I have, they can say: “Could we do something about this and that, because it has been a bit difficult lately?” The same project leader emphasizes the importance of the Business Development unit fully understanding the idea or need, before they initiate the development process: “We need to get them [employees in basis organization] to describe their dream situation. Because we [Business Development unit] are often a bit too eager to begin with. ... When we do not spend enough time planning, we run into many discussions later on” (Project Leader 1). Even though this handover is informal and seemingly incidental, it is important that the Business Development unit has understood the need correctly. Otherwise there is a risk that a lot of time and resources is spent, without solving the actual need. Project Leader 2, also within Business Development, describes how he prefers inviting employees from the basis

organization to preliminary workshops. In this way, the relevant parties can discuss the idea or need, and gain a mutual understanding of the performance issue.

- **Handover from project team or Business Development unit to basis organization:** When an innovation project is fully developed, either in the bank alliance or within the Business Development unit at Bank Co., the innovation project is ready to be handed over to the basis organization with the corresponding performance issue. The Business Development unit, or the appointed project team, is responsible for implementation to the basis organization in most of the innovation projects. This implementation marks the handover where the respective unit in the basis organization takes over responsibility for the innovation project. Here, Project Leader 1 emphasizes: "It is important to have a smooth transition. So we do not just throw it [the innovation project] in their laps. That we prepare them in advance." Bank Co. has found that this handover goes more smoothly if the receiving unit is prepared to receive the innovation project. Leader 1, Discipline X points out that: "They [the basis organization] need to understand the why-message, and not just the what-message." This handover is seen as a challenging part of the innovation process at Bank Co. that they aim to improve.

Teamwork

Even though the innovation project teams at Bank Co. are typically administered and facilitated from the Business Development unit, there is a strong focus towards including members from the basis organization where the origin of idea or need is. Product Leader 2 emphasizes: "I focus on involving those who has experienced the problem. They are able to describe what the root causes are, and what we should aim for." When an innovation project is large and complex, employees from different units are involved. However, this might represent challenges, as stated by the Manager of Business Development: "In our company the different disciplines cooperate when it is needed. But they work by a silo mentality. On a daily basis they work with their own products and processes, and sometimes we see that this can be challenging." Project Leader 1 describes the challenges related to collaborating across disciplines:

> Interdisciplinary leads to good discussions, but we spend a lot of time on it, because employees have different views. ... We often notice that when we start working with the innovation project, employees are skeptical and reserved. ... It is important to get everybody in the same room, so that they see the big picture, and understand that in context something else might be more important than what they thought initially. ... When you have a multiple disciplines working together, with a time limit, you are very dependent on having a good tone in the group, and that employees are cooperative.

Bank Co. has discovered that defining a common goal is important to overcome challenges of teamwork. An important part of the early phase of the innovation process is to establish a mandate and get the whole team and other involved parties to acknowledge and support the project.

In the case of innovation handovers, early involvement has been found to be both beneficial and disadvantageous in Bank Co.. Leader 1 of Discipline X highlights the importance of involving influential employees from the unit where the innovation project will be implemented: “Having some ambassadors, employees who have been involved in an early phase of the project, to set a good example, is crucial for positive attitudes towards implementation.” These employees, the ambassadors, are found to play an important role in handovers, because they have strong influence on other employees. These ambassadors are typically employees that “show a lot of interest, and curiosity for new things” (Leader 2, Discipline X). However, involving *too many* employees prior to implementation has been found to be more resource-intensive, without leading to better results. Project Leader 1 explains:

> In the last project we had, we tried to increase the involvement of employees from the basis organization. ... We took them through a journey, where we had workshops in which the employees could pinpoint things they thought were unpleasant, and they were included in designing the solution. But this was extremely labor intensive, both for them and for us. We thought that implementing the solution would be easier this time, but it turned out to be exactly the same, even though they [employees in the unit where the project was implemented] were very involved. ... So now we have peeled everything

> down. ... From 408 points of contact to 22. And we feel that the receiving unit's adaptation and acceptance is the same, with less work for us.

To summarize, Bank Co. has found that involving the right people, what they call ambassadors, is important to succeed both teamwork and implementation.

Management and Leadership

Innovation at Bank Co. is primarily managed from the Business Development unit. While the top management and the bank alliance provide directions for the innovation work, the responsibility for the execution of the innovation work lies mainly with the Business Development unit. A project leader from the Business Development unit is assigned to administer the innovation projects, which in turn are owned by the unit where the need or the idea for the innovation project arises. Project Leader 2 describes this:

> I do not want to make any decisions. ... The project owners finance the project from beginning to end. I am in charge of the execution of the project, to bring out the best solutions, and to ensure that the progression goes as planned. The owner of the project [the unit with the need or idea for the innovation project] has to want the change, and fight to bring about that change.

When the innovation project is finished, it is implemented into one or several units in the basis organization. In this handover, each unit takes over responsibility and control of the project. Here, Bank Co. has emphasized that it is critical that leaders in the receiving unit are committed to and feel ownership towards the innovation project. Leader 2 of Discipline X highlights that leaders are different in this respect:

> The more connected the leader is, the easier it [handover] goes, both with respect to implementation, follow-up and employee acceptance. We also have some leaders who think that they do not need to participate or engage in the handover, and then it [the handover] is a lot more burdensome.

The leader in the receiving unit has an important role in preparing and motivating their unit for the new innovation project, which often involves implementing changes to the work

processes in this unit. Leader of Discipline X states: “There are differences in how well prepared the units are in handling the innovation and the following changes. This is very often related to the management of the unit." With respect to leadership, both the receiving unit’s manager and the project leader has an important role in motivating the employees in the receiving unit. Project Leader 1 addresses this:

> Getting the employees to understand the necessity [of implementation] is important ... When it comes to implementation, many of the employees that have been involved have perhaps lost interest and focus because time has passed, and they have had their focus on something else. Then we [project leaders] need to breathe new life into it again to get the employees to feel the necessity. Here we [as project leaders] need help from management to pull the right strings.

To sum, leaders play an important role in engaging and preparing employees in the receiving unit, prior to and after handovers.

Bank Co. has experienced that it is challenging for leaders to engage employees in the receiving unit when the innovation project causes changes in their work processes. Project Leader 1 states: “It is often challenging to be a leader during the implementation phase of a project. ... It is challenging to make the employees realize that the innovation can solve some of the daily problems at their workplace.” To help overcome these challenges Bank Co. has a strong focus on involving ambassadors, who function to motivate and engage their fellow employees. Project Leader 1 stresses the importance of having ambassadors during implementation: "I think running the projects and the implementation with the employees is extremely important for the success of the innovation project. To get the employees to pull the project forward, not only the project leaders. But, it is hard to find those employees" (Project Leader 1). Bank Co. has found that including ambassadors in the handover from project team to basis organization is crucial in order to succeed, as these motivate other employees to participate. In brief, Bank Co. identifies both formal and informal leadership as influential in handovers.

Routines

Bank Co.'s strong focus towards doing innovation near their customers, leads to differences in innovation practices and routines across different units. Some employees at Bank Co. request more standardized innovation processes across the company, while others are afraid this will reduce flexibility. The Business Development Manager states: "I want more standardization, but standardization in a way that gives flexibility afterwards." Even though more standardization regarding innovation work is requested, there are a lot of other routines at Bank Co. that decelerate the innovation process: "We work in a structure that makes it [innovation work] harder" (Business Development Manager). Especially, the company highlights that the high degree of bureaucracy and the many points of approval in the innovation process, is identified to delay the innovation process. Project Leader 2 declares: "I would like fewer, but better routines." However, since Bank Co. operate in an industry with frequent and rapid changes, finding the right balance of routines, formalization and flexibility is challenging.

At Bank Co., all innovation handovers go through the unit of business development. This unit has some specific routines, for both receiving and delivering innovation projects. Despite this, Project Leader 2, who typically has responsibility for implementing innovation projects, requests standardized criteria for innovation handovers. Today, such criteria are developed separately for each innovation project without any common guidelines. Project Leader 2 claims:

> In the project plan, there should be an instruction on developing handover criteria. For instance, certain criteria for when to define a project as completed, to which both the delivering unit and the receiving unit must agree. Such criteria should be defined early in the process, and be further specified later on in the innovation process, when you know more about the outcome of the innovation project. Of course, these criteria must be defined for each project, but having this as an instruction would be practical.

Bank Co. has many routines and procedures, but still recognize the lack of simple and guiding routines for both the innovation process and the handovers that occur within this process.

Communication

At Bank Co. the large amount of development and change initiatives makes communication intricate and fragmented. Project Leader 1 describes this: “There is a lot of information. The employees get information from all sides, all the time. It is easy for them to drown in information." This is found to be a challenge in the innovation work at Bank Co., where a large number of projects are run simultaneously: “Distributing information, and ensuring dialogue between the different project teams is hard. ... It [the information] can end up becoming both inadequate and partially overlapping. And then you can not use the resources in the right way” (Business Development Manager). The digital portal, which contains information about all the innovation projects, is meant as an innovation communication tool for the employees. However, employees at Retail Co. express skepticism to whether this portal fulfills its purpose. Information sharing and communication is therefore seen as a potential for improvement.

In innovation handovers, what is communicated, and by whom it is communicated, is accentuated as crucial. Here, Leader 2 of Discipline X identifies the crucial role of the ambassadors.

> It is all about the credibility. When it comes to communication in handovers, it is important that the ones who are presenting it [the innovation project] is someone close to, and in the same position as the end user. These employees [ambassadors] get a completely different credibility than someone from the headquarters, when presenting how to adopt a new work process, or a new tool. Using ambassadors has been really successful [in handovers].

These employees from the receiving party of a handover, who have been involved in the development phase and work to promote the innovation project play an important role in communicating in handovers. Instead of the information being pushed from the outside and in, the information is rather perceived to come from within, from someone who actually understands the everyday lives of those in the receiving unit. In this way, the information is presented in a manner that is familiar to the end user, as pointed out by Leader 2 of Discipline X: “It is important that you use the terminology of the end user, and link it to their daily

work". Thus, these ambassadors are found to ease the communication in handovers, especially in the handover from the Business Development unit to the basis organization.

Further, communicating in a manner that ensures that employees in the receiving unit feel involved in the development of the innovation, instead of receiving something that they have no knowledge of, is found to be important in handovers. Project Leader 1 exemplifies this:

> We use a lot of external consultants, but we try to blur this out a bit, so that they [the receiving unit] do not see that part. This is because I think it is important that they [the receiving unit] get the feeling that they have been part of doing the job themselves, and that they do not feel as if the innovation is forced on them. We focus on downplaying our [the Business Development unit] own role, and showcase the work that they [the receiving unit] have done in the project. This makes it easier. We also showcase their involved colleagues, and use this in the implementation. Here, we [Business Development Unit] almost do not present anything. Instead, the employee from the receiving unit, who has been involved in the development, presents essentially the whole solution.

In order to make employees feel that they have participated in developing the innovation project, personal characteristics and relationships are pinpointed as necessary:

> It does not necessarily depend on your professional competence, but rather how good you are at getting in touch with the employees that you are trying to communicate the message to. A strong professional background is not enough. You need to get people to like what you are communicating to them (Project Leader 1).

In other words, communication is dependent on social aspects. Hence, at Retail Co. personal relationships and personal characteristics play an important role in promoting communication in handovers.

Culture and Climate

At Bank Co. there exist differences in culture and climate between the different units. First, the employees have accentuated that there exist differences in the organizational culture between the headquarters, where most of the innovation processes are run, and at the local offices, where the innovation projects are implemented: "There are definitely different cultures. This can be influential. ... We are a bit different. It can often stop around details, that you can not get past" (Business Development Manager). Second, there exist differences in culture and climate between the different departments and offices. In handovers, this is pointed out as a challenge: "Unfortunately there are large variations [between the different receiving units]. We see that in some units, the handover, and the following implementation phase is easier, because these units are used to a more frequent rate of change than many of the other units" (Leader 2, Discipline X). However, in handovers "ambassadors", function as intermediaries who link these different cultures and climates together. Bank Co. points out that these ambassadors help to create a supportive culture and climate prior to handovers from the Business Development unit to the basis organization. The company also has a strong focus on having different ambassadors for each local office and each department, so that the ambassador knows the culture and climate in his or hers respective unit. Leader 1 of Discipline X exemplifies this:

> We have 250 employees who function as advisors, and they work in 20 different units with different market areas. We see that we must have a specific ambassador within each of the units. It is not enough to have many ambassadors in one unit because there are big differences from unit to unit.

Overall, Bank Co. have identified that differences in culture and climate can represent challenges in handovers, but the use of ambassadors is found to be effective for reducing these challenges, by bridging different cultures and climates together.

Mental Models

Regarding mental models, Bank Co. has experienced differences between employees in Business Development and employees at the local offices. This is found to both challenge and

benefit innovation work. The Business Development unit has a strong focus towards development, improvement, and change. The Business Development unit perceives such initiatives as both necessary and positive. However, the employees at the local offices, who experience these changes in their daily work, are often skeptical. The Manager of Business Development describes how employees in the receiving unit of handovers receive new innovation projects, exemplified by a new IT-solution, that they need to incorporate in their daily work: "We are very hungry for improvement. But those who receive the improvements get fed up quickly. Sometimes they say that it is enough: please do not bring anything anymore, we can not absorb all of this here." This is also addressed by Project Leader 1: "We [Business Development unit] think that this [the innovation project] is the solution to everything, while they [employees at the local offices] often think more about the issues and problems this [innovation project] creates, rather than the ones that can be solved." At Bank Co. such reluctance to change is identified as hinders to innovation handovers, especially the handovers that concern implementation in the basis organization. Project Leader 1 claims that there are many factors that can cause employees to be reluctant to change. However, a common underlying reason is that employees are afraid of losing their job, due to the bank industry's movement towards digitalization and automation. As a result, employees in the basis organization are often more skeptical to new initiatives that employees in the Business Development unit. This illustrates the different mental models between these units. Consequently, Bank Co. have experienced that it is challenging to engage the employees from the basis organization.

To overcome the differences in mental models, Bank Co. focuses on considerate approaches, common goals and utilizing ambassadors in innovation work. This is also emphasized as important for innovation handovers, and especially in the handovers between the Business Development unit and the basis organization. Project Leader 1 highlights the importance of acting cautiously and considerately when approaching employees from the basis organization:

> Showing up in nylon tights is not helpful. Then you get the "thumbs down" right away. You need to get to know them, which is tough sometimes. ... We have to be careful not to appear as someone else, when coming from the main office.

This illustrates that Bank Co. has identified that how employees from the Business Development unit approach the employees in the basis organization, is crucial for engagement. Further, Project Leader 2 points to establishing common goals and mutual understanding in order to overcome challenges related to differences in mental models:

> When others have different methodologies or mindsets than I have, it is more challenging. However, I think that as long as you know what the problem is, have faith in what you are doing, and establish clear goals, it is easier to get around different ways of thinking and the corresponding challenges. Different ways of thinking can cause both challenges and opportunities. This is because you see things from different perspectives.

Also ambassadors are found to facilitate the process of overcoming different mental models in handovers. Since the ambassadors have both participated in the development of innovation project, and work in the basis organization on a daily basis, they are recognized to have mental models that both coincide with the Business Development unit, and the basis organization. The ambassadors therefore contribute to bridging the gap between these units in the respective handovers. In sum, considerate approaches, common goals and the utilization of ambassador are found to help overcome challenges related to different mental models.

Psychological Ownership

Bank Co. realizes that creating psychological ownership of innovation projects among their employees can be challenging, especially considering their large amount of innovation initiatives. However, psychological ownership is emphasized as essential in order to succeed with innovation and innovation handovers. According to a Business Development Manager, the large amount of innovation initiatives makes it difficult to

> Decide how much of this [the initiatives] we are really going to initiate, and how much we need to inform [the basis organization] about it ... Sometimes it [an innovation project] is accepted, but then put to the side until someone has the time to work on it.

The Business Development Manager recalls a situation where an entire innovation project abruptly stopped after the handover:

> There was a handover last spring that we were not able to succeed with. ... When we handed it over, we had training of employees [in the receiving unit] in implementation. The training was carried out, but after that nothing more happened. It was just packed up and abandoned, and no one used it. It [the innovation project] just died completely. And really, we do not know exactly why this happened, but it was probably because the employees did not see the benefits, and feel the commitment.

This example shows how the receiving unit did not feel commitment to the innovation project, which again led to the innovation project failing. Consequently, since handovers are not automatically well functioning, the importance of ensuring psychological ownership and commitment, in the receiving unit is highlighted. Project Leader 2 also stresses this issue: "If the employees [in the receiving unit] have ownership towards the innovation project and the innovation process, it is much easier to succeed with implementation." To sum, the receiving unit's psychological ownership can be decisive for the outcome of the innovation project.

In order to create psychological ownership after handovers, Bank CO. has found early involvement, sufficient preparations, and appraising the receiving unit's contribution, to be essential. First, involving the receiving unit at an early phase helps create feelings of attachment and ownership towards the innovation project. As pointed out by Project Leader 1:

> Feeling ownership is important [in handovers]. ... We try to ensure that the receiving unit feels ownership from the start. ... We need to attach the innovation project to the challenges that they [the receiving unit] experience. It is not always obvious to them that it [the innovation project] actually fits their needs.

Here, Project Leader 1 further highlights the importance of involving employees from the receiving unit (the ambassadors) in the development phase to get input and feedback. The ambassadors are not included as team members, but are involved in the development work at certain points in the innovation process. Bank Co. emphasizes that these ambassadors create

psychological ownership among the other employees in the receiving unit, due to their strong influence on their colleagues. Bank Co. also pinpoints the ambassadors' important function towards ensuring that the final solution actually meets the needs of users in the receiving unit, another aspect that is found to create psychological ownership. Second, preparatory work prior to handovers is explained to facilitate handovers:

> We need to prepare the [receiving] unit for the handover. The preparation depends on how much they [employees in receiving unit] know about the ongoing development, and how easily they realize that the innovation project matches their needs. The preparation is done to make them able to receive the innovation project" (Leader 1 Discipline X).

In other words, tailoring preparations prior to handovers is key. Project Leader 1 exemplifies one type of preparation, before the handover from the Business Development unit to the receiving unit in the basis organization:

> We [Business Development] had a kickoff in January, where all 400 employees that were going to be the users of the innovation project, were present. Here we spent one day showing what we had developed, and how it worked. We saw that this had positive effects on the receiving unit. They actually started to look forward to the implementation of the new innovation project.

Third, accentuating and making the efforts and contributions of the receiving unit visible, is found to create psychological ownership towards the innovation project in the receiving unit. As stated by Project Leader 1:

> I think it is important that they [the receiving unit] get the feeling that they have been part of doing the job themselves, and that they do not feel as if the innovation is forced on them. We focus on downplaying our [the Business Development unit] own role, and showcase the work that they [the receiving unit] have done in the project.

In summary, Bank Co. has identified early involvement, sufficient preparations, and appraising the receiving unit's contributions as key to ensure psychological ownership prior to handovers.

In addition to ensuring that employees and end users of the innovation project at the receiving unit have psychological ownership, also project owners' and leaders' ownership is important to handovers. As pointed out by Leader 2, Discipline X:

> There is no doubt that the leaders' feeling of ownership is decisive. It is about the period after the handover, where you need to reinforce it [the innovation project]. The leaders that take responsibility there succeed far more than those who just think that the responsibility lies within the Business Development Unit.

The leaders' psychological ownership is found to vary across departments, and between units. This is again perceived to affect how smoothly innovation handovers occur. Leaders with psychological ownership act in ways that facilitate handovers. Further, ensuring that the project owners, those who have the legal ownership of the project, also have psychological ownership of innovation projects:

> It is important that the project owner has psychological ownership to the innovation project. The project owner needs to commit to the problem description and the intended solution. ... Then they get a completely different type of ownership. By not defining clear goals and feelings of ownership towards these goals, it is much more difficult to get the interest, attention, involvement, and feelings of ownership, that are crucial elements when developing new projects (Leader 1, Discipline X).

To sum, Bank Co. have identified that feelings of ownership play an important role in innovation work, and especially having employees with such ownership is found to facilitate handovers.

Despite the positive effects of psychological ownership, Bank Co. has also experienced challenges related to employees' psychological ownership. Manager of Business

Development claims: “Sometimes people can get too eager to develop something visible. ... So the eagerness to develop something visible becomes greater than actually developing something with real value.” When employees become excessively eager, this can lead to these employees developing and promoting solutions that do not fit the needs in the receiving unit, and therefore do not add value. Further, the psychological ownership of the employees in the receiving unit can fade, as the innovation process progresses and time goes by. This is pointed out as a challenge in the handovers from the Business Development unit to the users in the basis organization, as stated by Project Leader 1: “While I think the need is constant, I think that the relevance for those it concerns [users] can decline.” This illustrates that psychological ownership among the employees at Bank Co. is not necessarily constant, but needs to be maintained, and especially reinforced prior to handovers. To conclude, psychological ownership also can have negative side effects on innovation work and innovation handovers.

Summary

In this section we have presented the empirical findings from the four case companies. Table 3 presents an overview of the findings.

Table 2: Overview of the empirical findings

	Manufacture Co.	Energy Co.	Retail Co.	Bank Co.
Teamwork	- Multidisciplinary innovation project teams - All employees are involved to a certain degree in all projects - Early involvement of employees - "Everybody knows everybody" - High degree of role flexibility - One project team, with the same members, from beginning to end	- Multidisciplinary innovation project teams - Collaborate across departments, disciplines and with external parties when needed - Early involvement - Employee rotation - "Everybody does not know everybody" - Low awareness of other departments - New competencies are drawn in along the way	- Multidisciplinary innovation project teams - Core team with employees from Technical, Marketing and Product Development - The core team is assisted by subgroups within each department - Core team works together from beginning to end (until production) - Role and specialization flexibility - "Everybody does not know everybody"	- Multidisciplinary project teams managed from Business Development Unit - One project team from beginning to end (implementation) - Focus on involving influential employee representatives from end user unit in project team (ambassadors) - Early involvement - "Everybody does not know everybody"
Manage-ment & Leader-ship	- Flat organizational hierarchy - Dynamic management structure - Management participate in innovation projects - A designated project leader for each innovation project - Project leader has special focus towards customer relations, and also has operative responsibilities and tasks - Focus on motivational leadership that inspires creative thinking	- Hierarchic structure with formalized levels of management - The innovation model steers the innovation work, and is enforced through the different levels of management - A designated Project Leader for each innovation project - Project Leader has special focus on involving right competencies - Project Leader often has responsibility before and after handover	- Certain levels of management - The formalized innovation model is supervised by management - Perceived hierarchical differences from staff to management are small - A designated Project Leader for each innovation project - Project Leader has pivotal role, and has special focus on facilitating teamwork	- Top management and the bank alliance provide direction for innovation work - Business Development unit has responsibility for executing and managing innovation projects - A designated Project Leader from the Business Development unit for each innovation project - Leader in receiving unit has an important, but challenging, role in motivating and fostering commitment
Routines	- Small, flexible and dynamic - Business model with low degree of formalization in processes and routines - Needs to comply to industry regulations and rules, which leads to some routines - Requests more formalization of innovation work and innovation handovers without compromising too much flexibility - Reporting system; third party certification; and quality specification and documentation	- Formalized innovation model, with many routines, processes and systems - Have requirements for documentation and evaluation of their innovation projects - The employees feel that they have flexibility within each innovation project - Routines decide when and where handovers occur. How innovation projects are handed over is more flexible (degree of involvement must be tailored)	- Formalized innovation process guides innovation work - Flexibility is important for the company, and routines act more as guidelines than stringent rules - How strictly routines are followed vary between units (departments and teams) - Handovers are viewed as teamwork rather than a sequential process - Handover routines: interface documentation; routines; and checklists - Diverging perceptions on the needed degree of formalization in handovers	- Different innovation practices and routines in different units - Employees are concerned about the tradeoff between formalization and flexibility - Innovation is decelerated through the business model: Part of a bank alliance; high degree of bureaucracy; and many points of approval in the innovation process - Handover routines: Business Development Unit has routines for both receiving and delivering innovation projects - Requests handover criteria
Communi-cation	- Frequent and informal communication among employees - Personal relationships are found to ease communication, both within the company and with external actors. This is again found to facilitate innovation work and handovers - Communication is emphasized as important for mutual intelligibility in handovers	- Communication across disciplines and departments is necessary in innovation work and handovers - Personal relations simplify communication, these are tightly linked - Communication with external actors facilitates collaboration - Relationships and trust across handovers reduces uncertainty and facilitates communication, making handovers easier	- Close communication within the multidisciplinary innovation project teams - Having team member continuity fosters good communication - Personal relationships and personal characteristics need to be considered for communication - Both formal and informal communication is important in handovers: needs to be mutually intelligible	- Fragmented communication and information sharing due to the large amount of development and change initiatives - Digital portal is not sufficient for communication in innovation work and handovers - Ambassadors have an important role in facilitating communication in handovers: they link the innovation project to the receiving unit's daily work and terminology

Culture & Climate	- Innovation is embedded in the organizational culture - Recognize that innovation involves trying new things and failing along the way - Culture and climate where employees help each other facilitates handovers - The focus on psychological safety is said to ease handover processes	- Cultural differences across departments (competitive cultures) complicate handovers - Culture with common focus on technology, innovation and quality (collaborative culture) enable handovers - Focus on accuracy, precision, and minimizing failures	- Innovation is embedded in the organizational culture - Culture of multidisciplinary teamwork in innovation work - Culture and climate where employees help each other - Cultural differences across departments can act to hinder handovers - Focus on enforcing a supportive innovation climate (psychological safety) which act as an enabler for handovers	- Differences in culture and climate between different units can make handovers more challenging - Ambassadors function to link the different cultures and climates together. This can facilitate handover processes
Mental models	- Employees of different disciplines have different mental models (engineers, technicians, designers) - Mental models affect cooperation in innovation work, and can be challenging in handovers - The company's small size and close integration promote understanding of other employees' perspectives - Easier to collaborate when mental models are more similar - In innovation work, different mental models and focus areas can lead to better outcomes	- Majority of employees have similar professional backgrounds and quite similar mental models. This is said to facilitate collaboration in handovers - Similar mental models are pointed out to increase the risk of overlooking important aspects - Recognize differences in mental models between departments, in handovers this can be challenging - Recognize that working with actors with different mental models is challenging	- Different mental models between different departments - Different mental models are present within the multidisciplinary project teams - Different mental models can sometimes make innovation work more cumbersome, but help the company reach the best solutions - In handovers, the differences in mental models between units are a possible source of frustration, but also better solutions - The best solutions are developed in the interface between different mental models	- Differences in mental models between employees in Business Development and employees at the local offices - Different mental models both challenge and benefit innovation work, and handovers - To overcome mental model challenges in handovers the company focus on considerate approaches, common goals and utilizing ambassadors
Psycho-logical owner-ship	- Employees are generally involved in all projects to some extent - Employees have psychological ownership to most of the company's innovation projects - Role flexibility is highlighted to create suitable levels of psychological ownership to all projects - Psychological ownership creates motivation, also in handovers - Too much psychological ownership (external actors) is challenging in handovers - Time, effort and amount of skills needed working on an innovation project promote psychological ownership - Employees' psychological ownership is not directly linked to legal ownership structures	- Psychological ownership is emphasized as crucial for innovation work, and particularly handovers - Psychological ownership creates motivation - The receiving party in handovers need to have psychological ownership to follow the innovation project through, or else it might stop - Employee involvement (over time) is pointed out as effective in creating psychological ownership - Employees from receiving unit are often involved in the work of the delivering unit prior to handover - Employees from the delivering unit are often involved in the work of the receiving unit after the handover - Individuals with psychological ownership can act enablers handovers, but those with too much are found to hinder effective handovers (especially inventor or idea holder) - Uncertainty reduce psychological ownership	- That employees have psychological ownership, and are willing to prioritize and commit to the innovation project is important in all innovation work at Retail Co., especially handovers - Too much psychological ownership can lead to undesirable effects (fail to recognize shortcomings, wrong prioritization and direction) - Employee involvement throughout the innovation process creates psychological ownership to the innovation project - Early employee involvement is important for creating psychological ownership before handovers	- Found to be important in innovation work and handovers. - The large amount of innovation initiatives makes it more challenging to create psychological ownership of innovation projects among employees - Crucial that the receiving units in handovers have psychological ownership towards the innovation project - If receiving unit does not have psychological ownership to innovation project after the handover the project can abruptly stop - Early involvement, sufficient tailored preparations, and appraising the receiving unit's contribution are important measures to create psychological ownership after handovers - Also ensuring that project owners and project leaders have psychological ownership is important to ease innovation handovers - Both having too much and fading psychological ownership is challenging

5 DISCUSSION

In this chapter we will discuss our findings in a cross-case analysis. We will also discuss the limitation of this study and present suggestions for further research.

5.1 Cross-case Analysis

In the previous chapter we described how innovation handovers are carried out in practice in the four case companies. We also described how these handovers are influenced by a set of factors. In this chapter we compare and discuss our findings.

Innovation Work, Processes, and Handovers

We have found that all our case companies have innovation handovers. The companies have different business models and practices, and work with innovation in different ways. However, all case companies have innovation handovers, where a transfer of information, responsibility and/or control for an innovation project occurs between organizational units. By studying the four companies, we have gained insight into how innovation handovers are carried out in practice. We have found that innovation handovers occur at different points in the innovation process, between different units, have different durations, different numbers of participants, and have different degrees of difficulty. Further, it has become evident from our findings that in order to succeed with innovation, innovation handovers need to be well functioning. Here, we have found that the delivering party might develop the handed over innovation project in wrong directions, cease to develop, or terminate the innovation project. Thus, innovation handovers is found to be a highly relevant topic for innovation scholars.

We have further found that our case companies structure their innovation work based on two different approaches. Manufacture Co., Retail Co., and Bank Co. have *one* multidisciplinary project team, with mainly the same members, who work together throughout the development of the innovation project; from idea or need to implementation or operationalization. This creates handovers only in the beginning of the innovation process: from idea or need to initiation of development, and at the end: from development to operationalization or

implementation. In comparison, Energy Co. works with *multiple* multidisciplinary teams when they develop their innovation projects. As a result, Energy Co. has several handovers between teams in the development phase, in addition to the handovers in the beginning and end of the innovation process. Thus, how the companies work with innovation has influence on when and how innovation handovers occur in the innovation process.

Innovation handovers are found to often occur in transitions between phases of the innovation process. For Manufacture Co., Retail Co., and Bank Co. the handovers always happen in such transitions, such as from idea to development, and from development to implementation or production. Conversely, at Energy Co., handovers also occur away from transitions, for instance within the development phase. We have also found that transitions occur without the presence of innovation handovers. To exemplify, the same team at Retail Co. works together in both idea and development phase, which means, by definition, that there is no innovation handover in this transition. As scholars have found transitions in the innovation process to be challenging (Rice et al., 2002), we question whether this is a result of handovers in these transitions, or if a transition between phases is challenging in itself, as these often, but not always, happen simultaneously.

Another question that has been raised several times during our study, is whether an integrated innovation process with few to none handovers, or an innovation process with several handovers, is the most resource efficient approach. Here, of course, one needs to consider not only the resources that are used in the innovation process, but also the corresponding end result. Our findings clearly indicate that an integrated innovation process is the most resource intensive. However, companies such as Retail Co. and Manufacture Co., still consider this approach more resource efficient, as it is found to reduce risks of failure, and yield better end results. In contrast, Energy Co. does not consider such integrated innovation processes as a possibility due to their complex, time consuming and demanding innovation projects. As a result, Energy Co. is dependent on well-functioning innovation handovers, as a part of their innovation process. Despite having only one multidisciplinary innovation project team in the development phase, Bank Co. has experienced that fully integrating the entire innovation process requires too much resources, and has therefore minimized the number of team members, and rather focuses on getting input and feedback from key employees prior to and in the receiving unit of handovers. Thus, we suggest that further studies should address the

advantages and disadvantages of the different approaches, and also address how practitioners can reduce risk of failure in innovation handovers, and achieve better end results.

We have found that handovers are influenced by the context in which they occur, and that the companies employ different handover practices. First, innovation handovers are found to both occur within an organization, and with external actors. While Retail Co. only have handovers within the company, Manufacture Co., Bank Co., and Energy Co. have handovers with external actors. Second, innovation handovers are not straightforward, linear or easy, for any of the case companies, and many interviewees have described handovers as an iterative process, where the delivering and receiving unit go back and forth several times to adjust, before the innovation project is handed over. Third, while some handovers are formalized through checklists and procedures, others happen more dynamically and flexibly. Lastly, we found that the studied set of factors within the organizational context, influenced innovation handovers in different ways. The factors are found to both present challenges and possibilities in handovers. In the following, we will discuss these factors, and their influence on innovation handovers, as we believe this will provide a fuller answer to our research question.

Teamwork

All four case companies work with innovation in multidisciplinary project teams. Interdisciplinary innovation work is generally also promoted by scholars (Amabile and Khaire (2008; Boland & Tenkasi, 1995; Dougherty, 1992; Sundström & Zika-Viktorsson, 2009; Waldman & Bass, 1991). However, employees in all the case companies emphasize that working together across disciplines is challenging, due to different ways of thinking, different routines, different terminology, and different goals. These challenges are also highlighted in organizational literature (Dougherty, 1992; Souder 1981; Waldman & Bass, 1991). In handovers, two units, typically of different disciplines and departments, meet to collaborate towards a successful handover of an innovation project. Therefore, the presence of multiple disciplines also presents similar challenges in innovation handovers. To overcome these challenges, we have found that the case companies facilitate handovers by including and/or involving employees from the other party of the handover in the innovation teamwork that is done before or after the handover. As a result, the case companies have different ways of structuring their innovation teams. How teamwork and involvement affect innovation handovers in the different case companies will be discussed in the following.

Retail Co. and Manufacture Co. has one continuous multidisciplinary innovation project team, that work together from beginning to end. In this innovation project team, also employees from the receiving party are included as team members. From this, the team members from the receiving unit participate in the team throughout the development of the innovation project. Thus, these companies avoid handovers where the receiving unit is unfamiliar with the innovation project when the innovation project is handed over. This corresponds to findings of Hise et al. (1990), who suggests that including members from different departments throughout the innovation process improves innovation outcomes, and Fidler and Johnsen (1984), who found high levels of involvement prior to innovation implementation to be crucial. As this one, multidisciplinary team works together in the development phase, the employees become used to working together and create social and professional relationships. The employees highlight this as a facilitator for handovers, because employees from both sides of subsequent handovers already know each other. This is in line with Cummings & Teng (2003) and Roberts (2000), who highlight that personal relationships and socialization processes are found to increase mutual understanding, and ease transfers of information and knowledge, which is an important part of a handover.

Energy Co. and Bank Co. also employ strategies towards involvement of employees. However, these companies do not include employees from the receiving as team members, but rather involve these employees in the development of the innovation project, to get relevant input and feedback. Similarly to Manufacture Co. and Retail Co., Bank Co. also has one multidisciplinary innovation project team in the development phase. Nevertheless, instead of including employees from the receiving unit as team members in this team, the innovation project team involves some key employees from the receiving unit, called ambassadors, to get their input and feedback. Bank Co. does not include the ambassadors as team members, as they believe that receiving feedback and input at some stages in the innovation process is more resource efficient. Bank Co. has discovered that such involvement of ambassadors simplifies the handover from project team to the end user of the innovation project. Having ambassadors is said to create acknowledgment and support for the innovation project among also the other employees in the receiving unit. In comparison, Energy Co. does not have one innovation project team throughout development. Due to the large, complex, and elongated projects at Energy Co., the same team cannot work together from beginning to end, simply because the projects need competencies from too many employees from different

departments, and also from external actors. Here, innovation projects often require multiple handovers between multiple multidisciplinary teams and other units. As a result, Energy Co. focuses on getting feedback and input from relevant employees from an early phase in the development of the innovation project. Here, relevant employees refer to the employees from the units that at some point later in the innovation process will receive the innovation project. As underlined by Manager of Department X in Energy Co.: "It is important to involve all employees that later come into play as important people. … So we do not suddenly throw the innovation project over to someone who has never heard of it before." Also Energy Co. has found that such early involvement, getting feedback and input from receiving units, acts to facilitate handovers. Thus, it is apparent that even though Energy Co. and Bank Co. have different ways of structuring their innovation work, both companies focus on getting input and feedback from employees in the receiving units, without including these employees as team members in the same manner as Manufacture Co. and Retail Co.

We have found that teamwork affects handovers. If the whole innovation process was carried out by a singular multidisciplinary innovation team (we refer to this as an integrated innovation process), there would be no need for handovers. Conversely, if there were no multidisciplinary teams, yet the innovation project required the contributions of different disciplines, this would require one handover for each new contribution. We have found that all our case companies can be placed somewhere between these extremes. These companies have found that involving or including employees from the receiving unit in the teams, which develops the innovation project, is key for succeeding with handovers later in the innovation process. While Retail Co. and Manufacture Co. are closest to the multidisciplinary extreme, Bank Co. is somewhere in the middle, and Energy Co. is closest to the handover extreme. These four case companies are different in many ways. As a result, we expect that each company's organizational context play an important role in determining what approach to innovation work is most appropriate. To compare our case companies: Manufacture Co. is a small company, and all relevant employees are needed as resources throughout the innovation process. Also, at Retail Co. they claim that the innovation team possesses the necessary competencies when developing a new project. In this way, both companies have found that having one multidisciplinary team throughout the development phase is most appropriate. On the other hand, Energy Co. and Bank Co. have found that it is not appropriate to have such multidisciplinary teams, with all relevant resources working together throughout the development phase, due to different reasons. At Energy Co. the same team cannot work

together from beginning to end, simply because the projects require input from too many employees from different departments, while Bank Co. has found that that only getting input from certain employees (ambassadors) from the receiving unit prior to handovers, is more resource efficient. Thus, our findings suggest that what approach to working with innovation, regarding an integrated innovation process versus an innovation process with handovers, is dependent on the organizational context. This is worth studying further, in order to find the optimal balance of an integrated innovation process versus an innovation process with handovers, given an organizational context.

Another initiative that is found to ease handovers is role flexibility. For handovers, we have found that promoting role flexibility, so that employees in the delivering and receiving unit are familiar with each other, and how the other unit works, can make both handovers more efficient. Here, as commonly portrayed by the case companies, the handover is seen as collaboration between the units. Thus, facilitating collaboration between these units is emphasized to ease handovers. In Manufacture Co. all employees across the company know each other well and often have flexible roles, where employees often need to contribute across units, due to the company's small size. In handovers, both units are already familiar with each other. In comparison, since all of the other case companies are substantially larger, naturally, all employees do not know one another. Therefore, these companies have different ways of creating relationships across units. Energy Co. focuses on employee rotation to facilitate this process: "It is difficult to want, or seek, a collaboration with someone you do not know is there" (Project Manager in Department Z). When employees rotate between departments, this is said to create connections that later benefit collaboration in handovers. At Retail Co., they "encourage people to be a Jack of all trades, who can work within different departments and product groups" (Director, Product Development), which is pointed out as something that creates relationships and links between different disciplines and departments. As a result, in handovers, employees are already are familiar with one another, and collaborate more easily. Also, Bank Co.'s has ambassadors that are involved in both units that participate in handovers, their respective unit and the innovation project team. This is pinpointed as an enabler for well-functioning collaboration between units in handovers by the employees. The beneficial effect of familiarizing employees in both units of a handover to one another prior to handover can have a possible link to the benefits of weak ties, described by Granovetter (1973) and Liu and Duff (1972). They stress the differences in the "strength" of interpersonal ties. While strong ties can breed local cohesion among employees, typically within units,

weak ties are “seen as indispensable to individuals' opportunities and to their integration into communities” (Granovetter, 1973, p. 1378), and thus typically affects the relations between groups or units. Granovetter (1973) exemplifies: “When a man changes jobs, he is not only moving from one network of ties to another, but also establishing a link between these” (p. 1373). From this, we suggest that role flexibility, employee rotation and the ambassadors create connections, or ties, across units, which act to enable collaboration between units of different departments and disciplines in handovers.

Management and Leadership

In addition to working in innovation project teams, all case companies have project leaders who manage the innovation project team. Further, all case companies have pinpointed the important role of project leaders in handovers. Here, the companies highlight different tasks and responsibilities as the main focus areas for project leaders: operational responsibilities and customer contact at Manufacture Co.; involving relevant competencies at Energy Co.; organizing and facilitating teamwork at Retail Co.; and administering innovation projects at Bank Co. Despite these differences, a common denominator is that the project leaders link the two parties of the handovers together, to some extent. To exemplify, Manufacture Co.’s innovation project leaders are responsible for both customer and supplier contact, at the same time as they are responsible for innovation team progress. Also, the project leaders have responsibility for the contact with employees in the production facility, which is claimed to facilitate the handover to Production. From this, it is apparent that the project leaders link the different units that participate in the innovation process, and in handovers, together. This is also in line with Kim and Wilemon (2002), who highlight how: “project leaders serve as linking pins or bridges among the project team, senior management, and other functional groups” (p. 32). To sum, project leaders can play a pivotal role in innovation handovers.

Formal and informal leaders are also found to have an important role in motivating and engaging employees in innovation handovers. Especially, motivating employees in the receiving unit is found to play an important role for handovers. For all case companies, enthusiastic project leaders have an important function in motivating both the delivering and receiving unit in handovers, towards the innovation project. Further, employees in Energy Co. and Bank Co. have highlighted that it is important to have leaders in the receiving unit with

enthusiasm for the innovation project. Especially, in the handover from the innovation project team to the end user this is found to play an important role. These findings are in line with the findings of Damanpour and Schneider (2006); Waldman and Bass (1991); Amabile & Khaire (2008); and Wisdom et al. (2014), who all promote the importance of leadership in such transitions. Bank Co. also pinpoints the function of informal leadership i handovers, through ambassadors, in creating energy and enthusiasm for the innovation project. Such informal leaders, who are not designated leaders, but have gained leadership as a consequence of their personality, motivation, and abilities, are found to play a major role in innovation handovers. In brief, both formal and informal leaders can have great influence on how employees participate in innovation handovers.

Routines

With respect to routines, employees in the case companies highlight a tradeoff between formalization and flexibility. At Manufacture Co., employees highlight that flexibility gives a competitive edge. As stated by the Project Leader: "We do things quite casually. This works fine for us, because we are a small business." While flexibility is highly valued at Manufacture Co., the employees request more formalized handover routines to make handovers a more efficient part of the innovation process. Finding the right balance between formalization and flexibility is something the company presents as challenging. Also at Retail Co., the tradeoff between formalization and flexibility is an issue, and the employees have different viewpoints. Some employees point to the flexibility at Retail Co. as an essential part of their innovation, some employees point to routines as flexible guidelines, while others request more routines and criteria, especially for handovers. In contrast, employees at Energy Co. seem more satisfied with the degree of formalization and flexibility. The Manager in Department X exemplifies: "Our innovation model almost guides us automatically through the innovation process." However, he specifies that: "The different innovation project teams operate quite autonomously. … We must see each handover as it is, and based on this, assess what is appropriate." As described, the innovation model at Energy Co. acts as guidance, yet giving each innovation project team room to adapt the routines to fit each specific situation. This is similar to the findings of March and Simon (1993), who stress that "in order for an organization to behave adaptively, it needs some stable regulations and procedures that it can employ in carrying out its adaptive practices" (p. 191), and also is linked to the ostensive

aspect of routines—defined as the guiding aspect—here, the innovation model, and the performative aspect of routines—defined as the modifying aspect—here the autonomous project teams, as theorized by Feldman and Pentland (2003). From this, we see that Energy Co. have routines that adapt to specific handover situations, in other words, flexible handover routines. To summarize, it seems that finding a good balance between formalization and flexibility is key for handovers, thus giving handover routines with enough clarity, without sacrificing too much flexibility. What this implies in practice is left for other scholars to investigate further.

In our study, we have found that checklists can be used in innovation handovers. Technical Manager at Retail Co. explains that before the handover to production, the parties go through a checklist: "We have to check that everything is in accordance with what we agreed on, and all involved parties need to give their consent." Also Manufacture Co. has checklists to control quality, risk and cost in handovers. These checklists are highlighted to be safety measures, rather than stringent procedures. In this way, the checklists are perceived as guidance and assistance for participants of handovers, without impairing efficiency or flexibility. Such checklist practices correspond to the suggestion of Moenaert et al. (1994): "Innovating organizations are in need of formal mechanisms that enhance the communication process, without creating a bureaucratic burden and an overload of procedures" (p. 39). In comparison, Bank Co. and Energy Co. do not have checklists for innovation handovers. While employees at Bank Co. request tailored checklists for each handover, employees at Energy Co. have not expressed the need for such checklists. Here, it is important to note that Bank Co. specifically highlights that they do not want such checklists to add to their high degree of bureaucracy, and the many points of approval in the innovation process. Rather, they would like checklists to act as a flexible and highly adaptable routine that facilitate quick decision making & problem solving in line with the theory of Peters and Waterman (1982). These authors emphasize the importance of active decision making to avoid too much bureaucracy. As previously described, checklists for organizational activities is a frequently discussed topic in literature. While Hilligoss & Moffat-Bruce (2014) claim that checklists are not appropriate for complex situations, with ambiguities and unpredictable variation, Gawande (2010), on the contrary, claims that: "Under conditions of complexity, not only are checklists a help, they are required for success (p. 79). The findings of our study indicate that checklists can be beneficial for handovers. Here, we believe that it is important to notice that the case companies with handover checklists describe these checklists as flexible guidelines

for handovers rather than strict procedures. Based on this, we suggest that a suitable, tailored checklist for each handover will facilitate the handover process, and function as a quality assurance. Thus, future studies of how such checklists can facilitate handovers are highly relevant.

Communication

Employees in all case companies highlight communication. Through communication, the delivering and receiving parties of a handover cooperate and coordinate activities. Regarding this communication, we have found that both personal relationships and mutual intelligibility are key factors to handover success, and these will therefore be discussed in the following.

Employees from all case companies have emphasized the tight link between personal relationships and well-functioning communication. As stated by the CEO in Manufacture Co.: "Handovers are simplified by having the social and trust components in place." In Manufacture Co., "everybody knows everybody" within the company, which is said to ease communication, and help employees to understand each other well, also in handovers. However, when collaborating with external actors, Manufacture Co. typically organizes face-to-face meetings and visits prior to handovers, as this creates relationships and trust that facilitate the handover process and communication later on. Further, having designated project leaders for each customer, who know the customers on both personal and professional levels, is found to ease the communication between Manufacture Co. and their customers. This approach to facilitating communication, is supported by findings of Roberts (2000): "High levels of face-to-face contact and a process of socialization are usually required to establish and reinforce a relationship of trust" (Roberts, 2000, p. 454). Also, trust and personal relationships are found to ease knowledge transfer (Cummings & Teng, 2003; Roberts, 2000), which is an important part of innovation handovers. In comparison, all employees in Energy Co. do not have the same close relationships with one another. The company rather underlines the importance of having contacts in other units, and thus a network within the company, and with external actors, to enable well-functioning communication across departments, disciplines and organizations. To have such networks is also pointed out as important in handovers. As exemplified by Project Manager in Department Z: "Once when we were having a hard time convincing a stakeholder, I phoned this guy I have worked with before, who said that he would do it as a favor because he had faith in me, and that he would not have done it usually." Here, the importance of personal relationships, networks and trust is clearly illustrated, as this assists effective communication across units. Further, Retail Co. emphasizes the importance of well-functioning communication within the innovation project team, where members work closely together throughout the innovation process. The close collaboration creates

personal relationships, which ease communication. As stated by the Project Leader: “How well people communicate is related to personal chemistry. It is something that we must focus on.” Nevertheless, Retail Co. points to differences in personal characteristics, as a possible barrier to well-functioning communication. This possible barrier is also highlighted by Project Leader 1 in Bank Co.: “It does not necessarily depend on your professional competence, but rather how good you are at getting in touch with the employees that you are trying to communicate the message to.” Bank Co.’s ambassadors are an example of employees that facilitate communication in handovers, because they have suitable personal characteristics, in addition to having personal relationships to employees in both parties in handovers. This is in line with findings of Cummings & Teng (2003), who stresses that drawing on social capital embedded in different units, facilitates the development of good communication between the units. In sum, personal relationships and personal characteristics are highlighted as enablers for well-functioning communication prior, during, and after innovation handovers.

Communication is crucial for achieving mutual intelligibility in handovers. We have found that the case companies have focus on preparatory communication, and employ practices of employee transfer after handovers, in order to achieve mutual intelligibility in handovers. This is in line with LeBaron et al. (2016), who emphasize that employees “need to be able to make sense of what others are saying and doing” (p. 1), in order to progress with a shared task, such as a handover. First, communication between the parties prior to handovers has an important function in clarifying handover expectations. All companies have pointed out this to be important for handover smoothness. The Marketing Consultant in Retail Co stresses: "The clue is that everyone knows what to do, and what is required of them. ... Being clear in this communication is crucial, and this is often a vulnerable point". While Retail Co., Energy Co. and Manufacture Co. arrange meetings, and work together prior to handovers, Bank Co.’s ambassadors are involved from an early phase, and therefore have a preparatory function. Clarifying expectations prior to the handover is said to help reduce ambiguity and uncertainty, which is in line with findings of Fidler & Johnsen (1984) and Cummings and Teng (2003), where the latter suggest that pre-transfer has an important function to make sure that tacit knowledge is more accessible and understandable in knowledge transfers, which are identified to have multiple similarities to communication in handovers. Second, transferring people from the delivering unit to the receiving unit is found to make handovers easier, as it ensures that there is sufficient and steady communication. From the case companies, especially Energy Co. and Bank Co. have pointed out that transferring one or multiple employees from the delivering unit to the receiving unit facilitates the handover. Since communication is understood as “fundamentally and inexorably embedded in the situated action of our immediate communities” (Boland & Tenkasi, 1995, p. 353), we believe that the transferred employees are able to create more meaning in the receiving units through narratives, or plots, where they link information together in a unified whole (Hilligoss & Moffat-Bruce, 2014). This is also in line with Cummings and Teng (2003), who stress that: "The research on knowledge

embedded in individuals has shown that, whether tacit or explicit, such knowledge can be transferred by transferring individuals. Thus, the transfer of employees as a part of the handover can facilitate communication, as these employees are able to provide richer and more eligible information about the innovation project. Based on this, we suggest that both preparatory communication and employee transfer can ease communication in handovers, mostly because these initiatives act to reduce uncertainty and ambiguity in the handover. However, there is an ongoing discussion of whether ambiguity is detrimental or beneficial in innovation work (Brun et al., 2008; Brun & Sætre, 2008; Stetler & Magnusson, 2015; Sætre & Brun, 2012; Van Wijk, Jansen & Lyles, 2008). In handovers, we believe that creating a shared understanding is key, but finding appropriate levels of ambiguity is left for further research, as this on one hand is believed to help detect "fixation errors" (Patterson et al., 2004), by creating new understandings that lead to better outcomes, and on the other hand, can lead to complications and misunderstandings.

Culture and Climate

We have seen that organizational culture has influence on innovation handovers. Of the case companies, Manufacture Co., Energy Co. and Retail Co. have organizational cultures where innovation is strongly embedded throughout the company. This is in contrast to Bank Co., where the culture for innovation is not equally strong. Regarding handovers, the cultures at Manufacture Co., Energy Co. and Retail Co. support and encourage employees to collaborate across units, and to adapt and engage themselves within units. Especially, an organizational innovation culture helps the receiving unit in handovers, because the employees are positive to receiving new innovations, rather than resisting them. Conversely, Bank Co., which does not have a strong innovation culture across the whole company, has encountered several situations where employees in the receiving unit are negative to new innovation projects, and therefore hesitate to engage and collaborate. From this, we have seen that a widespread innovation culture facilitates innovation handovers. This is in line with Cummings and Teng (2003) who stress: "similar cultures and value systems allow for a smooth working relationship between the knowledge transfer parties" (p. 47). Thus, enforcing such culture throughout the company is suggested as a facilitator for innovation handovers.

Different subcultures within an organization can influence innovation handovers. In our study, we have found that there exist different subcultures in all our case companies except for Manufacture Co. As can be expected, due to Manufacture Co.'s small size, there does not

exist different subcultures within the company. In the other, significantly larger companies there exist different subcultures in the different departments. As a result, there are differences in the local cultures across departments and disciplines. While Bank Co. especially experiences large differences between the Business Development unit and the local offices, Energy Co. and Retail Co. experience smaller differences in subcultures. We have found that when the delivering unit and the receiving unit in handovers have different subcultures, these different cultures impede the handover of the innovation project between these units. However, the extent to which such subcultures hinder innovation handover varies considerably. We have seen that Bank Co., which has the large differences in subcultures between handover parties, has experienced the most resistance in handovers. At Bank Co. we have also found that there exist different subcultures in the different local offices, and that the handovers vary in difficulty according to this. As emphasized by Leader 2 in Discipline X: "We see that in some units, the handover, and the following implementation phase [after handover] is easier, because these units are used to a more frequent rate of change than many of the other units". From this, when the receiving unit has a culture that is more supportive and encouraging of change and innovation, the handovers go more smoothly. Conversely, when the receiving unit has a culture that opposes change, this acts as a barrier for handovers of innovation projects to this unit. This is in line with findings of Cummings and Teng (2003). As a result, having different subcultures in the different receiving units, make handovers vary in difficulty. In comparison, at Retail Co and Energy Co., the different subcultures are not found to impede handovers to the same extent as in Bank Co. Here, in innovation handovers, the different subcultures only slightly reduce handover efficiency. We suggest that this is related to the strong innovation culture, which exists across the whole company at both Retail Co. and Energy Co. It seems that having such strong organizational innovation culture brings the different subcultures closer together in handovers. In sum, having different subcultures between the delivering and receiving unit influences innovation handovers to varying extents, and the overall organizational culture is believed play an important role for the extent to which different subcultures can act to impede handovers. This is suggested as something both scholars and practitioners should pay attention to.

A climate that ensures psychological safety is found be beneficial in innovation handovers. In handovers, where information and knowledge are transferred, in line with responsibility and control for the innovation project, it is important that both parties of the handover have a shared understanding of the information. Here, ensuring a handover climate where all

employees feel safe to express their opinions and ask questions is key to achieve such a shared understanding, in line with Edmondson (1999). In our case companies, some have more focus towards establishing such a climate in handovers than others. Both Manufacture Co. and Retail Co. emphasize that all opinions are necessary in order to reach the best possible innovation outcomes. They describe the climate in innovation handovers as a climate where all employees feel that they can and should contribute, and a climate where it is allowed to make mistakes. The CEO in Manufacture Co. highlights this: "We rather want employees to try many things and make a few mistakes along the way, than to be afraid of making mistakes. While Manufacture Co. and Retail Co., have the strongest focus towards creating psychologically safe climates in handovers, this is also on the agenda in Bank Co. and Energy Co. In Bank Co., the ambassadors contribute to creating climates that are more psychologically safe in handovers, especially for the receiving unit. Since the employees in the receiving unit know the ambassadors, and conversely the ambassadors know the employees and the work processes in the receiving unit, the employees in the receiving unit are said to find it easier to express their opinions, and feel that their points of views are understood correctly, when the ambassadors participate in handovers. In a similar manner, the ambassadors also know the employees in the delivering unit, and therefore act to create psychologically safe climates between these parties in handovers. Further, in Energy Co., where risks and costs of errors are significantly larger than in the other companies, establishing climates where it is allowed to make mistakes, has only in later years received more attention, as the company has found that this is necessary in innovation. Energy Co. wants employees to feel safe to contribute, without being blamed for unsuccessful attempts. As stated by Project Manager in Department Z: "You have to work constructively to try and solve the problem, without blaming each other." Based on this, we have found that climates of psychological safety influence handovers in all case companies, but to varying extents. We suggest that successfully creating sufficient psychologically safe climates in handovers is beneficial for handover and innovation outcomes. Especially, ensuring that the employees express all their opinions and concerns can make handovers a point of the innovation process where possible inaccuracies, flaws, and errors are detected.

Mental Models

We have found that differences in mental models among the employees make handovers more challenging, but can ultimately lead to better solutions. When employees have different

mental models, this is found to create skepticism, frustration, discussions, different expectations, motives and goals in handovers. Bank Co. especially experiences differences in mental models between employees in Business Development and employees at the local offices. While the Business Development unit has a strong focus towards development, improvement, and change, employees at the local offices, are often more skeptical to new innovation projects. This can lead to the receiving unit having lower engagement and motivation towards the innovation project in handovers. Retail Co. has also experienced that different mental models lead to employees in the delivering and receiving unit in handovers having different expectations. Differences in expectations are stressed as challenging, as this makes it harder to coordinate efforts and collaborate in handovers. Something might be self-evident for one unit, while the other unit is completely unaware. At Energy Co., the employees recognize that even slight differences in mental models between departments, and with external actors, can be challenging. For example, Energy Co. have recognized that the engineers who are responsible for the technology development often have different understandings and motives regarding the innovation project, than employees in the receiving unit. Similarly, in Bank Co., employees in the receiving unit do not always have the same motivation and engagement for the new innovation project, because from their viewpoint the functioning standard operation is often a better alternative than trying something new that might not work instantaneously. At Manufacture Co., they have also experienced challenges related to different perspectives in handovers where different disciplines are involved. Here, the handover from designers to engineers is exemplified to often be challenging, because of different concerns and focus. In brief, all companies have experienced challenges related to different mental models in handovers.

However, all companies point to differences in mental models as something positive, that overall improves the outcome of innovation handovers. As emphasized by the Project Leader at Manufacture Co.: “We are all aware that we have different skills, where it is the combination of everyone's expertise that gives us power in the market.” In handovers, the identified benefits of different mental models include: new insights and viewpoints; detection of flaws and errors; and better end solutions. Thus, in the same manner as different mental models in multidisciplinary teams are found to lead to better solutions (Boland & Tenkasi, 1995; Dougherty, 1992; Moenaert et al., 1994); also different mental models in handovers are suggested to have the same function, if challenges are overcome.

In order to overcome mental model challenges in handovers the case companies point to awareness of different mental models, and goal alignment. If employees are aware of the fact that different mental models exist, and that these differences can be beneficial, this increases the tolerance for different viewpoints. All case companies emphasize awareness as something that eases handovers, because through awareness, the companies can facilitate activities that can make employees overcome challenges with respect to different ways of thinking. While Manufacture Co., Retail Co. and Bank Co. have high awareness of the fact that different mental models are present in handovers, Energy Co. has a slightly lower awareness of this. At Energy Co., most of the employees that are present in innovation handovers have similar professional backgrounds. However, employees within one department are said to have one way of thinking, whilst employees in another department have different ways of thinking on certain issues. Despite the employees recognizing that there exist different ways of thinking and focuses across departments, they often seem unaware of these differences in their daily work, and in handovers, which might be due to the fact that they see themselves as alike due to their similar backgrounds. In contrast, Bank Co. has expressed a high awareness of the differences in mental models that exist between the Business Development unit and at the local offices. As a result, they adapt their regular approach and terminology in handovers to the end user. As stressed by Project Leader 1, in handovers "showing up in nylon tights is not helpful". Bank Co. also uses the ambassadors to overcome challenges related to different viewpoints and motives, as these act as links between the two units. Employees at Retail Co. are also aware of the different mental models. The company copes with this through having one multidisciplinary team throughout the development phase, where all employees of different disciplines, and thereby different ways of thinking, are included as team members. Therefore, in later handovers, they do not have to cope with new ways of thinking. Similarly, Manufacture Co. also include employees with different mental models in the innovation team, and highlight the value of these differences in their innovation work. Such cross-understanding of the different mental models that are present, as of Huber and Lewis (2010), seem to benefit innovation work, and handovers.

In addition to awareness, the case companies emphasize ensuring goal alignment and common handover criteria for the delivering and receiving unit, to overcome the mental model challenges. All case companies have pointed out diverging goals in handovers act as a challenge. At Retail Co., the Technical Manager in Production stresses how different goals can be troublesome in the handover from innovation project team to the production facility,

and has experienced that the innovation project team want to hand the innovation project over, before the production facility feels that they have reached the right production efficiency level. In this handover, the production facility, on the other hand, often want to elongate the handover, so that they still get support and resources from the innovation project team. Providing clear goals and common directions is also highlighted in literature as an initiative to facilitate interdisciplinary work (Bessant & Tidd, 2015; Cooper 1990; Moenaert et al., 2000). Based on this, we suggest that both increased awareness of the different mental models that are present in handovers, and ensuring goal alignment, is key for overcoming mental model challenges, and thus being able to reap the benefits from this (i.e. new insights and viewpoints; detection of flaws and errors; and better end solutions).

Psychological Ownership

Feelings of ownership towards the innovation project are decisive to ensure that the innovation project is followed through after a handover. Particularly, employees in the receiving unit, who in the handover receive responsibility and control of the innovation project, need to feel such ownership in order to commit to the innovation project. We found that such feelings of ownership, psychological ownership, were something all the case companies considered as crucial with respect to handovers. Project Manager in Department Z at Energy Co illustrates this: "Feeling ownership is vital. You have to be motivated, and want to get it done." Similarly, Marketing Consultant in Marketing and Innovation at Retail Co. stresses: "Prioritization, commitment, and feelings of ownership towards the innovation project are the most important things to get things done in a good way." In this section, we will discuss how psychological ownership has influence on innovation handovers, and how such feelings of ownership can be promoted in these handovers.

Psychological ownership creates motivation, commitment and engagement towards the innovation project, but creating a sense of ownership to innovation projects across knowledge domains can be challenging. Of the case companies, especially Energy Co. and Bank Co., have experienced challenges related to lack of psychological ownership towards the innovation project in the receiving unit. Particularly, in the handover from the innovation project development team to operations, these challenges are identified as being partly responsible for innovation projects that: stop abruptly; are rejected, are neglected; lose

relevance over time; are misused by receiving unit; and not used by receiving unit. As a result, the companies have spent a lot of resources and time on innovation projects that have failed due to not being successfully followed through by the receiving unit. “If someone does not feel ownership both before and after [the handover], then it [the innovation project] will stop abruptly. So, ensuring that the receiving party are aware of how important it is that they continue to put effort into it, is key” (Leading Advisor, Department V, Energy Co.). In all case companies the importance of psychological ownership in innovation work, and handovers, is highlighted.

The companies face different challenges related to creating psychological ownership in the receiving unit in and after handovers. The CEO of Manufacture Co. points to the company’s small size and employee role flexibility as factors that create psychological ownership towards projects at Manufacture Co.: “This company is quite small, and we involve each other quite a lot, at least to some extent in all projects. So in this sense I feel that we all have some ownership of most projects here.” At Retail Co., employees claim that ownership is created when the employees work together on the innovation project over time. The multidisciplinary innovation project team work together throughout the development phase, where employees that later in the innovation process work on the innovation project are included as team members. Therefore, we expect that employees that have been included to work on the innovation project, also will have some feelings of ownership towards the innovation project, prior to handover, as they have put their effort and contribution into the innovation project. It would be interesting to investigate further, why and when such inclusion into an innovation project team creates psychological ownership. In comparison, Bank Co., has experienced challenges related to lack of psychological ownership among employees, and points to huge amounts of initiatives and different mental models as barriers for ensuring psychological ownership in their handovers. Energy Co. highlights high levels of uncertainty and replacement of key employees as barriers for ensuring psychological ownership in their innovation handovers. Also, as discussed, Bank Co. and Energy Co. organize their innovation work differently from Manufacture Co. and Retail Co. We believe that by not working as close and integrated throughout the innovation process as Manufacture Co. and Retail Co., these companies face more challenges related to ensuring psychological ownership in the receiving unit in handovers. However, we see that both Bank Co. and Energy Co. have found ways to cope with these challenges.

The case companies have different approaches towards creating psychological ownership in the receiving unit after handovers. Despite the case companies' different innovation models, all case companies, to varying extent, employ initiatives to create psychological ownership in the receiving unit in, and after, handovers. The first initiative concerns involving employees, to put time and effort, into the innovation project. Here, both involving some employees from the receiving into the delivering unit prior to the handover, and involving employees from the delivering unit into the receiving unit, after the handover, are pointed out as effective initiatives towards creating psychological ownership towards the innovation project in the receiving unit. Manufacture Co. and Retail Co. has involvement embedded in their innovation model, as employees work together in a multidisciplinary team prior to, and shortly after the handovers. In comparison, Energy Co. organize their work, so that one or more employees from the receiving unit works with the delivering unit prior to handover, and that one or more employees from the delivering unit works with the receiving unit after handover. In this way employees are involved in the innovation project across handovers, but are not included as members of other units. The Manager in Department X illustrates: "We can not just throw the baton to the next guy, and ask him to run. Then he will not run. We need to have a really long exchange zone." This continuity of time and effort put into the innovation project, across handovers, seems to be decisive for both handover success and the outcome of the innovation project. In line with Staw (1981), we have found that when individuals actively participate in something over time, the stronger their attachment to this something becomes. This seems to be of large importance for handovers. Bank Co. focuses on involving key employees from the receiving unit (ambassadors) that have shown interest and motivation for the innovation project, from an early phase of the innovation project. The ambassadors have strong influence on their colleagues, and thus function as motivators, who create commitment to the innovation project among other employees in the receiving unit. The ambassadors also contribute to ensuring that the final solution actually meets the needs of users in the receiving unit, by providing feedback and suggestions based on their experiences from the receiving unit. Involving key employees is also found to play an important role in creating psychological ownership at Energy Co. This is in line with findings of Sundström & Zika-Viktorsson (2009), who stress: "Innovation often needs to be promoted or protected by key individuals acting as champions" (p. 746). Further, also leaders are found to play an important role in creating psychological ownership in the receiving unit. Similarly as for the ambassadors and other highly committed employees, committed leaders influence the employees towards greater feelings of ownership towards the innovation project. Lastly, we

have seen that showcasing employee involvement also has effect on psychological ownership. Here, an interesting issue is whether it is the actual contribution, the time and effort an employee has put into the innovation project, that counts the most, or if it is the employee's own perception of the contribution that counts the most. This is an element for further research. In brief, we have found that involvement of employees from the receiving unit, and having highly committed employees and leaders, create feelings of psychological ownership, which can be decisive for the outcome of innovation handovers.

Even though the case companies' general viewpoint is that feelings of ownership is beneficial for innovation work and handovers, having too much psychological ownership can also have negative influence on handovers. Retail Co., Bank Co. and Energy Co. have all experienced situations where employees have had too much psychological ownership towards an innovation project, which has resulted in developing something that has no value. In these cases, employees have felt the ownership so strongly, that they overlooked downsides and weaknesses of the project. Leading Advisor in Department V at Energy Co. states: "Very eager people, who have worked a lot on an innovation project, might have too much faith in what they have been working on. They become excessively positive, and end up with tunnel vision." In handovers, such employees can influence others with their enthusiasm, and thus possibly steer the handover in the wrong direction. Manufacture Co. has not faced such challenges regarding their own employees, but has encountered similar challenges in handovers with external actors. Especially, external engineers and designers, who have tried to solve problems prior to Manufacture Co, or want to set their fingerprint on the project, are highlighted to act as barriers in the handovers between Manufacture Co. and the external actor. When these reject the new input, Manufacture Co. has to spend unnecessary resources in persuasion and discussions, thus decelerating and complicating the handover. These situations all arise due to individual's excessive feelings of ownership, which is something practitioners should pay attention to.

In our study, we have found indications of possible cases of escalation of commitment and the Not Invented Here syndrome are closely linked to employees' feelings of ownership. Our findings suggest that too much psychological ownership towards an object (i.e. work, processes, actions, problems, etc.) can lead to escalation of commitment towards this object, as described by Staw (1981). Further, our findings seemingly point to that when a unit does not have psychological ownership towards an object, this can lead to tendencies of the NIH-

syndrome, because the employees are not receptive, and end up rejecting, external input (Katz & Allen, 1982). Energy Co. and Bank Co. have both described occurrences of such situations, where the end user rejected the innovation project after handover. Investigating the possible relationship between these three concepts in an innovation, and especially an innovation handover, context is a topic of high interest for further research.

5.2 Limitations

There are some limitations to this study. In addition to the considerations regarding research quality that were made in section 3.4, we address seven additional limitations that we believe are of importance for our study.

First, innovation work, processes, and handovers were found to be more complex, unclear, and disorganized than first anticipated. In some manner, everything seems to depend on everything, and categorizations and descriptions from literature seem to fall short. As a result, we recognized that it was hard for us as researchers to understand the full picture. This includes assessing enough information and details, understanding how the different pieces of information interrelate, as well as maintaining an overview. Second, we have tried to provide thorough descriptions of our findings. However, when trying to put our findings on paper, we quickly realized that we had to make several simplifications and restrictions, in order to be able to analyze and present the findings in a structured and transparent way. This is a limitation to our study. Third, throughout the interviews, we experienced that many of the topics we wanted to investigate, were difficult for interviewees to talk about. For instance, since innovation handovers is a phenomenon that has received low attention, employees were often unaware and unconscious about their knowledge on such handovers. As a result, we typically had to provide explanations and discuss the delineation of the handover definition, to ensure that the interviewees understood what we wanted to investigate. Also, we found that some constructs, such as psychological safety and mental model were difficult for interviewees to talk about, because these terms describe something abstract and vague, and are not typically used in the interviewees daily terminology. Accordingly, this adds limitations to our study, as it might have limited the data that we were able to access through interviews. Fourth, as several of the constructs that we have tried to investigate are highly situational, it makes it harder to access thorough information on these through interviews. For

instance, when asking about a climate of psychological safety, interviewees were often relatively unconscious about their past experiences, resulting in vague interview answers. A fifth limitation to our study is that interviewees might have referred to specific examples and situations that we, as researchers, have interpreted as generalizable for the organization. In other words, our descriptions of the organizations in this thesis, might contain elements that only are applicable for certain situations and certain employees. Sixth, in the handovers with external actors, we have only had access to descriptions from employees in the case companies. In other words, we have only had access to perspectives and viewpoints from one of the handover parties. The last limitation concerns attribution error. We often experienced that the employees found it easier to talk about errors and negative situations and experiences, in other units, departments and companies, than in their own. In sum, there exist limitations of our study. These should be considered when further investigation of innovation handovers.

5.3 Further Research

As this is an exploratory case study, the findings in this master thesis serve to prepare the ground for further research. In our study, we have investigated how a set of constructs influence innovation handovers, and found that many of these play important roles in innovation handovers in our four case companies. In order to fully understand the phenomenon of innovation handovers, more studies on innovation handovers are needed. In this section, we present paths for further research that we believe will enhance the understanding of innovation handovers.

More research is clearly needed to determine how innovation handovers can be best facilitated, and how such handovers can most efficiently be carried out in practice. First of all, we suggest deepened research on the factors in the organizational context that have been investigated in this thesis, as these are found to have influence on innovation handovers in different ways. We suggest more research on the identified tradeoff between having one multidisciplinary team throughout the innovation process (integrated innovation process), and having handovers between different units. More research on this tradeoff are believed to answer questions such as: Is this tradeoff applicable for firms outside our case study? Can a deepened understanding of this tradeoff give guidelines to how firms should structure their innovation work? Further, we suggest more research on employee involvement prior to, in,

and after handovers, as such involvement is found to be prevalent for our case companies. Scholars should investigate what type of involvement, how and when involvement should occur, which employees to involve at what time, and in which manner these should be involved, in order to find the most efficient involvement for innovation handovers. Also, we suggest future studies on the role of management and leadership in innovation handovers, to gain a better understanding of how managers and leaders can, and should, influence innovation handovers. We believe such research will give important guidelines for practitioners. Further, studies on flexibility versus formalization in handovers are suggested, as the case companies had very different practices in this regard. Here, studying the use of checklists and standard procedures can help figure out if formalization initiatives can facilitate handovers. Moreover, as our study points to the importance of successful information and knowledge transfer in handovers, we suggest studies on how to facilitate communication across the parties of handovers. In our study, the role of personal relationships has been highlighted as a facilitator for such communication, and more research on this connection is thus also suggested. Furthermore, as supportive cultures and climates are found to facilitate innovation work, investigating how to ensure such cultures and climates in innovation handovers is suggested as a topic for further research. Based on our study, we have identified that more studies on psychological safety and different subcultures in handovers are necessary. We also suggest that scholars should take a research approach that addresses the challenges and benefits of different mental models, also frequently termed thought worlds, communities of practice, and communities of knowing, in innovation handovers. Lastly, we suggest psychological ownership as a highly relevant topic for further research on innovation work and handovers. Our study indicates that there is need to find the optimal level of psychological ownership towards innovation projects in innovation handovers, and that there is a need to investigate how to ensure such levels of psychological ownership. Especially, research on how to create psychological ownership the receiving party is suggested, since this was pointed out as crucial for the outcome of innovation handovers. Our final suggestion is further research that can lead to establishment of criteria for successful innovation handovers. Employees in all the case companies have requested such criteria. In line with Cumings & Teng (2003), who have established criteria for successful knowledge transfer, we believe that a set of criteria can guide practitioners in their work, also in innovation handovers.

For further research on innovation handovers, several empirical approaches are proposed. Qualitative studies based on interviews, observations and video ethnography are suggested.

We believe that especially multiple case studies, longitudinal studies, and observation can give further insight into the phenomenon of innovation handovers, and that such studies can increase understanding of the more abstract constructs, such as psychological safety, personal relationships and mental models, in innovation handovers. There is no doubt that further research is needed within this field of research, and we hope that our master thesis has contributed as groundwork for such research.

6 CONCLUSION

In this master thesis, we set out to understand how innovation handovers are carried out in practice as part of companies' innovation processes. Through a multiple case study of four Norwegian companies, we found that innovation handovers have prevalence in practice. Despite the fact that the case companies have different business models and practices, and work with innovation in different ways, all case companies have innovation handovers, where a transfer of information, responsibility and/or control for an innovation project occurs between organizational units. This gives reason to suggest the phenomenon of innovation handovers as a highly relevant topic for further investigation. We believe that gaining a better understanding of innovation handovers can benefit companies trying to succeed with innovation, in an increasingly competitive market, where innovations continue to fail at alarmingly high rates.

We have further found that companies face several challenges in innovation handovers: different motives, goals, and ways of thinking; ambiguity; lack of psychological ownership and commitment; poor communication; inadequacies in management and leadership; unsupportive cultures and climates; and a tradeoff of flexibility and formalization. In order to succeed with innovation handovers, these challenges must be overcome. If not, we have found that the delivering party might develop the handed over innovation project in wrong directions, cease to develop, or terminate the innovation project. Our study shows that the case companies have different ways of overcoming these challenges in innovation handovers. Here, we have found that employee involvement, key employees, and goal alignment are the three overarching strategies that the case companies employ. First, regarding employee involvement, the case companies cover a range from including all relevant employees as team members, to involving some employees from the receiving unit prior to the handover, and some employees from the delivering unit after the handover, in order to get input and feedback. Second, key employees are found to facilitate handovers in the case companies. Such key employees are employees and leaders that are highly engaged and committed to the innovation project. Both employee involvement and key employees are said to effectively contribute in creating psychological ownership in the receiving unit, cope with differences in mental models, facilitate for close collaboration and communication, and foster cultures and climates that support handovers. In addition, key employees can play important leadership

roles, as both formal and informal leaders. Lastly, ensuring goal alignment across the receiving and delivering unit plays an important role in order to cope with ambiguity, different mental models, and different motives, that might arise in handovers where employees of different departments and disciplines meet. Also, tailoring goals and criteria prior to each handover is suggested to promote goal alignment.

Our study gives insight into how innovation handovers are carried out in practice in four Norwegian companies, from different industries and with different characteristics. First, we found that innovation handovers often, but not always, occur in transitions between phases of the innovation process. Second, we found that there is a tradeoff between an integrated innovation process with few to none handovers, and an innovation process with several handovers. While two of the case companies consider integration as most resource efficient because it is perceived to reduce risks of failure, and yield better end results, the two other case companies have found that such an integrated approach does not suit their business model, and are therefore dependent on well-functioning handovers. Third, innovation handovers are found to both occur within the organization, and with external actors. Fourth, innovation handovers are not straightforward, linear or easy, and are rather described as an iterative process by employees in the case companies. Fifth, handovers vary in duration, but often include more coordination than one single meeting. Sixth, we found that handovers can be formalized through checklists and procedures, or happen more dynamically and flexibly. Lastly, we found that handovers are influenced by the context in which they occur, and that the companies accordingly employ different handover practices. As handovers include people, social aspects are found to play an important role. In our exploratory case study, we have sought describe how innovation handovers are carried out in practice. We suggest further research to determine the findings applicability beyond the limitations of our sample. Also, we suggest research to improve our understanding of innovation handovers, and their relationship to the contexts in which they occur.

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APPENDIX

Interview Guide

THE INTERVIEW OBJECT

- Name
- Position
- Age
- Years of employment in the case company
- Role in innovation work, and handovers

THE INNOVATION WORK

1. General questions on the innovation process
How do you work with innovation?

- How widespread is innovation?
- How does a typical innovation process take place?
    - Origin of new ideas
    - Initial phase
    - Development phase
    - Operationalization phase
    - Duration
    - How are employees involved?
        - Who are involved?
        - How many?
        - What type of involvement?
        - Involvement throughout the innovation process or only in parts?
        - Different teams, departments, disciplines, units?
    - How is responsibility and control exercised throughout the process?
        - Do handovers occur?

- Is success of innovation processes and projects measured?
    - How are these results incorporated in daily work?

2. Addressing specific innovation projects
Can you elaborate on this innovation project?

- At what point in the innovation process is this innovation project?
- Hopes/goals/aims for this innovation project?
- The idea?
- Who are involved?
- How is the innovation work executed?
    - Team/department/unit
    - Competence and discipline
- Responsibility and control
    - Changes?
    - Handovers?

Innovation Handovers

1. The handovers
Can you elaborate on these handovers?

- The purpose
- How these are carried out?
    - The parties
    - The participants
        - How many?
    - Homogenous or multidisciplinary teams?
    - Prior preparations?
        - Contact, communication, questions
        - Meetings
        - Documentation
    - What happens during handover?
        - Duration
        - Location
    - Work after handovers?
        - Contact, communication, questions
        - Meetings
        - Documentation
- Have you participated in similar/the same type of handovers previously?
    - Differences
    - Similarities
- What is your perception of the handover(s)?
- How did you experience the handover(s)?
- In retrospect, do you see anything that could have been done differently?

2. Teamwork

Work division
How does work division affect handovers? How is work divided in handovers?

- Distribution of roles and responsibilities?
    - Delivering unit
    - Receiving unit
    - Most push or pull?
- Are all participants able to understand all aspects of the innovation project?
- Do participants have similar backgrounds and expertise?
- Are there any challenges related to having participants from different units, departments and disciplines in handovers?
    - R&D/Marketing/others

Multidisciplinary teamwork
How are handovers affected by multiple disciplines?

- Collaboration?
- Barriers?
- Difficulties regarding different terminology/languages?
- In retrospect, is your opinion that you were able to make advantage of the different competencies?

Role flexibility

How are employees role in handovers? And how are these roles compared to employees role in their daily work?

- Did any participants have additional roles in handovers?
  - Voluntary or planned?
- Did the handover parties have contact prior to handover?
- Where employees from one of the units active in the other unit prior to handover?
  - Delivering towards receiving
  - Receiving towards delivering
- Where employees from one of the units active in the other unit after handover?
  - Delivering towards receiving
  - Receiving towards delivering
- How do you assess employee roles and role flexibility in handover?

3. Management and Leadership

Can you elaborate on management and leadership during handovers?

- Project leaders, leaders and managers
  - Role?
  - Responsibility?
  - Changes in or according to handovers?
- Formal/informal leadership?
  - How?
- Fixed/formalized/flexible?
- Autonomy/control
- In retrospect, what is your assessment of management and leadership of handover?
  - Do you see any room for improvement?
  - The effect of leader's' motivation/support/encouragement
  - The effect on project progress?
- Employed initiatives to facilitate handover?
- Leader's role in linking handover parties together?
- What are the challenges of managing and leading handovers?

5. Routines

Can you describe the routines and procedures for handovers?

- Checklist?
- Adaptable and adjustable routines?
- How did these routines affect the handover?
- Was the handover affected by other routines?
  - Differences in routines between parties?
- Do you have any routines that aim to ensure that all important/relevant information is handed over?
- Do you consider handovers as flexible or formalized?
  - Do you have any thoughts on how handover could be improved from a routine point of view?

6. Communication

Can you describe the communication during handover?

- Well-functioning?
    - What worked?
- Challenges?
    - What did not work?
- Similar language/terminology?
- Differences between teams than within teams?
- Differences across departments?
- Differences due to hierarchy?
- How is communication affected by the innovation projects complexity?
- How is communication affected by personal relationships?
    - Beneficial?
    - Detrimental?
- Do you map the handover parties' competencies prior to handover?
    - Do you know what the other party knows about the innovation project prior to handover?

7. Culture and climate

With respect to culture, how did/do these units work together?

- Organizational culture?
- Subcultures?
    - Differences?
    - Similarities?
- A lot of contact and cooperation?
    - Cooperativeness
    - Competition
    - Respect
    - Trust

Can you elaborate on the climate during handover?

- Supportive climate?
- Respect?
- Time for questions?
- Active sharing of knowledge and expertise?
- Were difficult topics and questions raised and discussed?
- Differences in participants' contributions?
- View on mistakes in handovers?
- Did participants make any mistakes during handover?
    - How did the other participants react?
    - Consequences
- Did participants feel that all contributions were appreciated and respected?
- Initiatives related to climate/work environment?

8. Mental Models

Did you experience that the different parties understood and perceived certain things differently?

- Different ways of thinking?
- Different understandings?
- Different perceptions?
- Different perceptions on the innovation project?
- Did you experience any situations where the delivering party was not understood of the receiving party? Or conversely?
- Did discussions occur during handover?
- Were new perspectives/ideas/suggestions made?
- Expectations to handovers (both units)?
    - Different?
    - Did this affect the handovers?
- Did any of the participants lead the handover in any direction?
- Different intentions/motives?

9. Psychological Ownership

How would you describe feelings of ownership before, in, and after handovers?

- Have you experienced that the different parties have different feelings of ownership towards handovers?
- Challenges related to feelings of ownership?
- Benefits of feelings of ownership?
- Lack of feelings of ownership?
    - Why?
    - Consequences?
- Excessive feelings of ownership?
    - Why?
    - Consequences?
- How do feelings of ownership in handovers arise?
    - Measures?
    - Initiatives?

10. Other questions

- Uncertainty during handovers?
    - Misunderstandings?
    - Inadequate information?
    - Different interpretations?
    - How did this affect handover?
    - Consequences?
    - How was this handled?
- Ambiguity during handovers?
    - Why?
    - How did this affect handover?
    - Consequences?
    - How was this handled?
- Conflicts during handovers?
    - Why?
        - Disagreements between units?

    - How did this affect handover?
    - How was this handled?
    - Consequences?
- Resource constraints?
    - How did this affect handover?
    - Consequences?
    - How was this handled in handovers?
- Mutual interdependence?
    - How did this affect handover?
    - Consequences?
    - How was this handled in handovers?
- Time limits?
    - How did this affect handover?
    - Consequences?
    - How was this handled in handovers?
- Similar understanding across handovers?
    - How did this affect handover?
    - Consequences?
    - How was this handled in handovers?