THESIS FOR THE DEGREE OF DOCTOR OF TECHNOLOGY

Managerial Practices for Open Innovation Collaboration:

Authoring the spaces “in-between”

ANNA E. Å. YSTRÖM

Division of Management of Organizational Renewal and Entrepreneurship,
Department of Technology Management and Economics
CHALMERS UNIVERSITY OF TECHNOLOGY
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ANNA E. Å. YSTRÖM

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Division of Management of Organizational Renewal and Entrepreneurship

Department of Technology Management and Economics

Chalmers University of Technology

SE-412 96 Gothenburg

Sweden

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"What makes managers authors, is that they are concerned not merely with the design of organizational structures, systems, or goals, but with creating new possibilities for action, new ways of being and relating in indeterminate, ill-defined realms of activity. In this way, they are more like artists than engineers."

Ann L. Cunliffe (2001)

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Department of Technology Management and Economics, Chalmers University of Technology

ABSTRACT

Open innovation was introduced in 2003 as a new business model for how to transfer ideas or competence across organizational boundaries. Making this shift from closed to open innovation processes is argued to offer the possibility of creating and developing technology, services and processes in new ways. However, many organizations are still not entirely confident and comfortable in these "open" collaborations and previous research on inter-organizational collaboration indicates a high risk of failure. As open innovation collaboration continues to increase in popularity among organizations, one particular issue needs to be further explored to ensure a greater chance of success - management. Opening up the borders of an organization and the innovation process infers a type of "post managerial environment", where conventional steering and managerial tools no longer apply, and traditional management theories do not provide much guidance. Although open innovation scholars have produced a steadily increasing amount of research, investigating various aspects of open innovation, managerial issues are still little explored. This thesis seeks to explore and envision a concept of open innovation management and provide a more profound understanding of the managerial practices related to open innovation collaboration.

Theory and practice related to managing open innovation collaboration is extended in this thesis by means of an action research project involving a 4-year qualitative case study. Such a research design is argued to fit with the exploratory aim of this thesis. The empirical setting is a long-term open innovation collaboration called SAFER, involving 26 partners from industry, academia and society. This setting is interesting as SAFER represents a remarkable type of open innovation actor with its own proprietary vision and emphasis on joint knowledge creation together with its partners and it provided ample opportunities to study the complex and dynamic nature of open innovation in practice and especially managerial practices.

The findings from the SAFER case show that achieving collaborative advantage in open innovation collaboration is not easy, due to a number of contextual challenges that needs to be managed. Furthermore, the findings indicate that the open innovation arena director needs a range of practices that require perpetual attention from a meticulous and persevering manager. Expectations and intentions need to be adjusted as managers interact with people they do not have vicarious liability for. Additionally, it appears that managers need to appreciate and embrace disorder and unpredictability that comes with the open innovation context, which is important, as it implies a fundamental shift from striving for control over people and resources to having control in the environment.

These findings allow this thesis to extend and deepen the theoretical as well as practical insights into managerial practices for open innovation in a novel and distinctive manner. This thesis contributes to the literature on open innovation by outlining of a concept of open innovation management, inviting to think differently about management, where a core aspect is balancing a state of bounded instability. Managing is considered as a way of being and relating, and the manager could be described as an author of the organizational landscape, taking part in constructing identities, realities and meanings in the open innovation context. The thesis, furthermore, contributes to managerial practice through a thorough illustration of practices, which may serve as inspiration for discussion among practitioners in similar complex environments, where knowing how to manage the "in-between" is essential.

Keywords: Open innovation; innovation management; collaborative advantage; managerial practice; longitudinal case study; action research

LIST OF PUBLICATIONS

This thesis is based on the following papers, referred to by Roman numerals in the text.

i. Giannopoulou, E., Yström, A. & Ollila, S. 2011. Turning Open Innovation into Practice: Open Innovation Research through the Lens of Managers. *International Journal of Innovation Management,* 15 (3), 505–524.

ii. Elmquist, M., Ollila, S. & Yström, A. 2013. Beyond intermediation: The open innovation arena as an actor enabling joint knowledge creation. *Under review (3rd round) in Industry & Innovation*. A previous version was presented at the *Nordic Academy of Management conference*, August 22-24, 2011, Stockholm, Sweden.

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iv. Ollila, S. & Yström, A. 2013. Managing open innovation: Embracing both control and chaos. *Under review in R&D Management.* A previous version was presented at the *EGOS conference,* 5-7 July, 2012*,* Helsinki, Finland.

v. Ollila, S. & Yström, A. 2013. Beyond command and control: Exploring managerial practices in the case of an open innovation arena. *Under review in Long Range Planning*. Previous versions were presented at the *Nordic Academy of Management conference (NFF*), 21-23 August, 2013, Reykjavik, Iceland and the *15th APROS conference*, 15-17 February 2013, Tokyo, Japan.

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Writing a dissertation could be said to be the ultimate evidence of a person's transformation from being a student to becoming a full-fledged researcher. However, it is not really possibly nor desirable to depict such a journey in only 60 pages, and therefore, the thesis that lays before you is an imperfect, re-constructed representation of what has passed. Still, it is a journey that would not have been the same without the people standing by my side, providing support and guidance at various places along the road.

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Man mikham khanevadeh iraniam ra tashakor konam, Soror, Alireza va Sode, baraje poshtebani va sabr shoma doran in safar.

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1 Introduction

This thesis explores practice and extends theory related to managing open innovation collaboration. Open innovation (Chesbrough, 2003a) was introduced in 2003 as a new business model for how to transfer ideas or competence across organizational boundaries to increase revenues. However, with open innovation come new challenges associated with e.g. organizing collaboration and management. Furthermore, it opens up a space for new actors, such as intermediaries, aiming to support and facilitate open innovation processes. But, in open innovation collaboration, involving a diversity of partners and projects, it can be questioned, if established management theories suffice to provide guidance for managers and if conventional "command and control" practices are applicable.

Although open innovation scholars have produced a steadily increasing amount of research, investigating various aspects of open innovation, managerial issues are still little explored. This thesis addresses this gap by assuming managerial practices as the main focus of analysis as it seeks to explore and envision a concept of open innovation management and provide a more profound understanding of the managerial practices related to open innovation collaboration. This thesis assumes that management theories are primarily rooted in practice (Pfeffer, 2009, Starkey et al., 2009, Hatchuel, 2001), and when management practice changes, this causes a need for new developments within theory. The open innovation paradigm appears to be an empirical example of quite drastic changes in how innovative work is organized, and this motivates further theory development, in order to understand and explicate what is happening.

Building on a 4-year action research project, involving an open innovation arena called SAFER, gathering 26 partner organizations, this thesis contributes to knowledge on open innovation by advancing theories on managing open innovation collaboration. SAFER is not to be regarded as an organization, which is an interesting complement to previous firm-centric studies on open innovation. An interior view of SAFER is presented in the thesis and used to gain a better understanding of open innovation collaboration and what constitutes the managerial practices used in such a setting. The findings are integrated into a concept of open innovation management, which invites to think differently about management. This is an important knowledge gap to be addressed, as management is often mentioned as important for open innovation, but has not yet been investigated in-depth.

1.1 Background

1.1.1 Collaborating for innovation

In the last decade, the old, "closed" innovation paradigm has been questioned as organizations today face new challenges, which have made them interested in engaging in open innovation as a way of staying ahead in the competition and to reach new heights in their pursuit of innovation. It has become evident for many organizations that opening up the innovation process and collaborating with external partners is inevitable, and those who know how to initiate, organize and manage these types of collaboration will have a great advantage over those who do not. But collaborating for innovation in itself is nothing new - organizations

have been dependant on co-operation and collaboration for innovation for a long time (see e.g. Trott and Hartmann, 2009, Allen and Cohen, 1969, Griffiths and Pearson, 1973, Rothwell, 1992, Tidd, 1993). Inter-organizational collaboration, e.g. technology alliances and inter-organizational networks (Powell, 1990), have been around for decades (Trott and Hartmann, 2009). But, they have not really been able to challenge the "closed innovation" paradigm, because the companies have still, to a great extent mainly relied on their internal capabilities to develop new products or services (Chesbrough, 2003a, Vanhaverbeke, 2006).

The challenges that organizations face are often described as related to the increased complexity in the type of problems they meet as well as increased time pressure to innovate (Vanhaverbeke, 2006) and practitioners have welcomed new ways of reducing lead times, reducing risks and sharing costs as well as finding new sources for innovation. The competition is no longer just the local market, but globalization has changed the process of creating innovations as well as the dissemination of new products and services and the flow of knowledge and competence between different organizations. Moreover, the world is facing complex issues of great societal importance, such as global warming, traffic safety, malnutrition, poverty and renewable energy sources. This can lead to a situation, where organizations need to create, develop and sustain inter-organizational relationships (Erfors, 2004) as it is difficult or impossible for one organization to find a solution by themselves. Even in the regional or national context, seeking partners and collaborating has become imperative to survive in a tougher and tougher business climate (Johansson, 2012). To keep up with the latest knowledge and competence and keep it all in-house is expensive for a company, as knowledge quickly gets old. That is why some claim that the best way to get access to the frontier is to collaborate with those who have the desired knowledge. This has triggered an exploration of new ways of organizing to gain access to creative ideas and enable collective creative action and innovation (Bissola and Imperatori, 2011). Thus, organizations have gradually become more interested in how collaboration could help them create innovative solutions, and several examples of how open innovation expands the space for innovation are depicted by e.g. Huff et al. (2013).

For a partnership or collaboration to exist, all interacting partners must have a motive on an institutional level and perceive that they have something to gain by participating (Johansson, 1997, Dodgson, 1993). It could be about achieving *greater flexibility and effectiveness*, *dealing with environmental uncertainty, sharing the risks* in product development (Erfors, 2004), or for that matter attaining *legitimacy* (to be seen as belonging to "the right crowd") (Oliver, 1990). It can be concluded that the motives for collaborating often vary, and it is common that multiple factors are involved, and have a reinforcing effect, resulting in additional positive effects of collaborating (ibid). *Collaborative advantage* (Huxham, 1993) (compare to e.g. competitive advantage) describes the added value that can come from organizations teaming up with others. When competitors or suppliers are invited to become peers in the innovation process, new possibilities arise and new relationships are formed, internally as well as externally to the participating organizations. Huxham (1993) suggests that:

> *"Collaborative advantage will be achieved when something unusually creative is produced – perhaps an objective is met – that no organization could have produced on its own and when each organization, through the collaboration, is able to achieve its own objectives better than it could alone. In some cases, it should also be possible to achieve some higher-level…objectives for society as a whole rather than just for the participating organizations. " (p 603)*

In 2003, Chesbrough introduced the concept of "open innovation" as a new way for companies to profit from inter-organizational collaboration, based on his observations of innovation practices in large organizations. Open innovation was presented as and still is considered to be a business model for how to transfer ideas or competence across organizational boundaries, throughout the innovation process. As the years have passed, Chesbrough (2011a) now refers to openness in the innovation process as *"a way of sharing with others and inviting their participation"* (p88). While appreciating the variety of ways in which open innovation has been studied, this thesis focuses on open innovation as a way of organizing collective knowledge creation, in line with Chesbrough (2011a), although it will not address the later stages of the innovation process (commercialization etc.).

Although many organizations have participated in different kinds of collaborations for innovation in the past, they are still not sure about how to reach a successful outcome. E.g. du Chatenier et al. (2009) and Wallin and von Krogh (2010) claim that how to include new types of partners in the innovation process, which partners to invite, how much information to share, who gets the credits for the results and not least how to manage such a collaboration are still critical questions for any organization entering into a collaboration. Some advice is provided, e.g. by du Chatenier et al. (2009), but as the upward trend of more and more organizations engaging in open innovation continues without interruption, there is clearly a demand among practitioners for more knowledge. Most organizations still appear not to be entirely comfortable in these "open" collaborations, where the return or outcome is so highly dependant on the input from the partners (Vanhaverbeke, 2006). It is worth noting that up to 70% of innovation alliances fail, and this could be due to contradictory recommendations for effective innovation management and successful collaboration management (Sivadas and Dwyer, 2000).

1.1.2 New challenges for management

An abundance of research within the field of inter-organizational collaboration (Huxham and Vangen, 2005, Cropper et al., 2008, Ebers, 1997, Di Domenico et al., 2011) has concluded that collaborative arrangements are inherently difficult to manage (see e.g. Vangen and Huxham, 2003b). Many collaborations slant into a state of *collaborative inertia,* where the output rate seems slow and fails to meet expectations, and even the results that are produced come about after much hard and painful work (Huxham and Beech, 2003). Some identified pitfalls, such as perceptions of *loss of control*, *loss of flexibility*, *loss of glory* and *unthoughtful resource spending* require some consideration from managers, in order not to obstruct the collaboration. Expectations have been recognized as a key factor in whether or not a collaboration is perceived as successful (Ring and Van de Ven, 1994). The more persons that are interacting, the more complex the aims and expectations become (Håkansson and Snehota, 1995). Management's attitudes, interest and support for collaboration with other organizations

are essential for how the individual can act in a collaborative environment. This makes clarifying terms and expectations of the participating partners a key issue for management (Sivadas and Dwyer, 2000).

Introducing a paradigm such as open innovation involves new challenges for management, not only within the individual organization but also within the collaboration. Opening up the borders to external parties infers a type of "post managerial environment" (Karp and Helgö, 2008), where conventional steering and managerial tools no longer apply as the jurisdiction of the open innovation manager is often limited. For a manager of an open innovation collaboration, key concerns could be; How do you govern without any employees? How do you direct the work of those employed elsewhere? How do you set a clear direction when all collaborating partners have different perceptions of what to aim for and how to get there? How do you create an environment, where people from different organizations, sometimes even competitors, trust each other and dare to share information? E.g. Huxham and Beech (2003) and Newell and Swan (2000) claim that it is somewhat ironic that the differences in perspectives, competences and resources of each partner are what provides the potential for collaborative advantage, but at the same time they are also the reason why so many collaborations fail. Today, most organizations know how important it is to have different perspectives included in the innovation process, but it is still a key concern for management how to handle the differences and turn them into something constructive. Previous research has only scratched on the surface of management or managerial practices for success in open innovation collaboration, and this presents a fundamental knowledge gap that requires researchers' attention.

Underestimating the managerial as well as organizational challenges, that are associated with open innovation collaboration, could be detrimental for many organizations. Not considering the challenges, organizations entering into a collaboration might easily get "burnt" from e.g. sharing too much or too little information, trusting the wrong partner, or not being willing to compromise for the common purpose, and as a result become more closed than they were before. Thus, in order for collaborations to be able to achieve collaborative advantage through open innovation, it is of the greatest importance that we advance our knowledge on how to utilize the potential in open innovation and to describe, analyze and discuss managerial practices for open innovation collaboration (Elmquist et al., 2009).

An increased understanding of open innovation management is important, as it can provide practitioners with informed grounds for decisions regarding inter-organizational collaboration. Knowing what to expect of management is vital to exploit the gains from the collaboration, not only for the partners, but for the entire collaboration. The challenges associated with managing the collaboration are often underestimated, which diminishes the potential output for all partners.

1.2 Research aim and contribution

Three major knowledge gaps have been identified as motivation for the study underlying this thesis. First of all, although research on open innovation steadily increasing, there is a lack of

knowledge, specifically, concerning open innovation collaboration. Furthermore, the large part of the research that is conducted has adopted a firm-centric approach, which is in this thesis complemented by the collaborative perspective. Third, we still know little about what managerial practices managers use and need to use in the context of open innovation collaboration.

The aim of this thesis is, therefore, ***to contribute to a deeper understanding of managerial practices in open innovation and to outline a concept of open innovation management***, in order to enable more informed managerial practices and to contribute to theory on open innovation management. This thesis assumes managerial practices as the unit of analysis as *"practices are loci – spatial and temporal – in which working, organizing, innovating or reproducing occurs."* (Gherardi, 2012, p. 2). Practices can be used as a lens to understand how people use the available resources in an organization to accomplish intelligent actions, in order to solve problems or reduce uncertainty, and how they give those actions sense and meaning (Gherardi, 2012).

This thesis intends to contribute to the knowledge on open innovation by outlining a concept of open innovation management, which implies thinking differently about what management is and what it entails. Thereby, the thesis challenges previous assumptions about the applicability of theories and practices developed in a firm-context, in open innovation environments. The thesis, furthermore, contributes to managerial practice through the thorough illustration of practices in the specific case presented, which may serve as inspiration for discussions among practitioners in similar complex environments. The findings in this thesis could also be relevant for organizations that are about to enter into open innovation collaboration.

It should be noted that this thesis could be interesting to read, using a number of theoretical lenses, e.g. from an organizing perspective, given that managerial practices as depicted in this thesis are considered inseparable from the organizational context in which they are enacted (Gherardi, 2012). However, the point of departure of the thesis is a managerial perspective, and consequently, this has influenced the choice of theoretical background.

1.3 Outline of the thesis

The outline of the thesis is as follows: The theoretical background of open innovation in relation to management is described in Chapter 2, ending with a frame of reference of the most relevant theories for the further analysis in the thesis and the specification of two research questions. Chapter 3 addresses methodological considerations and Chapter 4 depicts the research context and the case of SAFER. Chapter 5 consists of a vignette aiming at providing a picture of the daily life at SAFER. Chapter 6 summarizes the appended papers, and the contribution of each paper is highlighted in brief reflections, and the chapter concludes by summarizing and outlining a concept of management for open innovation. The analysis in Chapter 7 relates the two research questions presented in Chapter 2 to the findings. Chapter 8 discusses the proposed concept for open innovation management in relation to previous literature and outlines the contributions of the thesis. Chapter 9 presents some final reflections and topics for future research.

2 Theoretical background

The purpose of this chapter is to provide insights into previous research in areas of relevance for the thesis. It will conclude with outlining a frame of reference including a few central concepts and theories, which are of relevance for the further analysis of managerial practices in the specific case studied, and, furthermore, outline the research questions guiding this study.

2.1 Open innovation – creating value across organizational boundaries

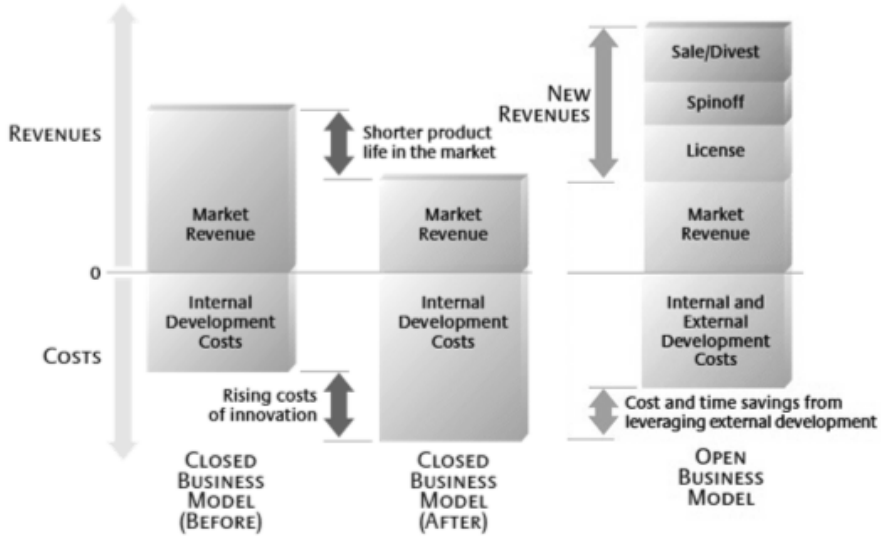
2.1.1 The principles of open innovation

The need for organizations to increase their innovative capacity has been a major driving force to seek new ways of finding and exploiting ideas beyond organizational boundaries, one of these being the business model called *open innovation* (Chesbrough, 2003a). Chesbrough had studied firms that had been transforming their innovation model in the later half of the twentieth century and concluded that industrial R&D was moving into a new paradigm, involving a new type of logic for how to create and profit from innovation.

The old, closed innovation paradigm entailed that all R&D activities should be conducted in-house, and the necessary competence and knowledge must be acquired to the firm to make innovation happen. This paradigm was argued to work well in the knowledge environment of the twentieth century, when people more or less had lifetime employment at the firm and it was a matter of quality for a firm to have control over the entire innovation process. But, as the knowledge landscape changed and there were more and more skilled and knowledgeable people available in the world, it became untenable to have all the necessary competence employed (Chesbrough, 2003c).

Chesbrough (2003b) defined open innovation as two separate, but somewhat related processes: 1) how to create value from internal ideas that have previously been scrapped and commercialize them through spin-off ventures, license agreements or other arrangements and 2) how to complement internal R&D activities by accessing external ideas or innovations, that can be refined in-house and combined with other ideas to create commercial products. The rationale behind the concept was, according to Chesbrough (2007), for organizations to be able to reduce internal costs for development of new products and services, while being able to substantially increase revenues (as illustrated in Figure 1).

Figure 1 The economics of Open innovation (Chesbrough, 2007)



The complete original open innovation principles compared to the closed innovation principles are outlined in table 1.

Table 1 Open innovation principles vs closed innovation principles (from Chesbrough (2003a)

Closed innovation principles	Open innovation principles
The smart people in the field work for us	Not all of the smart people work for us so we must find and tap into the knowledge and expertise of bright individuals outside our company.
To profit from R&D, we must discover, develop, produce and ship it ourselves.	External R&D can create significant value; internal R&D is needed to claim some portion of that value.
If we discover it ourselves, we will get it to market first.	We do not have to originate the research in order to profit from it.
If we are the first to commercialize an innovation, we will win.	Building a better business model is better than getting to market first.
If we create the most and best ideas in the industry, we will win.	If we make the best use of internal and external ideas, we will win.
We should control our intellectual property (IP) so that our competitors do not profit from our ideas.	We should profit from others' use of our IP, and we should buy others' IP, whenever it advances our own business model.

In the open innovation paradigm, the idea is that the boundaries of the organization become permeable and persons, knowledge and ideas flow in and out of the innovation process. Although the open innovation paradigm as such focuses on making the boundaries of the innovation funnel more permeable, opening up the innovation process in this way also implies

further consequences for organization, HR and management as well as the innovation eco-system (Slowinski and Sagal, 2010, Petroni, 2012).

The introduction of the new business model also brought with it a new research field. Research on open innovation has so far been both conceptual and empirical, using qualitative as well as quantitative research designs, and focused on different levels of analysis from individuals, groups and firms to inter-organizational networks, industries/sectors to national innovation systems (Chesbrough et al., 2006). The majority of the research, however, takes the perspective of a focal firm and how to benefit from in- and/or outsourcing innovation (West and Bogers, 2013). A number of themes in existing literature have been identified by Elmquist et al. (2009) (as depicted in table 2), and with the addition of service innovation for open innovation (Chesbrough, 2011b), the list is still useful in outlining the focus of the research field.

Table 2 The themes found in literature on open innovation 2003-2007 (Elmquist et al., 2009)

Themes	Contents	References
1. The notion of open innovation	Conceptual development of the term "open innovation"	Chesbrough (2003a), Chesbrough (2003c), Chesbrough (2004), (Chesbrough, 2006b), Chesbrough (2006a) Chiaromonte (2006), Gassmann and Reepmeyer (2005), Gruber and Henkel (2006), West and Gallagher (2007), Gaule (2006), Motzek (2007)
2. Business models	Developing open innovation as a business model	Chesbrough (2003b), Chesbrough (2007), Chesbrough and Schwartz (2007), van der Meer (2007)
3. Organizational design and boundaries of the firm	Degree of openness, strong/weak ties, different organizational forms	Brown and Hagel III (2006), Chesbrough (2003c), Dahlander and Wallin (2006), Dittrich and Duysters (2007), Fetterhoff and Voelkel (2006), Jacobides and Billinger (2006), Lichtenthaler (2007a) , Lichtenthaler (2007b), Lichtenthaler and Ernst (2006), Simard and West (2006) Tao and Magnotta (2006)
4. Leadership and culture	New challenges for leaders of open innovation	Dodgson et al. (2006), Fleming and Waguespack (2007), Witzeman et al. (2006)
5. Tools and technologies	How/what tools and technologies can facilitate open innovation processes	Dodgson et al. (2006), Enkel et al. (2005), Gassmann et al. (2006), Henkel (2006), Huston and Sakkab (2006), Piller and Walcher (2006), Tao and Magnotta (2006)
6. IP, patenting and appropriation	IP strategies, free revealing etc.	Chesbrough (2003a), Henkel (2006), Hurmenlinna et al. (2007)
7. Industrial dynamics and manufacturing	How open innovation changes the innovation system	Berkhout (2006), Bromley (2004), Christensen et al. (2005), Cooke (2005), Vanhaverbeke (2006)

As can be noted by the relatively few references listed related to theme no. 4 *Leadership and culture,* this is a topic that has so far not received much scholarly attention. This indicates a

research gap, which has become important to fill as more and more organizations engage in open innovation and consequently, they are also facing the challenge of how to manage it. Thus, this is the area in which this thesis aims to make a contribution.

However, it should be noted that in research, open innovation is not yet a streamlined concept, and has become associated with a number of different but related fields, from *open source* (Dahlander et al., 2008, West and Gallagher, 2007) to *user centred innovation* (von Hippel, 2005), *user co-creation* (Franke and Piller, 2004), *distributed innovation* (Sawhney and Prandelli, 2000) and *crowd-sourcing* (Howe, 2006). Some efforts have been made to further define open innovation, although none has become dominant in the field (see e.g. Lazzarotti et al. (2011))

2.1.2 Open innovation for collective knowledge creation

One of the bases for the break-through of the open innovation paradigm is that the problems of today are often complex and require multiple forms of expertise and collective knowledge creation to be solved. It is simply not possible for an organization to create certain innovations by themselves. Creative and ground-breaking solutions require collaboration to connect people with different experiences and knowledge (Mumford et al., 2002, Mauzy and Harriman, 2003, Cagliano et al., 2000).

Collaboration is argued to facilitate the creation of new knowledge, and can result in more than just transferring existing knowledge (Powell, 1990, Powell et al., 1996, Hardy et al., 2003). Chesbrough (2011b) is currently referring to open innovation not only as a business model, but as a way of inviting to knowledge sharing. Thus, open innovation has the possibility to extend beyond the business transaction of in- and outsourcing of ideas and in fact stimulate joint knowledge creation. Chiaromonte (2006) proposed that opening up the innovation process to include a greater variety of partners along the way changes the industrial dynamics, as roles, identities and responsibilities change, when e.g. suppliers become peers rather than subordinates. Hence, there is a need to have the capability to manage knowledge flows and coordinate relationships between the innovation partners. Managing open innovation collaboration means orchestrating complex social processes in which various actors create knowledge and reveal business opportunities (Bergman et al., 2009).

Lazzarotti and Manzini (2009) have argued that open innovation can stimulate creativity, a statement which can be associated with the general belief that multi-disciplinary, multi-institutional working will ensure greater creativity and innovation (Newell and Swan, 2000). The basis for such a statement is not clearly specified, as it has so far not been substantiated with much empirical research in the field of open innovation, and it brings to mind the notion of “the more the merrier” and “the more diverse the better” that is associated with research on e.g. team creativity (Newell and Swan, 2000, West, 1994, Bolwijn and Kumpe, 1990). But, Lazzarotti and Manzini (2009) further note that open innovation collaboration can also imply greater organizational and managerial complexity, which could be detrimental to creativity, if not handled properly. To make open innovation collaboration work and to exploit the

advantages of such conditions, coordination and management are needed (Gassmann and von Zedtwitz, 1998, Chesbrough and Teece, 2002, Buckley and Carter, 2002)

Specifically, for open innovation teams, du Chatenier et al (2009) looked at challenges in creating knowledge collaboratively and identified several challenges related to the organizational conditions of open innovation. The differences in perspectives among the participants can become so big that the team members have difficulty understanding each other, and therefore stop sharing knowledge (von Hippel, 1994), which would significantly hamper the collaboration. Brooks (1994) and du Chatenier et al. (2009) argue that even though making the difference in perspectives explicit might help the situation, an open dialogue is difficult to achieve, because people are still unaware of the problem and can thus not even consider other interpretations of the problem to revise their perspective.

2.1.3 How innovative are open innovation practices?

The fundamental issue of what "open innovation" could or should stand for is as present as ever, and there is an on-going discussion about the concept, where critical voices have been raised, questioning the newness of open innovation practices, claiming that it is simply "old wine in new bottles" (Trott and Hartmann, 2009, Mowery, 2009). Literature reviews on the early research on open innovation present a disintegrated research field, where the meaning of the concept is still a matter of discussion (Elmquist et al., 2009). The research field on open innovation is growing rapidly (van de Vrande et al., 2010, Huizingh, 2011), but it does not appear to be converging towards a common definition of what open innovation is. Despite efforts to characterize open innovation, as described by several researchers (van De Vrande and de Man, 2011, Huizingh, 2011, Lazzarotti et al., 2011), the matter is still not settled as illustrated by a thorough discussion in Technovation in 2011. Van de Vrande and de Man (2011) concluded the discussion by stating that whether or not open innovation is an appropriate new lens to look at the radical new changes that occur in practice, still has to be proven. To the critics, Huizingh (2011) responded that open innovation *does* have a value as a theoretical lens, as it is grounded in practice and thereby enables management research on real world problems.

A conclusion that can be drawn from this discussion is that a disparate use of open innovation concept by researchers will also be reflected in disparate objects of study in academic research. Because of this, it is not difficult to understand that the open innovation concept may be perceived as a collection of old ideas repackaged in a new form (Trott and Hartmann, 2009), as a wide range of associations between multiple organizations have been described by researchers as open innovation in one way or another (Eklöf et al., 2011), and that many of the studies conducted in the name of open innovation brings few additions to the table in terms of defining the concept. Such a trend may have a negative impact on how open innovation is perceived, and the concept risks becoming a term, simply used to describe the general trend of increased openness and collaboration, that has been prevalent in many organizations during the last few decades.

2.1.4 New actors supporting and enabling collaboration

Regardless of the question whether the practices labelled "open innovation" are new or not, the increased emphasis on openness and in- and outsourcing of ideas and competence has caused a number of different type of actors to appear and become acknowledged in the innovation landscape during the past ten years.

One type of actor is broadly termed "innovation intermediaries". It has emerged with the purpose of bringing organizations together and help them collaborate and intermediaries now perform a variety of tasks within the open innovation process. This type of actor constitutes the context in which management is studied in this thesis. Scholars in innovation management (Diener and Piller, 2010, Howells, 2006, Hargadon, 1998, Chesbrough, 2006) have addressed such intermediaries, and several studies have tried to characterize the activities they undertake (Damanpour, 1996, Garcia and Calantone, 2002, Howe, 2006, Howells, 2006, Sieg et al., 2010, Lente et al., 2003, Bessant and Rush, 1995, Stewart and Hyysalo, 2008). Howells (2006) defines an intermediary as *"an organization or body that acts as agent or broker in any aspect of the innovation process between two or more parties."* (p 720).

Within this concept of innovation intermediaries, a variety of types has been described: *bridgers* (McEvily and Zaheer, 1999, Bessant and Rush, 1995), *brokers* (Provan and Human, 1999, Hargadon and Sutton, 1997, Gianiodis et al., 2010, Winch and Courtney, 2007), *third parties* (Mantel and Rosegger, 1987) and more recently *Living labs* (Almirall, 2008), *animateurs* (Howells, 2006), and *crowd-sourcing* initiatives such as InnoCentive (Sieg et al., 2010, Surowiecki, 2004). [1]

Although there have been many ways of describing what intermediaries do, there appears to be a convergence on two main types of activities – *broking some kind of contents* (e.g. technology or knowledge) or *networking*. Howells (2006) proposed four main intermediary functions described as: (1) helping to provide information about potential collaborators; (2) brokering a transaction between two or more parties; (3) acting as a mediator, or go-between, bodies or organizations that are already collaborating; and (4) helping find advice, funding and support for the innovation outcomes of such collaborations. A generalization of intermediary functions can be found in table 3.

[1] See Howells (2006) for a comprehensive literature review on different forms of intermediaries.

Table 3 Intermediation functions as described in recent literature (Agogué et al., 2013)

Intermediation function	Activities	Description	References
Brokering contents *"enhancing an existing innovation process by providing various contents"*	Providing information	Foresight and diagnostics; scanning information	Howells, 2006, Hargadon and Sutton, 1997, Seaton and Cordey-Hayes,1993
	Brokering a transaction	Knowledge and technology processing	Howells 2006, Hargadon 1998 , Provan and Human, 1999, Winch and Courtney, 2007
	Mediating	Ensuring a lasting work relationship, managing IP and commercialisation process	Howells 2006, Mantel and Rosegger, 1987, Shohet and Prevezer, 1996
	Evaluating and setting standards	Testing, accrediting, evaluating	Howells, 2006, Mantel and Rosegger, 1987
Networking *"providing the right network conditions for a defined innovation goal"*	Providing an innovation arena for collaboration	User involvement, crowdsourcing	Sieg et al., 2010, Surowiecki, 2004, Howe 2006, Almirall 2008, Stewart and Hyysalo, 2008, Bergvall-Kareborn and Stahlbrost, 2009
	Increasing connectivity	Formation and maintenance of innovation networks and systems	Callon, 1994, Klerkx and Leeuwis, 2009, Seaton and Cordey-Hayes, 1993, Burt, 2004

It should be noted that intermediaries are most often independent organizations to which other organizations go to get help and support in their open innovation processes. The case presented in this thesis, SAFER, has some similarities with intermediaries in terms of the activities that are performed there, but with the addition that SAFER as a collaboration is working towards a goal and a vision of its own, not only working for what the intermediary "client" want, and the fact that SAFER is not an independent organization in the judicial sense. The characteristics of the type of actor that SAFER represents are further outlined in Paper II.

2.2 Managing for a new era

Traditionally, management is in all business and organizational activities thought of as the act of getting people together to accomplish desired goals and objectives, by using available resources efficiently and effectively (Mintzberg, 1975, Zaleznik, 1977). It is commonly acknowledged that being a manager involves carrying out complex tasks in uncertain conditions; developing peer relationships, carrying out negotiations, motivating subordinates, resolving conflicts, establishing information networks and disseminating information, making decisions in conditions of extreme ambiguity as well as allocating resources (Mintzberg, 1975). Although the work by Mintzberg takes the concept of management into the 20th century, the findings are still set in an era of large corporations and clear hierarchical structures, where the manager is a "he" with clearly defined "subordinates". The relevance of such mainstream management theories, with emphasis on formal authority, control and bureaucracy, for the knowledge intensive economy has been questioned (Stacey et al., 2000, Streatfield, 2001).

As we see these new types of actors, e.g. intermediaries, emerge, the question is if previous management theories suffice to help us understand what managerial practices are needed for complex environment such as open innovation collaboration? According to Kärreman and Alvesson (2004) and Barley and Kunda (2001), the need for new theories can be understood as a reflection of empirical changes in contemporary organizations, because of changes in society at large. It is these changes that have allowed new organizational forms and managerial practices to emerge as the nature of work shifts. Thus, the changes in industrial society have made concepts and theories, developed for a bureaucratic setting, inadequate for understanding work and management practices in the new types of organizations that exist today. Hence, there is a need to develop *"images of organizations that are more congruent with the realities of work in a new economic order"* (Barley and Kunda, 2001, p.77) and this will also be reflected in our constructions of management.

2.2.1 Previous research on management in an open innovation context

When looking into what has been written about managerial practices for open innovation, the body of literature is still rather scarce, and what little there is often takes a firm-centric perspective (Eklöf et al., 2011) and does not specifically address managerial practices. Much of the work emphasizes how the manager could facilitate knowledge exchange between new types of collaborators (Bogers, 2011, Bogers and West, 2012, van de Vrande et al., 2009), e.g. like the "Want, Find, Get, Manage model" (Slowinski and Sagal, 2010). Chesbrough (2004) describes managing open innovation as playing poker as opposed to chess, where poker requires swift adaptations to new information and resources that emerge over time. Chess on the other hand requires planning several steps ahead and knowing exactly what your and your competitor's resources are, which fits well with the closed innovation paradigm.

Lütz (1997) presents an interesting case of what can be considered to be an early open innovation collaboration - a multilateral network consisting of suppliers and manufacturers in the car industry. At the time (in the early 90's), this appeared to quite a unique actor constellation as the network also included competitors. During her case study of the process of network formation, Lütz found that although the network appeared to have some institutional benefits in terms of governing mechanisms and expected output of innovation, it experienced difficulties in living up to the potential. Lütz argued that it was only when the participating organizations changed their frame of reference from seeing the collaboration as a zero-sum game to a positive sum-game that radical innovation could be achieved. One of the most pressing barriers to collaboration was the standard operating procedures that the participants had practiced previously in the partner organizations, which needed to be "unlearnt". Furthermore, Lütz declared that although nothing changed from a structural perspective in the network, the partners altered their orientation towards each other during the course of interaction, and this points to the need and relevance of studying networks over longer periods of time to capture the micro politics of network interaction.

Sieg et al. (2010) outline managerial challenges in an open innovation intermediary setting, where the main challenges are described as how to enlist scientists who want to contribute

with solutions, how to select the problems to be included in an open innovation search strategy and finally, how to formulate the problems to make them solvable without giving away too much information. Although they identify some challenges, they do not provide much guidance for managers on how to move forward. Taking an organizational design-perspective, Wallin and von Krogh (2010) argue that one managerial challenge in organizing and implementing innovation, extending beyond firm boundaries, is that when firms invite volunteer users to contribute their knowledge to innovation, they cannot apply traditional organizational hierarchy or leadership authority to directing, incentivizing, and monitoring volunteers' efforts. Instead, they argue that managers need to pay considerable attention to softer, non-technical issues of motivation, knowledge types, and governance. Ollila and Elmquist (2011) on the other hand looked at the challenges of managing an open innovation collaboration from a slightly different perspective; they identified challenges that arise at the interface with partner organizations, challenges related to collaboration between the partners, and challenges related to the arena itself. They emphasize the role of the manager of the collaboration in creating a joint vision, an open culture and a distinct identity for the collaboration.

In the case of open innovation communities, Fleming and Waguespack (2007) argue that despite their *"bazaar-like, egalitarian, argumentative and unplanned appearance, open innovation communities relies heavily on strong leadership to function effectively and resist splintering, forking and balkanization"* (p 165). They specifically address how leaders emerge in virtual, open innovation communities. Fleming and Waguespack (2007) conclude that to be a leader it is not enough to only have technical expertise (which one could expect), but they must also have social capital (defined as brokerage and boundary-spanning of collaborative relationships). Only by utilizing such capital can leaders unite an open innovation community (Fleming and Waguespack, 2007). In a similar context, Jarvenpaa and Lang (2011) conclude that issues such as identity, power and competence need to be integratively managed, and furthermore that management is not so much about control but rather an issue under constant negotiation among all parties involved.

Similar managerial challenges can be found also in the literature on inter-organizational networks (Ebers, 1997). Powell (1990) claimed that network relationships are neither spontaneously co-ordinated, like markets, nor authoritatively set by administrative orders, like hierarchical forms of organization; but rather that multilateral forms of collaboration combine elements of flexibility and stability in a unique way. It appears that the success of networks is highly dependant on the interactions taking place, guided by the rule of reciprocity in the exchange relations – only actors who are willing to give something away will receive something in return (Gouldner, 1960). Thus, managers need to be aware of the essence of trust between partners. Rampersad et al. (2010) studied management of innovation networks and proposed some managerial implications of that specific setting, implying a quite high degree of managerial control and coordination, as well as a strong belief in rationality in human behaviour. However, the implications they present do not fully acknowledge the complexities that may arise in a large-scale collaboration, and how difficult if may be for a manager to achieve the desired goals, if the people involved do not act as rationally as predicted.

2.2.2 Previous research in related fields

As previous research within the field of open innovation does not provide much guidance to managerial practices in open innovation, it is necessary to look into theories on management from related fields in order to gain a greater understanding of open innovation collaboration from a managerial point of view. As open innovation management could be considered to be at the intersection of several more established research fields, there is always the need to limit the scope of relevant theories. In this thesis, the choice has been made to draw upon research on inter-organizational collaboration, innovation management as well as management in complex and post-modern organizations, based on a belief in what might complement previous understandings of open innovation management, but, of course, also some personal interests. If circumstances were different, other choices could have been made.

2.2.2.1 Managing collaborative practices

When it comes to managing inter-organizational collaboration, it appears that the complex relations between the partners are a key issue for managers to deal with. What separates inter-organizational collaboration from open innovation, is that it is still possible to maintain the roles of supplier and buyer in alliances, networks etc., whereas open innovation collaboration is argued to break up those roles and enable a more equal partnership (Chiaromonte, 2006). Furthermore, research on inter-organizational collaboration does not consider the innovative nature of the work carried out in the collaboration, if that could potentially influence what managerial practices are needed. In inter-organizational collaboration management tends to focus on; 1) *influencing members to participate*, 2) *secure commitment from members* and 3) *create favourable environment for productive interaction* (Mandell and Steelman, 2003). Vangen and Huxham (2003a) have a similar perspective but divide the activities into two main focus areas: *The spirit of the collaboration* (embracing, empowering, involving and mobilizing) and *Collaborative thuggery* (manipulating the collaborative agenda and playing the politics). The aspect of collaborative thuggery is not that often mentioned, but, is according to Vangen and Huxham, a vital part in making the collaboration work and surviving as a manager.

One might wonder why it is important for a manager in these situations to be skilled in organizational politics. Crevani et al. (2010) emphasize that leadership must be understood in the context in which it is being studied, and the dominating discourses must be acknowledged to fully understand the practices that appear. Open innovation collaboration involves multiple partners, and research has shown that the specific context of the collaboration has an impact on the expectations of various participants in an interorganizational arrangement as well as on the type of behaviours that will lead to effective management practices (Ring and Perry, 1985). It is also the case that the previous relationships between partners will determine the extent to which various partners have a mutual understanding of each other and whether they will trust each other in the arrangement (Mandell and Steelman, 2003). Furthermore, they will have preconceived ideas of what it means to work with representatives from other sectors (ibid), and as it is claimed that behaviour (in interorganizational arrangements) is based on perceptions rather than what we know (in principle)(Mandell, 1999). It is a tricky, but crucial

task for managers to utilize these differences in perspective and experience for the good of the collaboration.

One aspect that in many cases separates a manager of a collaboration from any other type of manager is their formal role and authority. As hierarchical relationships are rare, and the authority of a manager is often limited, it is not surprising that several researchers have emphasized the relational aspects of this form of leadership (Murrell, 1997), since that is a useful way of understanding how a manager gets something done in this setting. Vangen and Huxham (2003a) provide an interesting example:

> *"Interestingly, while their [the managers] significance does stem from their formal position at the centre of a collaboration, they are usually appointed to organize the collaborative activities and are a resource for a collaboration rather than a member of it. Strictly, therefore, they report to (rather than direct) the members, so they cannot lead through the exertion of formal positional power (French and Raven, 1959) even though they sometimes have job titles such as Chief Executive or Director of the XXX Alliance." (Vangen and Huxham, 2003a, p. 63)*

The process of making a collaboration work from a managerial point of view is an endless one - the nurturing process must be continuous and permanent, it is not enough to do it in the beginning (Huxham and Vangen, 2004). Trust between the partners must be established (Vangen and Huxham, 2003b) and the trust-building loop is extremely fragile (Newell and Swan, 2000). The hard-earned gains can quickly be shattered by disturbances in the form of change in partners or something else that changes the ecology of the collaboration. Huxham and Vangen (1996) further outline a set of managerial dilemmas in collaborative practice (see Table 4).

Table 4 Managerial dilemmas in collaborative practice (Huxham and Vangen, 1996)

	Managerial dilemmas		
1.	The dilemma of how much to bring all of the goals of the various organizations and individuals involved out into open discussion has to be managed – there has to be at least enough agreement about broad aims and about detailed actions to allow the joint initiative to progress.	2.	Ensuring that everyone gets credit for joint action is important but some credit may have to be sacrificed in the interests of democracy.
3.	Compromise of each individual organization's priorities for the collaboration will be necessary for the sake of defining goals that are realistic for the collaboration as a whole.	4.	Individual organizations' power bases may be stronger than is immediately perceived by their own staff – identification of the power base can put an organization in a good negotiating position.
5.	Tasks that "ought" to be trivial or routine can take a great deal of time and compromise to sort out to the satisfaction of all concerned; time needs to be allowed for this.	6.	Smaller organizations may be feeling much more vulnerable than larger ones imagine – empowering the former involves paying attention to communication and to careful use of language.
7.	Unthinking use of language can make collaborators angry and disempowered as well as confused.	8.	Getting started in a trusting relationship requires being prepared to take a risk.
9.	Consideration and management of internal and external stakeholders for the collaborative initiative is important.	10.	Collaborative initiatives take longer than would normally be anticipated, are demanding of time and require persistence – it is essential to "budget" for this.

2.2.2.2 Managing complexity

Complexity theory predicts three types of organizational dynamics; 1) stability, regularity and predictability; 2) randomness, chaos and instability and 3) a phase transition at the "edge of chaos", in which the paradoxical dynamics of *bounded instability* (Stacey, 1992) are displayed.

Already in 1961, Burns and Stalker addressed innovation management under conditions of relative stability and change by addressing two main types of organizations: mechanistic (emphasizing stability) and organic (emphasizing change) forms of organizations. The organic organization typically involves innovative work, and such work strains the boundaries set up in the conventional bureaucracy. Burns and Stalker (1961) concluded that although each state has its own benefits, a continuous shift between the two was to be expected, depending on the surroundings and the development of the organization. Such discussion about the evolution of organizations and how they continuously shift between states of stability, which are later punctuated by sudden shifts of radical change, is also discussed by e.g. Tushman and Romanelli (1985) in their punctuated equilibrium-model of change.

A constant state of equilibrium or predictable repetition would exclude continuous creativity, while chaos is a state that could be destructive in the long run. A state of bounded instability implies that there is just enough boundaries to give a sense of direction, but not so much that it is stifling creativity and diversity. There is still a pattern in the organizational behaviour, but it is characterized as irregular. This is a border area where the two contradictory forces, stability and instability, are operating simultaneously and pulling in different directions. Thus, it is *"the tension generated by being pulled in contradictory directions, the paradox of control and freedom, that leads to bounded instability and creativity"* (Stacey, 1992, p55).

Bounded instability can be used to provoke innovation, as argued by e.g. Quinn (1985), who described managing innovation as "controlled chaos". A key issue for organizations is the ability to maintain a dynamic strategic agenda, which means that it is sometimes necessary to use political activities to influence people, but it is also dependent on people having different perceptions and nurturing that diversity. Stacey (1992) argues that different perceptions might be hampered by a strong, unified shared culture, which obstructs an organization's ability to develop and handle changing strategic agendas. In a thriving organization, there are always potential new lines of development, which means there is always a conflict and a lack of consensus and commitment regarding something. The instability of multiple cultures and conflicts as well as lack of cohesion, consensus and commitment, are vital for the continuous provocation of new perceptions and ideas. In a successful organization, this instability is bounded, not explosive.

2.2.2.3 Managing in the post-managerial era

Karp and Helgö (2008) outline the future of leadership in an era where leadership cannot be constructed the same way as before and they define modern management, not as a set of tools or techniques, but as a paradigm. Already today, the reality in many organizations is less rigid organizational structures and limited possibilities for the manager to "command and control".

Accepting the limitations of technocratic control, does not necessarily mean diminishing possibilities for control according to Kärreman and Alvesson (2004). It is simply a question of exercising control in another way, where they argue in the case of a large knowledge intensive firm that although the "iron cage" might be softer and less restrictive, *"it interacts with a mental cage of subjectivity, and the combined effects cover greater terrain, thus regulating and influencing a broad spectrum of organizational members' activities, feelings, thinking, and selfunderstandings." (p 171)*.

Karp and Helgö (2008) predict that one of the key acts of future leadership is identity forming. Knowledge-intensive firms, which typically draw heavily upon cultural-ideological modes of control, have previously been singled out as organizational forms that use social identity and the corporatization of the self as a mode for managerial control (by e.g. Kärreman and Alvesson, 2004), but Karp and Helgö take it a step further when introducing it as a core aspect of leadership in future forms of organization. Identity forming is described as a way of shaping groups and organizations, a way of constructing the organization through interactions between the members, and as a leader (formal or informal) it is possible to influence the way people talk and interact in an organization, and furthermore it provides a means for the integration and orchestration of work (Kärreman and Alvesson, 2004).

Leaders tend to focus on holding on to order and structure, in an attempt to fight off anxiety and unpredictability. Both leaders and employees need to feel that someone is in control, even when that is not realistic to expect. Therefore, Karp and Helgö argue that it is necessary to shift focus from the idealized image of the heroic leader, to an actual one, where leadership is actually about what happens in interactions between people. They further argue that leaders should not only spend their time on identity forming, but also on relationships. There is always a forming and being formed relationship between leaders and followers in a group. With these two central acts of leadership, to focus on identity forming and relationships, Karp and Helgö (2008) strive to define a future concept of leadership when leading people in organizations is a complex dynamic process of being and not being in control. Similarly, Cunliffe (2001) builds on Shotter's (1993) notion of managers as practical authors and argues that such a perspective can be useful to gain a more profound understanding of the embodied and situated dialogical activities of a manager and how such activities may construct self, realities and meaning. Such a perspective on management is similar to that described by Smircich and Morgan (1982) as "management of meaning".

Although there is a discussion on how management needs to change in response to changes in society as well as the way we organize work, these theories have not been utilized in the context of open innovation previously. Based on what the theories from Kärreman and Alvesson (2004), Karp and Helgö (2008) as well as Cunliffe (2001) suppose regarding alternative, more relational ways in which management can be viewed, it is plausible that they can add to our understanding of managerial practices for open innovation, where more traditional management theories are not sufficient to make sense of actions taken.

2.3 Summing up – Frame of reference

As can be concluded from this theoretical background, new actors are emerging in the open innovation eco-system and there is a research gap that requires researchers' attention concerning what managerial practices that are needed in this complex context. Therefore, this thesis aims at contributing to a deeper understanding of managerial practices in open innovation and to further outline a concept of open innovation management, in order to enable more informed managerial practices. This aim has been further developed into two sub-questions.

First of all, although research on open innovation is steadily increasing, there is a lack of knowledge, specifically concerning open innovation *collaboration*. This thesis, thus, wants to complement other, firm-centric studies by putting the focus on the collaboration. In doing so, this thesis wants to address how such a collaboration is understood from the manager's point of view:

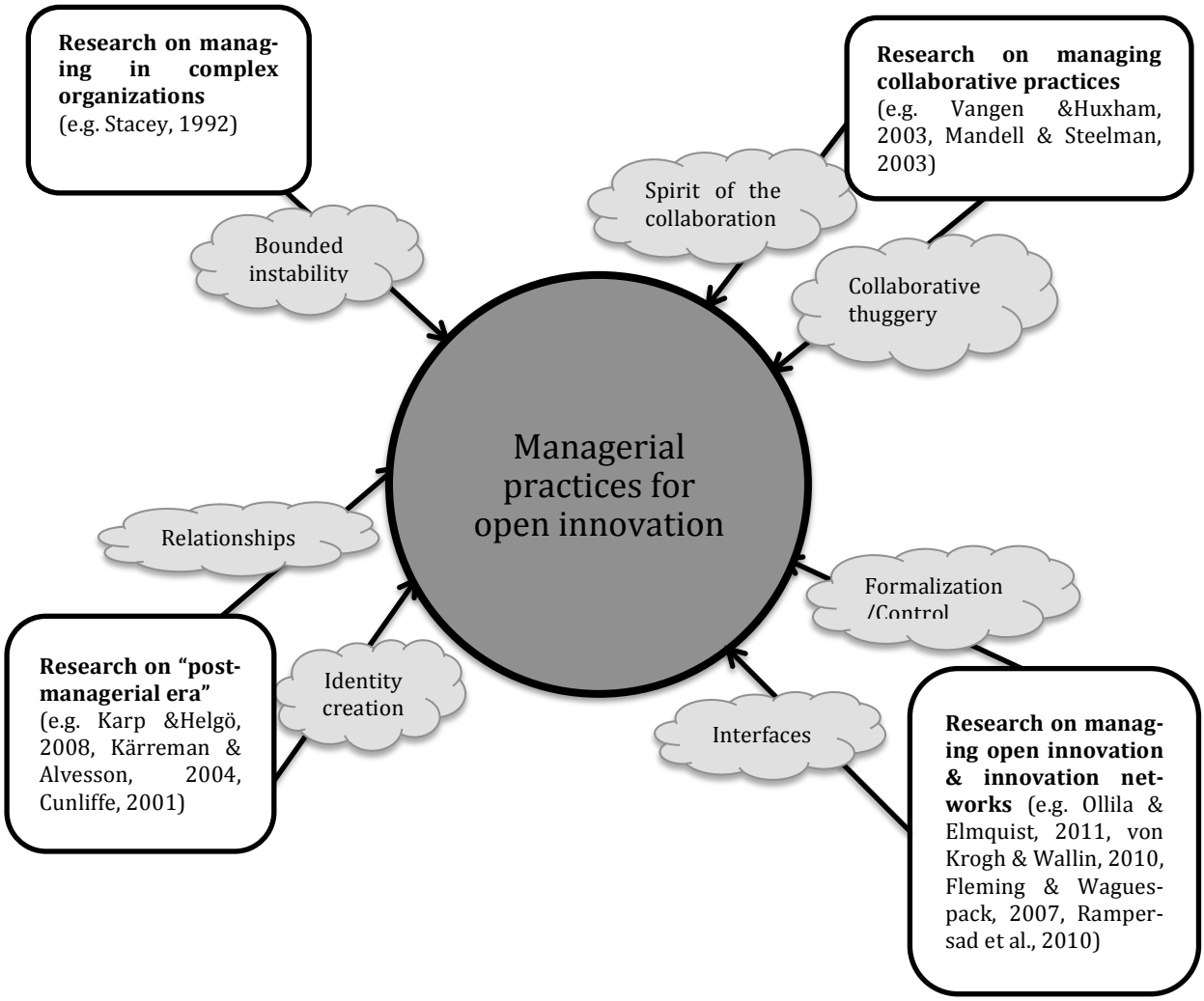
> *RQ1: How can open innovation collaboration be understood from a managerial point of view?*

Secondly, we still know little about what managerial practices managers use and need to use in the context of open innovation collaboration. This has prompted this thesis to investigate in more detail what characterizes managerial practices in open innovation collaboration:

> *RQ2: What constitutes managerial practices in open innovation collaboration?*

The picture of open innovation management is slowly emerging, but much still remains to be explored, especially from a non-firm-centric perspective. Figure 2 presents a frame of reference illustrating the main theoretical fields from where relevant concepts have been borrowed and used to analyze and add to the understanding of open innovation management.

Figure 2 Frame of reference outlining central concepts in further analysis



3 Methodology

3.1 Research design

3.1.1 Action research

Inherent in every research approach are basic values, assumptions, and beliefs about the nature of reality and what constitutes valid knowledge (Evered and Reis Louis, 1981). It is, therefore, of great importance that the chosen research design fits well with the underlying chosen perspective for the research.

This thesis is founded upon an action research methodology. Action research was conceived by Kurt Lewin in the mid-1940's as a way to bridge the gap and combine theory building with research on practical problems (Cunningham, 1993, Dickens and Watkins, 1999, Lewin, 1946/1948). Action research is a broad term, but could in general be described as

> *"a participatory process concerned with developing practical knowing in the pursuit of worthwhile human purposes. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities." (Reason and Bradbury, 2008, p 4).*

The action research paradigm is argued to fit well with the exploratory aim of the thesis. A predominantly inductive approach has been chosen to guide the research, where observations of relevant issues have guided the choice of theory or analysis, that have been utilized to explicate the phenomena in question. Action research strives to add to both practical knowing and theory building. A distinguishing feature of action research, separating it from other forms of organizational research, is the tight link between research and action and the deliberate involvement of the researcher in changing the organization/situation being researched (Huxham and Vangen, 2003). This implies a close collaboration between the researcher(s) and the participating organization(s) and has been argued to be a suitable method, when aiming at understanding practices in use (Hatchuel and David, 2007, Huxham and Vangen, 2003).

When practice is the focus of study, one must keep in mind that practice is a social action. As Argyris et al. (1985) states:

> *"When the situation that the actor frames involves other people, then the framing will include the agent's beliefs about the intentions and beliefs of other people. The consequences of action include the reactions of those others, which themselves depend on how they frame the situation and on their beliefs about the intentions and beliefs of the original actor." (p 51).*

Thus, in order to understand practices, the researcher must be close enough to understand the context in which the practice is situated. It has been argued by e.g. Evered and Reis Louis (1981) that gaining an understanding of the events, activities and utterances in a specific situation requires a rich appreciation of the overall organizational context, and this is one of the main strengths of the chosen research approach. Context is here defined as *"the complex*

fabric of local culture, people, resources, purposes, earlier events, and future expectations that constitute the time-space background of the immediate and particular situation." (ibid, p 390). Such an understanding can best be created by conducting inquiry from "the inside" as opposed to "the outside", implying that the researcher can come to a greater understanding of the reality of an organization by being there and by becoming immersed in the stream of events and activities. The differences between the two modes of inquiry and their implication on the research process are outlined in Figure 3.

Figure 3 Differences between two modes of inquiry (Evered and Reis Louis, 1981)

	Mode of Inquiry		
Dimension of Difference	**From the Outside**		**From the inside**
Researcher's relationship to setting	Detachment, neutrality	⟷	"Being there", immersion
Validation basis	Measurement and logic	⟷	Experiential
Researcher's role	Onlooker	⟷	Actor
Source of categories	A priori	⟷	Interactively emergent
Aim of Inquiry	Universality and generalizability	⟷	Situational relevance
Type of knowledge acquired	Universal, nomothetic, theory	⟷	Particular, idiographic: praxis
Nature of data and meaning	Factual, context free	⟷	Interpreted, contextually embedded

Making sense of the object of study in this thesis could be characterized as an iterative, fumbling process, through which a picture of the organizational setting, of which the researcher was taking part in, was gradually built up over the years. Being immersed in a case over such a long period of time, has contributed to the author forming a rich contextual understanding, which has added significant depth and value to the conclusions presented in this thesis.

One of the potential negative aspects of the chosen research approach is that deep contextual understanding could have a perceived negative effect on data collection and analysis, rendering the researcher biased according to a more positivistic paradigm. But this on the other hand has the benefit of granting a more in-depth understanding that could also help guide and focus data collection into relevant areas. Conducting the study in this way has also resulted in the research group over the years gaining trust and legitimacy to take part also in other activities and to lead and organize strategic discussions on different levels, which has further contributed to the contextual understanding of the case.

3.1.2 Longitudinal study

An exploratory longitudinal study (4 years) was set-up, as it provided an undisputable source for rich qualitative data, and was suitable for the action research design. The case in focus of this thesis was chosen mainly based on the potential it presented for learning (Buchanan, 1999). The case represented a new type of actor in the open innovation eco-system, focusing heavily on joint knowledge creation together with its partners, which had not previously been described in literature. Thus, it presented a good opportunity to develop knowledge about how such an actor could support open innovation and what managerial practices that were used.

As the case in this thesis is not a "typical" open innovation actor, it cannot be argued that it is a representative case according to established norms. However, in this situation, it was not considered important to choose the most representative case, as Flyvbjerg (2006) argues that:

> *"when the objective is to collect a great amount of information on a specific problem or phenomenon, a representative or randomly sampled case is usually not the most appropriate strategy as they are often not the richest in information" (p 229).*

A single case, studied in-depth, could have the advantage of providing a very powerful example, especially when studying practices that are new or the research field is still in the early stages (Siggelkow, 2007). In such circumstances, it could be difficult and less rewarding to conduct multiple case studies, or large-scale quantitative studies, when the phenomena in question is still loosely defined.

It can further be argued that one of the greatest values of case studies is that they produce the type of context dependent knowledge that allows for people to actually make use of it in their own context (Flyvbjerg, 2006). However, the choice of the case may greatly add to the generalizability of the study, but "the force of example" should not be underestimated.

3.1.3 The research context and sub-studies

This thesis is based on research conducted in a 4-year action research project (Managing Open Innovation - MOI), financed by VINNOVA[2]. The MOI-project aimed at longitudinally investigate open innovation in practice in a specific case, SAFER. The research team has consisted of three senior researchers and one PhD student. Only a selection of the research carried out in the project is included in this thesis.

The MOI-project has looked into how SAFER handles issues regarding leadership, innovation activities and organizational structure, as they are opening up the innovation process, from the perspective of the arena as well as the perspective of the partner organizations. By doing this, insights have been gained into the challenges of creating such an arena for joint knowledge creation, but also the challenges for the partner organizations to leverage the outcomes of the collaborative projects in their own organizations.

In line with the action research paradigm, the author of this thesis has been both physically and psychologically immersed in the case, and a significant amount of time (approximately

[2] Sweden's Innovation Agency

250 h over 4 years) have been spent being present at SAFER, sometimes more informally and not always related to a specific task related to the study.

The research team has conducted a number of sub-studies as part of the MOI project, exploring different aspects of management of open innovation collaboration in practice (summarized in table 5). The focus of each sub-study has evolved over time, providing the opportunity to learn from and build upon the previous studies before launching a new one. Additionally, several workshops and events have been organized as part of the research process at SAFER, and these have been directed at both participants in the arena, the board of the arena and the management team. Our involvement at SAFER has e.g. resulted in a changed rhetoric regarding the merits of leadership in different circumstances, in order to attract more researchers to take on prominent roles at SAFER. Furthermore, the research team has had an impact on how strategic discussions are being framed and also highlighted the need to discuss how SAFER as an arena can be managed in order to support the overall development that is desired. Another example is how the research team through the bi-monthly interviews with the director have had a direct and concrete impact on how meetings and agendas at SAFER are set-up, what arguments that can be used to negotiate with partners etc.

Table 5 Sub-studies and subsequent methods

	Sub-study description	**Method of data collection**
Included in this thesis	***Literature review on open innovation from management perspective***	Structured literature review 2003-2009
	Participating in an open innovation arena	27 semi-structured interviews with participants at SAFER
	Insights into an open innovation project	9 semi-structured interviews with project team member, project manager and steering committee of SEVS
	The practices of an open innovation arena manager	Approximately 25 open-ended conversations with the director of SAFER, bi-monthly since 2009
Not included in the thesis	***Literature review on open innovation, focus on empirical studies***	Structured literature review 2003-2011
	Partner organizations' views on participating in an Open Innovation arena	22 semi-structured interviews with representatives from partner organizations at SAFER
	Creative climate at SAFER	Literature review, Creative climate questionnaire (CCQ) and semi-structured interviews with participants at SAFER
	Governance at SAFER	Interviews with steering group/reference group members at SAFER

	Following an open innovation project	Participative observations of project groups in a project at SAFER
	The role of intermediaries in collective knowledge creation	A comparative study with an arena similar to SAFER in France (with researchers from Mines ParisTech)
	The management principles of the "intermediary of the unknown"	A comparative study (funded by Peter Pribilla Foundation) of aspects of open innovation collaboration with researchers from Mines ParisTech and Universität Erlangen-Nürnberg

3.2 Methods of data collection and analysis

Open innovation has in this thesis been defined as ”a way of sharing with others and inviting their participation” (Chesbrough, 2011a), with the intention of creating knowledge in an inter-organizational context involving multiple organizations. The thesis has not had as its focus to investigate whether or not new knowledge has actually been created in the specific case (and thereby “prove” that open innovation is in fact going on). Instead, this thesis has relied on the expressed views and visible actions of the participants about the knowledge and innovation they perceive has been created as a result of being in this specific context, which provides a basis for this thesis to explore what managerial practices that can support such processes, in accordance with the so-called Thomas’s theorem[3].

3.2.1 Data collection

The primary method for data collection in the sub-studies in this thesis has been interviews. Interviews can be regarded as a way of accessing peoples’ practical reasoning and be highly useful to explore how people reflect and make sense on their actions, and is thus one way of studying practices (Gherardi, 2012). As people talk about what they are doing, have done or intend to do, they may provide reasons for their actions. Talking about practices can highlight things that the interviewee was not aware of until s/he said it, or add thoughts and concerns that s/he did not state or consider at the time of action (Argyris et al., 1985). Thus, it should be noted that the construction of meaning is relativized to the moment of the interview, and at the same time a retrospective construction of past experiences (Cunliffe, 2001).

The nature of the interviews has depended on the topic and focus of the sub-study at hand, but also on the level of experience of the interviewer. Naturally, in the first sub-studies, the researcher was more inexperienced, which led to the use of a semi-structured interview guide that was held on to quite tightly, and the outcome of the interviews were seldom more than what could have been expected. However, as the researcher matured, the format for the interviews changed as well as the interview situation. Still, an interview guide was used, but the questions were more freely formulated (e.g. in papers II and III), and interesting side-tracks were more often explored, as the researcher had gained more confidence. In the longest

[3] The Thomas’s theorem claim that ”if men define situations as real, they are real in their consequences” (Thomas, W. I. & Thomas, D. S. 1928. *The child in America: Behavior problems and programs.,* New York, Knopf.). Thus, actions are influenced by subjective perceptions of situations. Whether there is even an objectively correct interpretation is not important for the purposes of helping guide individuals' behaviour.

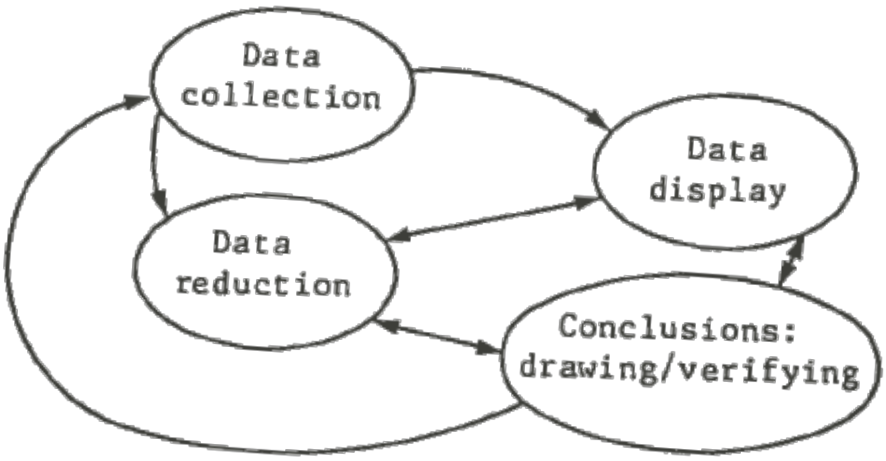
running sub-study, the one with the director of SAFER (presented in paper V), the interviews have over time developed into a kind of conversation, where both parties are "sharing the air time". This process also illustrates how a researcher matures into a research paradigm, where the researcher does not go into the interview just "to get the data" or to "get the correct answers". Instead, the contribution of the researcher as a co-creator of the knowledge that comes out of the interview situation is acknowledged (Czarniawska, 2004).

3.2.2 Data analysis

As interviews have been the main way to collect data, the material for data analysis in the appended papers has generally been the verbatim-transcribed audio recordings. Thus, it is the text that has been the focal point of the analysis, and as the text has been created, it should be recognized as something separated from the interview situation as such (Czarniawska, 2004).

In order to make sense of the texts, an iterative process has been taken place, similar to the one depicted by e.g. Miles and Huberman (1984) in Figure 4.

Figure 4 Components of data analysis: interactive model (Miles and Huberman, 1994)



The specific ways of coding data in the different studies have more or less all followed the same general procedure:

1. First, **data is collected**.
2. When dealing with large quantities of data, **data reduction** becomes necessary. In the appended papers, this was often done through thematic coding to find relevant accounts in the texts.
3. When coding the data (data reduction) new ideas emerge on what should be presented/used (**data display**) in a specific paper. Presenting/Using the data often involves even further reduction, which means revisiting step 2.
4. As the choice about what data to present in a paper becomes more definite, **preliminary conclusions can be drawn**. In some situations, this can also infer that

more data is needed to make the argument more convincing, meaning that step 1 needs to be revisited.

Throughout each sub-study, there was a movement between these four nodes during data collection in an interactive cyclical process (Miles and Huberman, 1994), often starting the analysis process before all interviews were conducted. This meant that the later interviews could have a clearer/more defined focus than the earlier ones. As the analysis progressed, issues of data reduction, of display and of conclusion drawing/verification came into the foreground successively, but always keeping the other two issues close by in the background.

The actual progression in the data analysis could be described as a sort of "ladder of abstraction" (Carney (1990) as cited in Miles and Huberman (1994)). The start is always the text, where coding categories are tried out at first. As the categories are developed, themes and trends can begin to be identified, which can lead to testing hunches and findings. The aim of such an approach is to find an outline, before trying to integrate the data into an explanatory framework. This was the case e.g. in paper II, where the concept of Ba (Nonaka and Konno, 1998) was presented as a framework putting the findings into perspective, based on a Ba's components of virtual, physical and mental space. Through this process, that data is in a way "transformed" as the information is condensed, grouped, organized and related over time.

Another example of a different analysis approach is the narrative approach presented in paper III. The analysis followed the same inductive process as for many of the other papers of reading transcripts, identifying key accounts and finding an appropriate way of displaying the results. As the focus of this paper was the diverging views about an open innovation project, the idea of contrasting the views through two parallel stories about the project seemed appropriate. As the paper did not build on *narrative interviews*, but a *narrative analysis*, the process consisted first of identifying accounts in the transcripts that could be considered to be core elements of the plot of the different stories that were emerging. At first, plots for three stories were created, but they were later condensed into two, as the third one no longer felt necessary to prove the point of the paper. Once the plots were in place, they were fleshed out with more text and analysis into becoming full-fledged stories.

3.3 Reflections on methodological choices

When designing a research study, a variety of approaches is often conceivable. As the research questions in this thesis developed, some approaches were no longer equally suitable. Given the topic of this thesis, a multiple case study could have been an option to make cross-case analysis possible, as well as complementary quantitative survey-studies to extend the sample. However, given the exploratory nature of the research aim, it was considered to be important to gain in-depth knowledge, e.g. not only to identify managerial practices, but to understand why they were used. This required commitment over a longer period of time, hence the single case study was left as the most suitable choice. When studying practices, ethnography or similar methods are often considered appropriate (Gherardi, 2012, Cunliffe, 2001). However, the practical aspects of methodological choices should not be neglected, and

in this case it was not suitable to do a full-scale ethnography. Therefore, as part of the action research process, a large portion of the data collected consists of interviews.

As a consequence of the choice of studying a single case, one must be careful with what type of conclusions and generalizations that can be made. In this thesis, the research design does not permit statistical generalization, but instead emphasizes *analytical* and *naturalistic generalization*. Analytical generalization means that the case findings will be discussed in relation to broader theory, and naturalistic generalization is concerned with to what extent the reader is able to adopt the findings in a manner that is personally insightful and helpful, which could be supported by rich illustrations of the practices in focus. In that way, the reader is invited to draw his/her own conclusions (Buchanan, 1999). Thus, the intention of this thesis is not to look for generalities about management, "objective" explanations, or interpretations of "real" meaning, but the reader is invited to view this as a piece of writing that explores the ambiguities, tensions and imaginative nature of what management practice in open innovation could be.

A common quality criteria for qualitative analysis is validity, or truth value (Miles and Huberman, 1994). The contents of such a term is debated, and in the field of action research, it could be more relevant to talk of validity in the craftsmanship of inquiry. This indicates that rigour in the research process is the most relevant to discuss in this context (Kvale, 1995). Here, validity implies asking questions, stimulating dialogue and making us think about just on what our research practices are grounded (Reason, 2006). Reason (2006) argues that it is not really a question of whether the researcher has done well or not, but how well s/he has done and whether s/he has done well enough for the claims s/he wish to make.

As actions, talk, and texts are attributed meaning, there will always be a question of interpretation. In this case, the longitudinal study has involved a research team, which has participated in strengthening the validity of the interpretations made. Reflexivity is a core aspect of being an action researcher (Argyris et al., 1985), and it is not regarded as possible or even desirable for a researcher to totally disconnect herself from values, previous experiences or prior knowledge in her work, as they will determine what data is gathered and how that data will be interpreted. In this thesis, efforts have been made to collect rich descriptions from a variety of persons, paying attention to finding opinions that go against the mainstream. Also here, the constructive discussions of the findings with interviewees and relevant persons at SAFER have been seen as an indication that the findings "make sense" also to them. However, the action context in itself could also prove to be a threat to validity. As interviewees are encouraged to verify data, it could happen, due to the fear of looking bad or others becoming upset or embarrassed, that the person no longer wish to stand for what they said in an interview. Or, people could report only things that supports their own position or increases their status in some way. Defensive routines, such as self-censorship and face-saving, are thus important for the researcher to be aware of (Argyris et al., 1985).

4 The research context – an open innovation arena

4.1 Introducing SAFER

SAFER is a centre for research on vehicle- and traffic safety for interested parties in the Western parts of Sweden. It has lately become more of a national hub in an international field, as the number of partners have increased and diversified. The director of SAFER describes SAFER as:

> *"A competence centre with 22* partners from vehicle and traffic safety. We create a meeting place for the three big stakeholders: the academy, the industry and the society."*
>
> *Anna Nilsson-Ehle, Director of SAFER (SAFER, 2010b)*
>
> **there are to date 26 partners in SAFER*

Traffic- and vehicle safety issues have for a long time been a crucial competitive factor for Swedish automotive industry from an international perspective. In the last few decades or so, issues have been raised which requires looking at the bigger picture of transportation systems and solutions. This has triggered a desire to find collaborative settings, where solutions can be jointly explored.

SAFER was established on April 1st 2006, after an attempt to create a collaborative research setting in another form (GVSCC, Göteborg Vehicle Safety Centre at Chalmers) had not been very successful. GVSCC appeared not to have attracted enough partners to become sustainable, and was more focused on only providing research funding for specific research projects conducted at Chalmers. Like in the case of GVSCC, Chalmers University of Technology is still the organizational host of SAFER, but the focus of SAFER is to utilize the knowledge of all the partners and host collaborative projects, not only to fund research at Chalmers. The number of partners has been slowly increasing since the launch in 2006. The current partners of SAFER can be seen in table 6.

Table 6 SAFER Partners (March, 2013)

Academy	Society	Industry
• *Chalmers* • *University of Gothenburg* • *SP- Technical Research Institute of Sweden* • *VTI - Swedish National Road and Transport Research Institute* • *TÖI - Institute of Transport Economics* • *Viktoria Swedish ICT* • *Acreo* • *Swerea SICOMP* • *Swerea IVF* • *KTH* • *Halmstad University,* • *Lund University*	• *VINNOVA* • *Swedish Transport Administration* • *Region Västra Götaland,* • *City of Gothenburg*	• *Autoliv* • *Epsilon* • *Folksam* • *Scandinavian Automotive Suppliers* • *Scania* • *Volvo Car Corporation* • *AB Volvo* • *Lindholmen Science Park* • *If* • *SWECO*

SAFER's partners have agreed upon a vision for SAFER which is:

> *"SAFER provides excellent multi-disciplinary research and collaboration to eliminate fatalities and serious injuries, making Swedish society, academy and industry a world leader in vehicle and traffic safety" (SAFER, 2011).*

SAFER is not only an agreement on paper, it also provides 1500 square metres of office space, which is at the disposal of the partners. The space includes work stations in an open office space, large and small meeting rooms, a dining area and some offices for the management staff. SAFER is physically located at Lindholmen Science Park in Gothenburg.

4.2 Collaborative projects

The work at SAFER is carried out in a range of collaborative projects, mainly in the non-competitive early phases of the innovation process. The size of SAFER projects ranges from minor pre-studies to large-scale testing projects or database creation and methods development. There are projects, which are called "SAFER-projects", which have received funding from SAFER, and there are "associated projects", which are related to SAFER, but has not received funding directly from or through SAFER. The research projects and teams are often multidisciplinary, and various different actors are involved, although all partners are not usually involved in every project. The diversity is motivated by the fact that different competences and experiences are needed in order to conduct successful research.

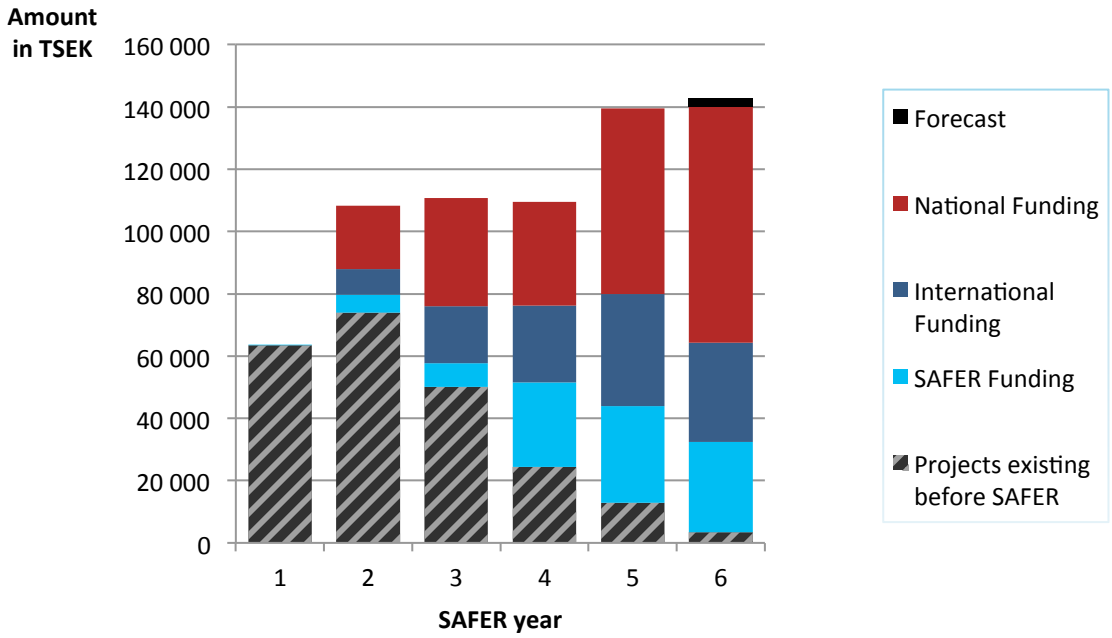
The projects at SAFER are categorized into four programs: *Pre-Crash, Crash, Post-Crash* and *Traffic Safety Analysis*. These areas traditionally correspond to the stages of a vehicle accident. Each program has a reference group and a reference group leader. All the partners have one vote in each reference group, and project ideas are discussed and decided upon within the reference groups. All SAFER partners can propose ideas for projects to the reference groups, but this does not guarantee participation in a project, should it be approved, nor does it guarantee access to all project results. Partners are continuously looking for potential collaborative partners within the arena. In some cases, several partners may join forces to seek funding from e.g. the EU.

4.3 Funding

SAFER has a small fund of money, consisting mainly of a grant from Sweden's Innovation Agency (VINNOVA) and money contributed by the partners. Funds are used for projects, but also for running the daily operations. The funding from VINNOVA is provided during ten years and divided into three stages, from 2006-2009, 2009-2012, and 2012-2016. How the financing will be after 2016 is not yet clear, but if state funding is cut back, it is evident that the partners must take a larger responsibility to find funding elsewhere, if SAFER is to be able to keep existing. These resources can be distributed to different projects based on prioritization made by the board, and most projects rely on additional sources of funding, from partners or funding agencies. Most resources provided by the partners are "in-kind", i.e., companies provide personnel to work on the projects rather than actual cash.

Figure 5 illustrates how SAFER's project portfolio has expanded from approximately 60 MSEK to 140 MSEK from year 1 to year 6. It also shows how successful SAFER has become in attracting both national and international research funds for their projects.

Figure 5 SAFER's project economy, illustrating sources of funding for the projects year 1-6



4.4 Management structure

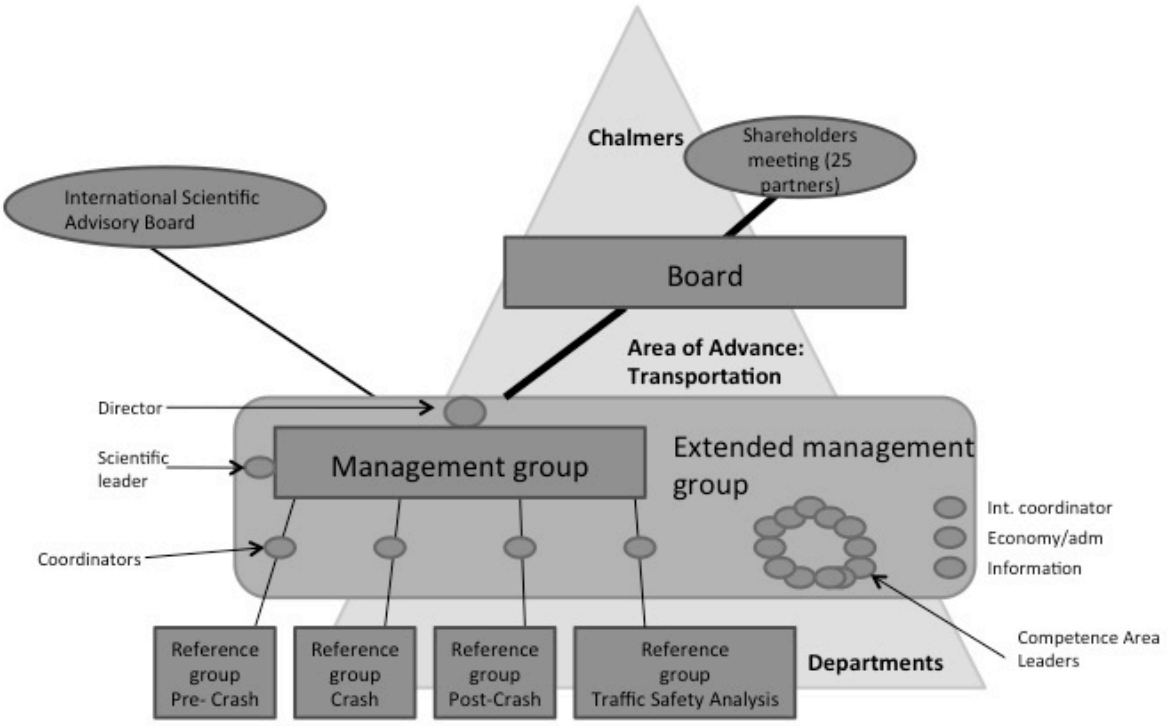
Although SAFER is not an organization in the judicial sense, it has quite a complex management structure that cuts across different levels. The complexity is increased by the fact that Chalmers is the host of the centre, and SAFER is positioned directly below the central management of Chalmers, but also associated with one of Chalmers Areas of Advance - Transportation.

Regarding the decision-making structure within SAFER, despite the lack of formal ownership, there is a "shareholders' meeting" gathering all partner organizations, which appoints a steering group. But the steering group is not only accountable to the shareholder's meeting, but also directly responsible to the President of Chalmers. Thus, the mandate of the steering group is more limited than that of a traditional "board". The steering group is responsible for the overall strategic work of the arena and grants funding for larger projects. A director and a management group, with the support of four reference groups, handle the operational aspects. The reference groups pass recommendations to the board about which projects to finance and thereby classify as "SAFER-projects".

SAFER works with six focus topics and twelve competence areas. Each competence area has a designated leader. To further secure the quality and relevance of the research, an International scientific international board, consisting of three researchers, was appointed in 2011.

The director, the management group, the reference group leaders, the competence area leaders and selected staff together make up the extended management group, which has the purpose to develop the SAFER research environment and ensure scientific quality as well as project relevance. Only the director and a few administrative staff members are employed by Chalmers, dedicated to work full time at SAFER. The management structure of SAFER as they themselves illustrate it can be seen in Figure 6.

Figure 6 SAFER's management structure (SAFER, 2010a)



4.5 The key persons

The people who are engaged in projects at SAFER are called "key persons", which implies not only that they are essential people to SAFER, but that they have access to SAFER's premises. Currently, over 250 persons can access the facilities, but only about 45 persons have their permanent work space in the SAFER offices. This means that many people are not at SAFER every day, some only once a month or even less, and when a project is finished the participants might not come back to SAFER (Balta and Zwick, 2009).

The large number of partners of SAFER means that personnel change frequently, with people moving in and out of projects, and contacts within partner organizations are changed or augmented. As SAFER has no legal status as an organization, hiring of staff (management) is done through Chalmers, which means that everyone who works at or with SAFER, has been hired by a third party organization.

5 Vignette: life at SAFER

As a researcher studying SAFER for several years, some insights into what it is like to work at SAFER have been gained. This overall picture of open innovation in practice is not clearly visible in the appended papers, as each of them has a more narrow focus. However, this contextual understanding of life at SAFER forms an important backdrop, when summing up the results from each paper and putting the pieces together.

The aim of this thesis is to envision a concept of management for open innovation. The vignette presented here plays an important role in introducing the complex setting in which an open innovation arena manager acts and where the managerial practices will be performed, as the vignettes illustrate issues concerning the life at SAFER.

At SAFER, it is evident that some people thoroughly enjoy being there, while others point to some challenges that make them less eager to work there. In this vignette, featuring quotes from participants at SAFER (with fictional names), the intention is to give a flavour of the topics that have been discussed over the years conducting this study and illustrate a few of the issues that people struggle with in their everyday work at SAFER. These issues have an influence on how each individual is able to relate to their own identity/ies and their role at SAFER and in their home organization. As this influences the individuals' ability and willingness to participate in the collaboration, they represent contextual and managerial challenges which need to be handled.

It should also be noted over time, things have changed as SAFER has matured, and the people who work there have changed or become more familiar with the open innovation setting. The director has also shifted her focus, from being more devoted to creating structure and alignment in the early days, to lately have become more preoccupied with expanding the collaboration with new partners and defining a strategic agenda. These developments do not mean that all issues have been solved, but they have in some cases shifted in nature and the prioritization of their severity has therefore changed.

5.1 Defining SAFER

One of the major issues that were discussed at SAFER in the early days, was the question of what SAFER really was. In the specific context of this thesis, it could perhaps be regarded as irrelevant to bring up this discussion, but at the time when the first interviews were conducted, this appeared to be on everyone's mind, and it was such a big issue that it in some ways affected how people worked, how they collaborated etc. The frustration of working at SAFER and not being able to describe it to another person was palpable. When asked about what SAFER was, one interviewee said:

> *"I would like to say that SAFER is a cluster of institutions and people, but a bit different actually. It is part institutions, part groups, part individuals who somehow collaborate in different ways around vehicles, traffic and safety. And by this I mean that there is a physical place for this, but SAFER is not only the physical place where you sit, some more permanent and others do not use it at all, but… There is an organization that I find quite vague. It is very unclear what you are*

expected to do, unless you are involved in specific projects. There is obviously a… things are presented, but you do not really know, should you come up with ideas yourself, or are you asked to present something? Researchers come there, but you do not really know at who's initiative."

Barbara, researcher at University Partner

Another person suggested that perhaps SAFER should try more simplistic communication to make it more graspable how the organization was set up:

"But perhaps it could be worth trying a bit tabloid-style now and again, to really simplify things. As it is now, you can't ask me, and I bet that most researchers who are here cannot draw that picture of SAFER's competence areas. They cannot list all the criteria or our prioritized areas. What does SAFER do, really? Maybe they [the researchers] would know the reference groups and make a list of them. But if one [SAFER] were to have simple message... I have not managed to learn these different dimensions. I think that is an important issue to think about, how SAFER should communicate."

Andrew, researcher at Institute Partner

5.2 A dynamic environment

A highly appreciated detail at the SAFER offices is the large wall of photos of people active at SAFER that face you as you enter the premises. As knowledge sharing between the projects at SAFER is scarce, the photos are a way of introducing project members, not only to external visitors but also to others at SAFER. SAFER has never had more active key-persons than at the moment, but it also happens that people get new assignments and leaves SAFER. As one interviewee phrased it:

"It is also interesting that you always meet new people, but there is also a small risk when people move around that much. It makes it difficult to have some kind of continuity. I also hope that persons with valuable expertise stay at SAFER."

Steve, researcher at Industry Partner

In one particular project, there had been several persons leaving the project, causing problems with continuity and flow:

"We've had 2-3 different project managers appointed by [Industry Partner name] but then they had some personnel trouble at [Industry Partner name]. A lot of people got fired, consultants have disappeared. We've always had consultants at [Industry Partner name] and they come and go a bit. And there has been some changes in the project management staff that may have played a part in that too. "

Nick, part-time researcher at University and Industry Partner

As people tend to move in and out of the projects at the discretion of their employers, one issue is how to make the knowledge created stick, although people are changing all the time? One interviewee asked the question of what the value for SAFER was in hosting a wide range

of projects, if there is no capability of taking care of or utilizing the knowledge that is created?:

> *"I mean it depends a bit on what SAFER wants, and what the identity should be. I think… if I put it like this – if there is a small group that is SAFER, let's say it's Anna [the director] and a few people around her, then of course she wants to run SAFER, lots of projects, lots of things, constant activity. But for everyone else, the question is what do you want to be, what do you want to make happen? * If the scope becomes too broad, then SAFER will just turn into some project broker. And then the question arises of where does the knowledge go? Somehow I feel like, if SAFER is really going to be what it is trying to be, then there should be something in the offices where you feel that knowledge is accumulating somehow. Knowledge sticks to people in a way. But you would like to see it grow, and if it is spread out over a bunch of people who jumps in and out… what happens to knowledge growth in this type of collaboration, I wonder…. It would be very exciting to see how they solve this issue. I mean, people are constantly jumping in and out, so where does the knowledge go?"*
>
> *Barbara, researcher at University Partner*

5.3 The value of collaborating

One of the most common reasons when asked about why organizations participate in SAFER, is because they see a value in it for themselves, often in terms of getting access to the right connections:

> *"We are part of some projects, and to speak frankly, why we are part of SAFER is of course to get contacts and be part of projects that we would not otherwise have had access to. It is in a way a very egotistical purpose."*
>
> *Andrew, Researcher at Institute Partner*

But on an individual level, there are several persons, who express joy and excitement to be part of this inter-disciplinary environment, and they thrive on interactions with the diverse range of people and competence present at SAFER:

> *"I always hope when I'm working that I will become better at what I do (laughter). It's the same when you play music. If you play music, then you always want to play with people who are better than you, because that will make you better. That's why I hope I learn a lot from each discipline… I think it [SAFER] is a fantastic meeting place (laughter). In my home country for example, there are no coffee breaks or anything like that.. I think the coffee breaks are really interesting; you get a chance to talk to other people. During the break, you always talk about work, maybe also a little bit private stuff, but especially at SAFER I think it is really interesting that you could just sit down and listen to others and maybe have a chat with someone."*
>
> *Steve, researcher at Industry Partner*

However, for some, even though they enjoy chatting with others, time spent at SAFER is not always regarded as time spent well, from the perspective of their employer:

"The way I see it, you gain nothing by being here, more than that it is nice to see people. On the contrary, being here takes time away from other things. If I come here to listen to a seminar, regardless of how interesting it is, if it does not add something to my research, then it is one hour, or one afternoon, that I am not doing what I am supposed to do. To put it bluntly, that's how it is."

Nick, part-time researcher at University and Industry Partner

Another person sees value in participating in SAFER, but due to surrounding circumstances like being placed in the SAFER offices against his will, he is not entirely positive towards collaborating with others all the time:

"I was sent here to this "island" against my will, so I do not have very high expectations. Now I have the expectation that SAFER will be a meeting place, a place to meet other people with similar interests. I call it "the never-ending conference". Instead of a conference that happens once a year, this is a place you go to in order to meet other people, a dynamic environment that changes depending on the current needs. […] In the short haul, I think would be good if it could be voluntary. That you commit yourself because you see a point to it, and that can probably change over time for different research groups."

Otto, researcher at University Partner

5.4 SAFER boundaries

The question of boundaries at SAFER is often unconsciously present, concealed underneath other issues of who should be part of which project, or who should be located at the SAFER offices. One of the interviewees, who only wanted to use SAFER for networking, was very frustrated that his research team now had to be located there full time:

"So that is what I am working on right now, trying to push back these boundaries and turning this network-dimension into just being a network-dimension. I can give a few examples. Right now it is very unclear, what is the line organization, what is the formal organization at my department and what is SAFER. There are unclarities regarding this. I also think there is a problem in the fact that we have co-located competence centres, making it very… I think it is very important that this network-dimension is voluntary also, so that when you are working in your knowledge field and feel the need to network, it is there, but when you feel the need to just work on your own stuff, then you should be able to exit and enter the network-dimension voluntarily… There is this overlap between the dimensions, which I think causes a lot of problems and ambiguity and identity issues and a whole bunch of strange things… it is unrealistic to think that you can put the whole world in SAFER."

Otto, researcher at University Partner

The same person continued by giving a concrete example of when he believed that SAFER overstepped its boundaries:

"I can give you a very concrete example that will tell you how it is. When I hire new PhD students, they put SAFER on all their PowerPoint presentation after a while. And this gives me the hick-ups because as a researcher, I have to provide money for their research, and then it is very important

that our name is on the top, and SAFER is just one of the financiers. You can write that [SAFER] in the corner of the paper with the smallest font there is…"

Otto, researcher at University Partner

Another issue related to the boundaries of SAFER is how individuals can handle the dual or perhaps even triple identities that comes from being part of several different organizations at the same time. Some feel this is confusing and frustrating, others, like this interviewee, consider it to be something natural when working in this type of arena:

"I think there is an advantage in it, because somehow you are looking for these people with one foot in one organization, and the other one in another, and that forms the joint platform. Then you should of course be able to enter your own platform and use what you know to hopefully do something better. But it also contributes to this culture-issue which is very difficult. Who are you? Are you a SAABian, or a Volvo-ite or a Chalmers-person, or VTI? That can of course be your primary identity, but you are also a SAFER-person."

Bernard, steering group member from Society Partner

5.5 Leadership at SAFER

When discussing with participants as well as external persons working with SAFER, most of them agree that being the manager of this arena does not appear to be an easy task, and that it is not an ordinary management job. They further claim that the position requires a special kind of person to hold it all together, and the current director's commitment and perseverance is often mentioned as a reason for how SAFER has developed over the years and managed to stay alive. As one interviewee described it:

"Anna [the director] doesn't have any people, but she coordinates it all. That must be a huge task, but I think it works out great. I'm thinking of companies like 3M, where all employees can spend 10% of their time working with whatever they want, and they have the most patents and 90% of the patents come from those 10%. I believe that it's better for research and development not to have a very strict frame, but it only works if everyone has the right attitude. Having a lot of freedom is also a risk, which someone needs to control. But I think that is why you should have several persons from each organization in a project, because then you will always have control. Everyone controls each other… I would not claim that there is no control here at SAFER, instead it's more of a passive control… Here at SAFER no one is authoritarian… "

Steve, researcher at Industry Partner

Stakeholder management and weighing different needs and expectations of the partners appear to be crucial for the manager to be able to handle:

"There are so many partners' interests that need to be balanced. It's…you need to move people. We did that at SAFER so they would not take the easy way out and use the established Chalmers structure, instead we moved it to Lindholmen in order to be able to break old patterns, to get the researchers to go there instead, under the same roof, sharing desks and drinking the same coffee. There was a huge resistance towards this, and it takes a leader who has that kind of experience and qualities to make it possible. There you do not want someone who insists authoritatively. But if

Anna has succeeded, I actually can't say yet. I know there are some big issues… I think that basically, most centres like this a quite similar, and I do not think it is the structure that is the determining factor. It is the people who are crucial, the ones who are passionate about this idea to create this type of research clusters or centres, those are the ones making the difference."

Bernard, steering group member from Society Partner

This challenge is also evident on the project level, where partners have their own agenda, and the project management needs to be clear about the ground rules as well as the goal:

"I think that a recurring problem in SAFER is that projects are started where each partner have their own agenda. Everyone thinks they have the same agenda, but that is usually not true. So, over time, from the project's point of view, the work is not very efficient, so I think it is better to explain and discuss the goals of the project and how we can work together before we start working."

Steve, researcher at Industry Partner

At SAFER there are always new initiatives going on as part of moving the arena forward or paving the way for a new project. However, there is always the risk of underestimating the time and energy required to get things started, but also to finish them. Given the special circumstances regarding employment and accountability at SAFER, this can cause some problems:

"You need to have a group that can handle both starting things up, but also to see them through and finish them. That is difficult to find in one person, and it's is not often a person has what it takes. There are a lot of ideas and then they just leave it hanging, a bit fuzzy, without handing over and then they expect things to happen, but they do not, because it is still unclear what resources you have to do the job. Accountability becomes an issue… They [SAFER] have the mandate because they have resources to distribute, and that implies other terms. It's not like I punch in at the time clock at SAFER. I think that is a problem actually, because to get things started at SAFER...it takes time."

Barbara, researcher at University Partner

5.6 Summing up – A complex setting

To conclude, working at SAFER appears to offer some challenges indeed for the people involved. But, despite these challenges, it is important to remember that there is in general a very positive attitude towards the collaboration and what it has the potential to achieve. That is also why frustration can be noted sometimes, among participants as well as management, as the bureaucracy of dealing with multiple organizations, the political manoeuvring among the partners and bickering about distribution of funds is sometimes causing minor or major crises that need to be managed. But, if there was not a core of people from several of the partner organizations and a driven management team putting their energy and beliefs into making this collaboration work, we can assume that the arena would never have made it this far.

6 Summary of the appended papers

The following five papers have been selected to be part of this thesis as they in different ways have contributed to forming a concept of management for open innovation.

6.1 Paper I: Turning Open Innovation into Practice: Open Innovation Research through the Lens of Managers

This paper takes its stance in discussing why open innovation, despite its recent popularity among companies, still represents a big challenge for innovation managers. There is a need for a discussion of the management aspects of open innovation, at a practical but also an academic level. Comprehensive reviews of the state of the research field concerning management are scarce. The paper identifies and discusses managerial implications related to open innovation in four categories; *Organizing for openness, Leadership for diversity, Co-creating value* and *Intellectual property management*. The findings are based on a literature review covering open innovation literature from 2003 up until June 2009, where the method of open coding was used to identify the managerial implications presented in the literature and cluster them into categories.

6.1.1 Reflections about the findings

Paper I looks into what was previously known about the managerial challenges associated with open innovation. The findings addressed issues regarded as specifically important for open innovation managers, but it was also clear that when it came to practical advice for managers on how to handle these issues, not much was reported.

Although some important managerial implications have been identified, this is still an underdeveloped topic in the field of open innovation. Most of the identified challenges are based in a focal-firm perspective, i.e. how will an organization be affected by engaging in open innovation. It can be argued that many of the identified challenges could be relevant also from a collaborative perspective, where *organizing for openness, leadership for diversity, co-creating value* as well as *IP management* are important contextual aspects that needs to be considered from a managerial point of view. From the perspective of an open innovation collaboration, the multiple partners involved could even suggest an added dimension of complexity related to the contextual challenges and opportunities, which is not as present in the focal firm.

In an open innovation context, there are different degrees of openness (Dahlander and Gann, 2010), and the openness is often not all-embracing as many partners would then choose not to participate, in fear of loosing control over their information, and that other partners could take advantage of it (Thorgren et al., 2011). Previous research has often emphasized the value of legal agreements, stipulating ownership of intellectual property, but not acknowledged the complex situation of how to turn the agreements into practice. IP-management is a highly important issue for open innovation managers to deal with, but it appears that although there are often contracts put in place to protect intellectual property in different projects, it is quite

difficult to formulate such contracts and to adhere to them in practice. The challenge is rather to create a sense of trust between the partners to make them dare to share.

An open innovation project can involve people from multiple organizations with different organizational cultures; different competences and perhaps they do not even work continuously in the same project. This may cause frustration in individuals, and the challenge is to create a sense of community or inclusion that can help individuals to make sense of their situation, when they are simultaneously part of several organizations, and this is what leadership for diversity entails.

How to engage the partners in knowledge creation is another challenge for managers. Chiaromonte (2006) proposed that open innovation could enable suppliers to become peers as this form of collaboration has the potential of breaking up hierarchies and established patterns of collaborating. In practice, the relationships that constitute the collaboration are more complex than that, and trust is fragile and contingent. However, Newell and Swan (2000) argue that simply communicating and interacting more is no guarantee for development of trust, especially in situations where the participants in the collaboration have very different perspectives.

The failure to realize the managerial challenges associated with open innovation could be detrimental. Organizations moving into an open innovation collaboration without acknowledging how that will affect the organization and the people in it, risk failure and through that experience become more closed than they were before. The contribution of this paper is the identification of several contextual challenges, which can increase our understanding of open innovation collaboration. The contribution of the findings in this conceptual paper is that they highlight what contextual aspects are important to consider, but fail to outline how managers can address them. These findings were thus an important trigger for a more inductive empirical exploration of how contextual challenges in open innovation collaboration could be managed.

6.2 Paper II: Beyond intermediation: The open innovation arena as an actor enabling joint knowledge creation

Paper II strives to characterize how the collaboration at SAFER enables knowledge creation, and outlines a new type of actor in open innovation, the open innovation arena. The paper is based on interviews with the director of SAFER and representatives of partner organizations. Two main types of actors have been depicted in literature so far which enable sharing and collaboration in innovation processes: communities and innovation intermediaries, two actors that are often virtual and mainly focus on brokering and networking around existing knowledge. However, it is generally acknowledged that knowledge creation is a pivotal part of innovation. This aspect is not addressed in regard to these actors, and in fact knowledge management is often neglected in open innovation literature. Hence, this paper seeks to address this gap through exploring the role of an actor that explicitly aims to support joint knowledge creation in open innovation collaboration.

The concept of Ba (Nonaka and Konno, 1998), is used to describe and analyze the characteristics of the open innovation actor, defining a space for joint knowledge creation among several. The findings reveal that SAFER is a type of actor different from and complementary to communities and intermediaries as it encompasses activities for joint knowledge creation that goes beyond the notion of intermediation. The main theoretical contribution of the paper is the proposition of the *open innovation arena* as an additional open innovation actor, bringing forth and discussing knowledge creation as a central aspect of open innovation collaboration.

6.2.1 Reflections about the findings

Paper II uses empirical material to illustrate spaces provided by an actor to enable knowledge creation within the open innovation landscape. The paper further illustrates that an important function for the arena is the ability to gather a force of people or organizations, either to find new ways of looking at problems and solutions, or in order to gain legitimacy and strength, when applying for funding or acting as an opinion-maker. Thus, the arena can legitimize collaboration and offer a strong collective voice to make a larger impact. This paper emphasizes the previously unrecognized qualities that this actor has, aiming at supporting organizations in their innovation processes. Unlike the traditional intermediary (e.g. Howells, 2006), the open innovation arena adapts a non-firm centric perspective as it moves from the prevailing transactional perspective on innovation towards a more transformational one.

In the SAFER arena, being able to put words on the collaboration has been shown to be important for people to be able to perform their job well, especially, in such a dynamic environment, as illustrated also in the vignette. The data from participants as well as from the director herself indicates that in defining the role for such a new actor and making sense of the space (as is further discussed by e.g. Ollila (2011)), the manager has an important role in *building the identity* of the collaboration, which can help in establishing the arena as a legitimate place for collaboration and a commitment from the participants to strive towards a higher purpose. Identity creation was argued by e.g. Karp and Helgö (2008) and Kärreman and Alvesson (2004) as an important alternative managerial practice, as they argue that managers in emerging forms of organizations need to work much more with identity creation, both on the individual and the organizational level than before, as a result of less formal structures and less taken-for-granted authority. This could also be related to the notion of managers as authors (Cunliffe, 2001), who through their everyday talk engages in the construction of self, realities and meaning. Instead of having a formal power base, creating a strong sense of organizational identity has become a way for managers to infuse a sort of value-based leadership, where work can instead be directed based on participants' feelings of commitment, loyalty and desire to contribute. However, the creation of a strong identity is not without complication, as strengthening the SAFER "brand", can be regarded as being at the partners' expense. Finding the middle ground or an acceptable compromise is what Huxham and Vangen (1996) describe as one of the main managerial dilemmas in collaborations. However, the process of identity creation is continuous, it is something that needs to be constantly re-visited and re-discussed, as identity is a relational concept and the development in the different projects, in the arena, among the partners etc. all have an impact on how the arena is viewed and what identity it has. Recognizing identity creation as an important

practice for an open innovation manager is the main contribution from paper II to the findings in this thesis.

6.3 Paper III: The struggles of achieving collaborative advantage in an open innovation project

Paper III departs from knowledge created in the field of inter-organizational collaboration to look into the practices of an open innovation project at SAFER, which contrasts to the organizational (arena) level of analysis adopted in paper II. Researchers within inter-organizational collaboration have argued the need for e.g. a shared vision and mutual understanding of the problem among the team members, in order to achieve collaborative advantage. However, many collaborations fail to meet expectations, and results require hard and painful work (Huxham and Beech, 2003). Open innovation collaboration has in practice proved to be quite complex and it is not always easy to achieve the desired collaborative advantage.

This paper presents findings from an open innovation project, where there are highly disparate views among the team members regarding the purpose and value of the project work. The paper uses a narrative analysis to illustrate stories of the diverging views on the project and discusses how challenging it can be for the manager to strive for collaborative advantage in open innovation collaboration and encourage the varying perspectives and expectations needed to stay innovative.

6.3.1 Reflections about the findings

The contribution of Paper III is an increased understanding of previously undescribed micro level practices in an open innovation project, as well as how to manage diversity, one of the contextual challenges addressed in paper I. Through the stories, it becomes clear that the diverging views present among the project team are not that easy to manage, and it is not uncomplicated to get everyone on-board working towards a common goal.

Based on what is known in inter-organizational theory, it is not so surprising that expectations on the collaboration, and more specifically diverging expectations, not only concerning what should be done but also how it should be done and why, are key concerns for the collaboration management. In order for the potential of bringing these parties together to be utilized, expectations must be explicitly shared in order to be turned into something constructive. The differences are what makes collaborative advantage possible, and keeps the collaboration from slanting into a state of collaborative inertia (Huxham and Vangen, 2004). It appears, that if collaborative advantage is desired and some added value is to be created from the collaboration, the participating partners need to have motivation and expectations that are in line with the paradigm guiding the collaboration and what is to be accomplished. Otherwise, this could lead to partners having unrealistic expectations on how the other partners should behave, what time frames to set, or what goals that are important.

This paper has, furthermore, contributed with an illustration of the complexities of working in an open innovation project and how in practice, it appears to be a constant struggle to *make*

sense (Weick, 1979) of the space and the collaborators. The stories in the paper illustrate how some participants, as they are making sense of their context and situation, feel anxious about this setting, as it is unfamiliar territory to them. By helping partners and individuals to make sense of what the open innovation collaboration entails, the manager (project management as well as arena management) can help those, who are uncomfortable with disagreement and the constant uncertainty about the complex collaboration they are part of, to perhaps become a little less insecure and see the value in participating. The manager, thus, needs to continuously act as a *sense-giver* (Gioia and Chittipeddi, 1991) in the current situation, which may calm anxious partners and reassure them that someone is guiding the ship and they can see their role in joining the journey. But, in order to do so, the manager must herself *make sense* (Weick, 1995) of the constantly changing environment, and decide what meaning to infuse into the other participants. By acting as sense-giver, the manager is put in the position of defining the discourse, to give her interpretations of current events, similar to what Smircich and Morgan (1982) describe as "management of meaning" and this can be a powerful tool when lacking formal authority. In previous research on open innovation, the influence of the complexity of the collaboration on the individuals involved is often underestimated; hence, the need for sense-making or sense-giving has not previously been addressed. The identification of sense-making and sense-giving as important managerial practices as well as the major challenge of managing diverging expectations are the main contributions of this paper to the findings in this thesis.

6.4 Paper IV: Managing Open Innovation: Embracing both control and chaos

This paper strives to characterize management at SAFER, a context where conventional "command and control" practices are not applicable. Based on a 4-year action research study of an open innovation arena, the findings suggest that the open innovation arena manager continuously works to simultaneously create alignment among the partner organisations and safeguard instability by obstructing structure and coercing routines, i.e. balancing control and chaos. Elements of control as well as chaos are argued to be necessary for achieving a fruitful space for creativity and innovation, according to Stacey (1992). The theoretical contribution of this paper is a concept of management in an atypical form of organizing, the open innovation arena. By characterizing open innovation management as balancing a state of bounded instability, this paper offers a more profound understanding of the dialectic nature of management in open innovation collaboration and the sometimes even contradictory actions an open innovation arena manager needs to take to safeguard innovation.

6.4.1 Reflections about the findings

Paper IV is based on empirical material illustrating the diverse actions of the manager of SAFER. The paper argues that *balancing a state of bounded instability* (Stacey 1992) is a core aspect of managing open innovation. Paper IV highlights the difficulties of bringing together a variety of organizational cultures, predominantly oriented towards alignment and control (as is the case in most organizations), and, if not successfully managed, this can destruct prerequisites for the collaboration. In open innovation collaboration, a strict focus on

alignment can become problematic as there is a need for perceptiveness and flexibility among management to know how much and in what situations alignment and cohesion needs to be emphasized. Some degree of structure and alignment is important in order to create a sense of direction of the work in the arena and well-being among those who work there, as argued by e.g. Burns and Stalker (1961). In order to be able to perform basic activities, such as sign agreements, rent offices and hire staff linked to the collaboration, it is necessary to be organizationally linked to an established structure (in this case the university host) that has such capabilities. But, in a collaboration aimed at producing new, creative solutions, there must be an acceptance and encouragement of things being done outside of the formal system, following a more "chaotic" logic. Management needs to safeguard the shadow system, which is triggering interactions leading to new ideas that are challenging the status quo, as stated by Stacey (1992). In an open innovation arena, it is the multitude of perspectives and the unexpected meetings between them that holds the potential for achieving collaborative advantage.

To be able to manage bounded instability, i.e. balancing between control and chaos, the data presented in paper IV shows that the manager needs the cultivating skills to *nurture the spirit of collaboration* (as proposed by e.g. Mandell and Steelman, 2003, Huxham, 2003) to bring people on board in order to keep spirits high and partners happy. This has previously not been recognized as an important aspect of open innovation management, perhaps, because, it is easy to assume that all partners would have enough motivation of their own to want to produce results together. But, this paper (as well as paper III) proposes that this is not always the case, and the manager needs to support this process by embracing the "right" kind of persons to get involved, by empowering people to participate, supporting members to participate and to mobilize participants, in order for things to happen (as further described by Huxham, 2003). However, although nurturing is an essential task, it should not prevent the manager from keeping the weed out of the garden and daring to trim the hedges at times.

But, paper IV also illustrates that the manager needs to use *political behaviour* in order to *manoeuvre* as well as *work with* (Vangen and Huxham, 2003) multiple partners to make things happen. The lack of formal authority can be seen as an invitation to such behaviour, as it can assist in building an informal power base and help putting the manager in a position to define the discourse. Political behaviour is present in all organizational settings, and appears to be a critical managerial practice in open innovation, but, has not previously been addressed in this context. Furthermore, considering the multiple partners and stakeholders involved in a large-scale open innovation collaboration, it can be argued that it is not only the manager, who is in a position to use political behaviour. As the collaboration is dependant on the input of the partners, they can also exercise a form of control over what goes on at the arena, to either move forward or to block progress. This has previously only been partly acknowledged by e.g. Lütz (1997) in her effort to study micro-politics in innovative networks. E.g. Buchanan (2008, 1999) argues that political behaviour can be constructively used to e.g. foster solidarity and bring about change in an organization. Huxham (2003) describes an example of politics in inter-organizational collaboration as *"going behind people's backs in a trustworthy sort of way"* (p 418), emphasizing that political behaviour often involves contradictory actions, which include collaborative thuggery. The identification of balancing a state of bounded

instability as a core aspect in open innovation management is the key contribution from this paper to the findings in this thesis, and it has resulted in the identification of the managerial practices of nurturing the collaboration as well as manipulating it through political behaviour.

6.5 Paper V: Beyond command and control: Exploring managerial practices in the case of an open innovation arena

Paper V questions traditional management theories' usefulness for understanding managerial practices in an open innovation arena. As stated by e.g. Ghoshal (2005) "bad management theories" can easily lead to "bad management practice", and it is, therefore, of importance that we develop theories adapted to the new organizational contexts that are emerging. This paper presents reports from the director of SAFER about her mundane managerial practices, which is interesting as she has limited formal authority and employment responsibilities but still directs the daily work of the people working at SAFER. Paper V describes her management as a form of authorship, which appear to be crucial for making the open innovation collaboration work. It is this authorship that is inviting people to the co-creation of the collaboration, a co-creation process this paper proposes can be understood as creating the space "in-between".

6.5.1 Reflections about the findings

The story from the manager presented in paper V illustrates how much of the manager's work that is related to on-going discussions, interactions and negotiations with the different partners, and the idea of the manager as an author helps to view managing in this context from a new perspective. *Acknowledging the relational aspects of management* appears to be important in order to address the contextual challenges encountered in open innovation collaboration (e.g. identified in paper I), as also suggested by Karp and Helgö (2008) and Cunliffe (2001). This is not only related to relationships between the manager and the partners, the manager has multiple interfaces to continuously relate to, as proposed by e.g. Ollila and Elmquist (2011). This results in a high degree of managerial complexity. Tensions arise between the partners all the time, and in order for the collaboration to keep functioning, the manager needs to be present to solve potential conflicts, preferably, before they escalate, but also in order to build trust between the partners. For the manager to be able to handle the multiple cultures that are a natural consequence of the involvement of a diverse range of organizations and, in a way, to abandon diversity and conflicting views and the instability that this brings, would be to abandon the source for creativity and innovation. The paper contrasts to previous research on open innovation by arguing that relationships, not legal agreements, as the very core of the collaboration.

Paper V argues that authoring is a valuable way of describing managerial practices in post-managerial environments (Karp and Helgö, 2008, Cunliffe, 2001) such as an open innovation arena, where what is created is so highly dependant on the interactions that take place. Examples of such managerial practices that become visible in the manager's reports are *identity creation, building relationships as well as political behaviour* (which were further addressed in paper II and IV*)*. All these managerial practices are a result of how the manager

shapes her practices and how she feels they are shaped by those around her as well as the open innovation context, as she strives to create *balance between stability and chaos* (as outlined in paper IV). It further implies a shift in management paradigm from striving to have control over people to instead have control in the environment.

One way of enacting control in the environment is described in paper V as authoring a space "in-between", which is the connecting medium between the partners which keep the collaboration as well as the individuals together. This authorship, constituted by the managerial practices of making meaning, creates a sort of force field attracting the partners to stay together for a joint cause. Thus, creating this space in-between appears to be essential for managing open innovation collaboration. Being an author entails that the manager of an open innovation collaboration engages in the situation, in interactions with people, as it is this authorship that is inviting people to the co-creation of SAFER, a co-creation process we argue can be understood as creating the space in-between.

The connecting medium in the sphere could be characterized as a form of culture "in-between". A culture "in-between" is a cohesive structure, which at the same time embraces the differences in existing cultures, transcending organizational boundaries. The core of such a culture "in-between" is the process of creating an identity of the collaboration (which was also addressed in paper II), where the manager strives to create a sense of inclusion and respect for everyone's background and competence. This paper argues that identity creation in this context cannot be neglected, if this form of work is to become socially sustainable for the individuals involved. Having a culture "in-between" (Bhabha, 1996) could reduce symptoms of "not-invented-here" syndrome and identity conflicts, as it aims at creating a sense of belonging, identity and direction. This seems to be important for the participants in open innovation projects to be able to perform well and can help participants to feel more secure in leaving their comfort zone and embrace situations, which are more uncertain. The recognition of the relational aspects of open innovation management, as well as the managerial focus on creating a culture "in between", are the main contributions from this paper to the findings in the thesis.

7 Analysis - Towards a concept of management for open innovation

The appended papers have contributed to providing answers to the two research questions *"How can open innovation collaboration be understood from a managerial point of view?"* and *"What constitutes managerial practices in open innovation collaboration?"* as they have identified the following contextual challenges and managerial practices as particularly important for open innovation collaboration (summarized in Table 7). It should also be noted that the longitudinal study of SAFER, which contained significant amount of time being immersed in the arena has also provided valuable learnings and an increased understanding of the managerial practices at SAFER, which are not that easily captured in e.g. interview data.

Table 7 Summary of identified contextual challenges and Managerial Practices

		Paper I	Paper II	Paper III	Paper IV	Paper V
	Contextual challenges	Handling openness, diversity, co-creation of value, IP management	Enabling joint knowledge creation which requires a transformational logic	Handling diverging expectations among partners/ participants		Managing with limited authority, Managing a space "in-between"
Balancing stability and chaos to achieve a state of bounded instability	**Identity building**		Legitimizing the arena as collaborative platform			Striving to create a culture "in-between"
	Relationships					Constant on-going discussions, interactions and negotiations with the partners
	Sense-making and sense-giving		The concept of the OI arena helps to define and differentiate the collaboration	Guiding anxious partners/ participants while also making sense of own situation		
	Political behaviour				Manager working with partners as well as manoeuv-ring them	

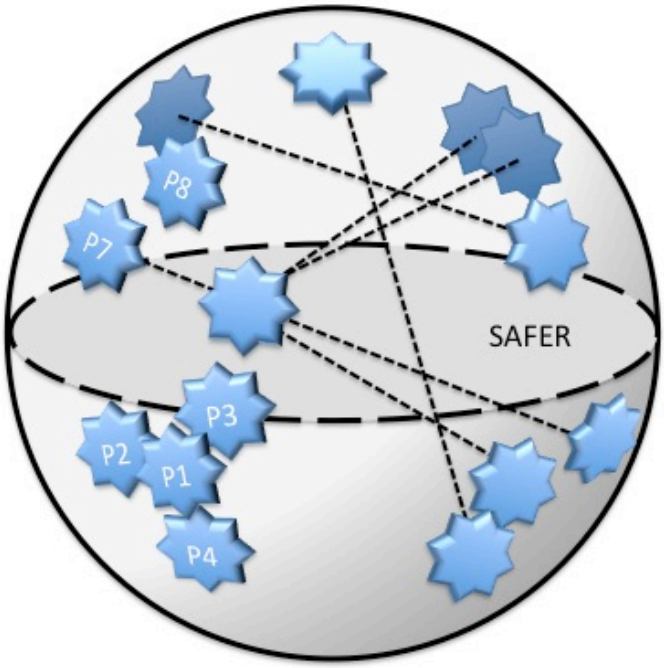
7.1 Understanding open innovation collaboration from a managerial point of view

The first research question concerned how open innovation collaboration could be understood from a managerial point of view. Based on the appended papers, a few contextual challenges, which characterize open innovation collaboration have been outlined (summarized in Table 7); *the diverging expectations of the partners on what to achieve, how to engage partners in knowledge- and value-creation with unknown or even competing organizations, how to create and sustain a collaboration based on openness, IP management issues, how to manage a diverse group of people with different organizational backgrounds* as well as *how to manage with little formal authority*.

These contextual challenges can inform our understanding of what open innovation collaboration is, from a managerial point of view. The collaboration occurring in the name of SAFER could not fully be understood based on previous research as it is something beyond a network, an intermediary, a community and an alliance. SAFER is described both by individuals, who are active there, and by management scholars as a *physical meeting place, a collaboration, a platform, an arena* etc. At the same time, SAFER is constituted solely by its partners, and the organization does not exist on its own. But, how can we understand such an organization in order to manage it? As already introduced in paper V, instead of the traditional two-dimensional organizational charts, in this case, it is more helpful to think about such a collaboration three-dimensionally, a perspective that will be outlined below.

Paper V outlines the SAFER collaboration as a sphere (illustrated in Figure 7), where the partners "stick onto the exterior surface", still maintaining connection with the outside world, but also in contact with the inside of the sphere. Some partners may position themselves more closely together at some points, due to previous experiences together or current projects, but may change their position on the surface due to changing circumstances. By means of the different projects and activities as well as interactions that occur at SAFER, temporary inter-linkages arise between partners and individuals across the sphere. Thus, this is a dynamic environment, where SAFER could be described as the connecting medium or tissue inside the sphere, which would be dispersed, if the collaboration ceased to exist. The connecting medium is what keeps the collaboration together, a sort of force field attracting the partners to stay together for a joint cause.

Figure 7 Illustrating the open innovation collaboration at SAFER as the connecting medium in a sphere, linking partners (P1, P2…)



Thus, thinking of the open innovation collaboration as an organization with hierarchies and controllable paths of decision-making becomes futile, when realizing the multitude of relationships and interconnections, that must exist within such a collaboration. Even the statement that the partners are peers (Chiaromonte, 2006) is to some degree questionable, because although the partners are all supposedly "equal" on the surface, it becomes evident that relationships and other means of gaining power can be very important to gain influence. Instead, this complex, three-dimensional illustration emphasizes the need for the manager to be comfortable in dealing with uncertainty and change. Dealing with uncertainty and change also exist in research on innovation management in more established contexts, and the manager needs to be swift in adapting to the new settings. However, in the open innovation collaborative context, the difference is that uncertainty and change is not a state that can be "normalized", as it the reality of work every day.

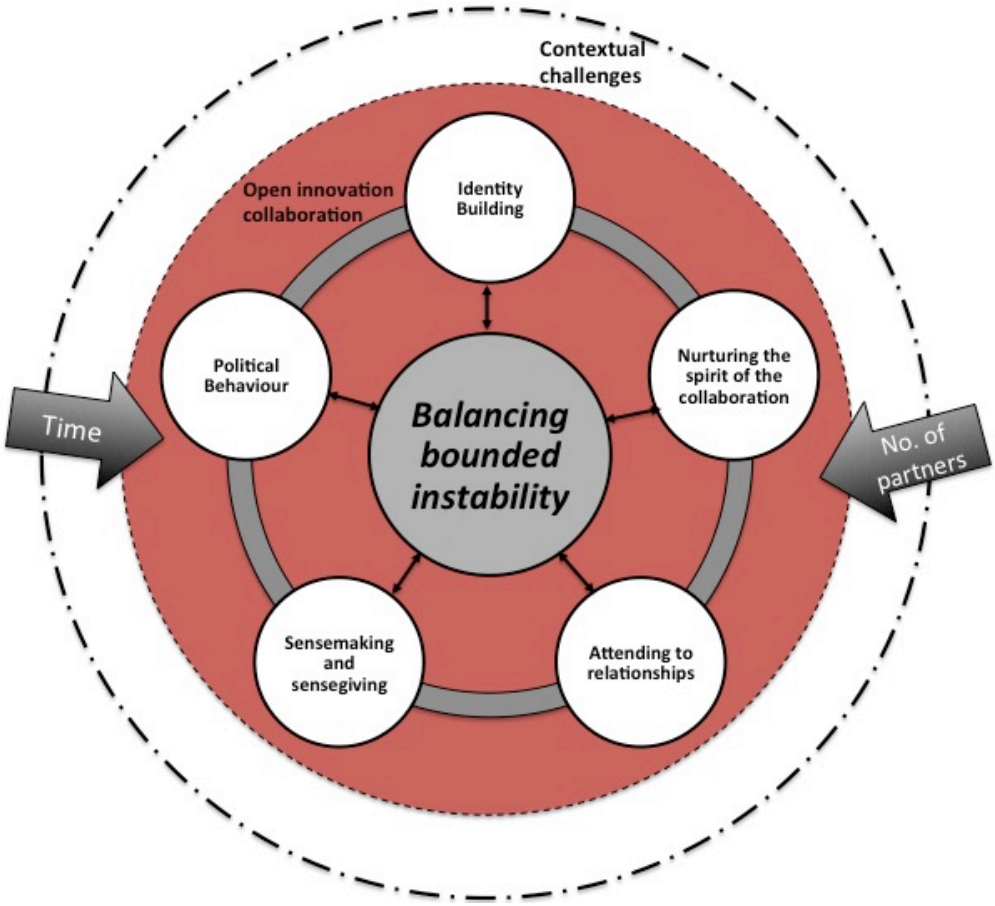
7.2 The constitution of managerial practices in open innovation collaboration

The second research question concerned what constituted managerial practices in open innovation collaboration. This thesis argues that managing a large-scale open innovation collaboration is a complex venture, and as a manager, you need to be able to create the best possible conditions to make the collaboration thrive and succeed. This implies understanding what structural necessities that need to be in place, in order for the collaboration to function and to maintain control (e.g. providing offices, making decisions, distributing resources), but also a realization that too much stability and control risks destroying the diversity and creativity that can come from bringing multiple partners together. As a manager, the practice

of balancing these contradicting forces to achieve a state of both stability and chaos is a delicate act. It requires an understanding of how much stability and what type of stability is needed at each given moment (and that these can change over time), as well as a type of visionary and supportive leadership that inspires people to use the instability in the collaborative setting, to realize creative ideas that do not fit in the mainstream.

The identified managerial practices (summarized in table 7) are argued to be practices that are used in the open innovation collaboration in a strive for a *state of bounded instability* (as illustrated in Figure 8), where the practices are used to different extent and at different times to either promote stability or instability, depending on what is needed at that moment, with consideration of both past and future needs.

Figure 8 Managerial practices in open innovation: Balancing bounded instability



The practice of identity building, described in e.g. paper IV, could e.g. be exemplified by the activities that took place during one of the SAFER days (full day workshop), where the manager engaged the participants in creating road signs that would designate each groups work area in the SAFER offices. This not only reinforced their cohesion as individual groups but also strengthened each group's role as part of SAFER.

The practice of political behaviour could e.g. be exemplified by which persons that are invited to a specific workshop and what words are used to phrase such an invitation. By selecting whom to invite, depending on previous knowledge of that person's or organization's perspective on the topic of the workshop, the manager is able to carefully influence the process in order to create a more constructive climate during the workshop. Choosing the right words in such an invitation has also been proven to be an important, and highly political act, as the words are have a strong signalling effect for what type of output is expected at the workshop and how the output will be created.

The practices in an open innovation collaboration have commonalities with practices typically depicted in innovation management literature. But they also differ as they acknowledge the complex context they are used in, without necessarily striving to simplify it, as is often the case in the rationally planned innovation process. Rather, the practices outlined here are striving to explore and exploit the uncertainty and instability while making it bearable for those involved.

7.3 Outlining a concept of open innovation management

Through this analysis, answers have been provided for the two research questions posed in the beginning of the thesis. As the identified managerial practices are joined with the contextual understanding of open innovation collaboration to envision a concept of open innovation management, it can be questioned if such a concept can be conceived of and understood based on conventional management theories? Or rather, if the very idea of managing a state of bounded instability may imply a different way of thinking about management that is capable of capturing how the manager participates in constructing and developing the environment in order to influence. The following chapter will discuss a concept of open innovation management and what implications such a concept can have on our conceptions of management.

8 Discussion

8.1 Managing open innovation – balancing bounded instability

The aim of this thesis has been to envision a concept of management for open innovation. In order to do this, theoretical as well as empirical investigations have taken place. The thesis has used a primarily inductive approach in the process of outlining a concept of open innovation management. This is based on the belief that management practice has changed, due to changes in society and how we organize work (Barley and Kunda, 2001, Kärreman and Alvesson, 2004), where open innovation collaboration is only one example, and this shift in practice results in a need for new developments within the field of management theory.

One of the reasons for conducting the study at SAFER was an identified research gap concerning managerial practices related to open innovation. Although "open innovation" has been around as a concept for more than 10 years and the practices associated with it have most likely been present even before that, it is still somewhat surprising that not more research on managerial practices for open innovation has emerged. Similarities can be found with research on matrix organizations, where despite the known complexities of managing such organizational forms, researchers have, with a few exceptions, made progress in addressing how to manage matrix organizations (Galbraith, 2008). As we now see open innovation becoming more and more popular among organizations, perhaps something can be learnt from the experience with matrix organizations, and management would be treated as a topic of utmost importance early on, in theory and in practice.

As shown in previous research, there can be a conflict between prescriptions for effective innovation management and for collaboration management (Sivadas and Dwyer, 2000). E.g. Ghoshal (2005) discusses the consequences of inappropriate or ill-grounded management theories for management practice, and how influential such theories can be and in fact destroy "good management practices". This thesis argues that there is a need to look at management in the context in which it is situated in order to find successful practices, as proposed by Crevani et al. (2010). This implies re-thinking traditional advice for innovation management that was designed for an era with little inter-organizational collaboration and less complex organizations. But, also advice for collaboration management needs to be re-visited, as open innovation provides specific contextual challenges that add to the complexity of what was previously known about managing inter-organizational collaboration. Managing inter-organizational collaboration is nevertheless difficult, as concluded by e.g. Huxham and Vangen (e.g. 2004). Furthermore, Harris et al. stated: *"Inter-firm networking can facilitate new product development but "[…] it is not a panacea for success"* (2000, p 229). This thesis argues that bringing organizations together is no guarantee for neither creativity nor innovation, but with appropriate managerial practices, there is potential if the collaborative setting is utilized in a thoughtful way.

The findings in this thesis can be considered as a response to the need for a management concept more attuned to the organizational forms that are emerging and a changing organizational reality. By building on the concept of *balancing a state of bounded instability*

(Stacey, 1995, Stacey, 1992, Weick and Quinn, 1999) from theory on complex organizations, this thesis aim at increasing our understanding of the challenges in open innovation collaboration and how conflicting forces need to be balanced, in order to create alignment among the partner organisations and at the same time safeguard instability to establish a space for creativity and innovation. Acknowledging the dynamic and tension-filled nature of open innovation management is a new contribution to the field of open innovation management, and entails a perspective that can enrich our understanding of what management in open innovation implies.

The idea of the dynamic nature of organizations and its implications on management is not necessarily new, already in the 1960's Burns and Stalker (1961) addressed management in mechanistic (emphasizing stability) and organic (emphasizing change) forms of organizations. They discussed under which conditions each form is more appropriate, but also concluded that many organizations may continuously shift between the two, depending on the circumstances. It is, furthermore, brought forward that e.g. from the individual perspective, it can be challenging and frustrating living with the uncertainty that comes with the organic form of organization, but this uncertainty is essential for the organization to function effectively. This struggle with and sometimes desire for more stability and structure is visible in organizations today, as well as in the collaboration at SAFER, as each individual carry experiences and images of organizations that affect thoughts, wishes and behaviour. Similarly, based in the era of big corporations, Quinn (1985) suggested that innovation management is about "controlled chaos", and mainly advocating an incremental innovation strategy for continuous improvement and learning. He pushed for more flexible management practices, in order for big companies to remain competitive. Although there is still value in these theories for many organizations today, the ideas are firmly grounded in the time in which they were conceived, where large-scale inter-organizational collaboration was not very common and the main issues for the appointed manager concerning innovation was timing, internal coordination and motivation. Thus, this thesis argues that, although, it is interesting to note and build upon similarities between now and then, these theories are not directly transferable to the non-firm centric, more complex and even less authoritarian open innovation collaboration context.

The dialectic nature of inter-organizational collaborations have previously been discussed by e.g. de Rond and Bouchikhi (2004), who suggest that alliances as well as other organizations, are subject to tensions between vigilance and trust, control and autonomy, design and emergence, innovation and replication, expansion and contraction among others. The authors emphasize that conflicting forces are coexisting rather than mutually exclusive, and make no judgement of which state, stability or instability, is more or less valuable in terms of success. Interorganizational collaboration has previously often been considered to be temporary form of organizing, predetermined to end already when they start, or a way to start up alliances before making a transition into more "stable" organizational forms. Open innovation collaboration as depicted in this thesis should be considered to be a long-term form of organizing, which will balance stability and instability throughout its lifespan. It is not considered to be the initial phase of something that strives to transition into something else. But the same tensions as identified by de Rond and Bouchikhi (ibid) can be found also in an

open innovation collaboration, where this thesis has identified additions of tensions e.g. between diverging interests, certainty and uncertainty as well as between structure and relations. The managerial practices identified in this thesis represent ways of dealing with these tensions given the specific contextual challenges.

By emphasizing the dynamic and relational nature of open innovation management, this thesis offers a different way of understanding management in emerging forms of organizational actors. Cunliffe (2001) argues the value of shifting perspectives by stating: *"One consequence of this changed view is that it can lead us to see managers and managing in a different light, not as scientist-problem solvers but as authors"* (p 352). In the open innovation context, it can be valuable to let go of the image of the manager as someone who is able to control everything and provide the right answers. Rather, the managerial practices that appear to be useful in this context rely on interaction between the manager and the others, thus they are co-creating their organizational landscape. Such a shift is also in line with what Karp and Helgö (2008) propose regarding what is required of leadership in "post-managerial" environments and how managerial control can be exercised in circumstances with little formal authority. As concluded by e.g. Karp and Helgö (2008), Kärreman and Alvesson (2004) and Smirchich and Morgan (1982) leadership in such circumstances must be acknowledged as a social process, dependant on interaction and relations to manage meaning, create a sense of belonging and identity as means of exercising control. It could be argued that the type control of what goes on at SAFER to a large extent comes from within (the partners/individuals themselves exercise control over each-other) rather than from something/someone external. One of the consequences of such a perspective is that the distinction between leadership and management becomes blurred as in this thesis, managing in a state of bounded instability can be referred to as a way of being and relating, rather than the conventional view of management as a series of disembodied activities.

The metaphor of the manager as an author of organizational realities (e.g. Cunliffe, 2001) is appropriate as it requires the manager of an open innovation collaboration to engage in the situation, in interactions with people, as the way to have influence is to take part in practice. The practices are characterized as different aspects of authoring as they all entail a form of co-creation, meaning making and co-shaping involving the manager and the participants from the partner organizations. As such, the practices of e.g. sensemaking and sensegiving, identity building, political behaviour, attending to relationships and nurturing the spirit of the collaboration are intertwined and used interchangeably to construct the organizational landscape - what the participants are part of, what they want to accomplish together, why and in what ways. Through that, the manager creates identities, a sense of order, meaning and direction, but in that process she must also acknowledge the interaction and responses from others when outlining and shaping her story.

The managerial practices identified in this thesis form a sort of *"wheel of authorship"* (Figure 8), entailing a range of practices the manager can use to construct identities, realities and meaning in the organizational setting, continuously choosing which ones to use depending on what the situation requires in terms of balancing stability and chaos. As the context of an open innovation collaboration is not static, the practices used need to evolve and shift over time as

the open innovation collaboration develops and the partners change. The wheel as a metaphor describes how the manager can lead and direct the work by using the wheel and the practices it entails. The authorship is constituted by the managerial practices of making meaning and giving sense, and creates a space, the connecting medium in the sphere in Figure 7. It is a "space in-between", as described in e.g. Paper V, a place beyond the known, conventional organization where neither managers nor participants can rely on previous knowledge alone to make sense of the situation. Therefore, it is important to understand how the managerial practices can be used to create a state of bounded instability. Several of the practices can have synergy effects, e.g. working with identity building can also have a significant influence of sensemaking and sensegiving, as defining a clearer identity could be regarded as one way of making sense of what the collaboration is all about. By attending to relationships while also engaging in political behaviour, the manager can enhance the desired effect and make further progress on the collaborative agenda. In some circumstances, it could appear that the practices are contradictory, e.g. nurturing the spirit of the collaboration, which is not only about encouragement but also about confronting individuals/partners who are not pulling their weight in terms of contributions, and attending to relationships, which is more about staying attuned to each partners needs and concerns. Here the balancing act of the manager becomes evident, as she is forced to do both in order for the collaboration to function. She needs to make a judgment call in terms of how far she can go in each line of action, before creating unwanted consequences.

Relating this outlined concept to previous research on open innovation management, it can be concluded that this thesis has added another dimension, and the findings complement previous firm-centric research on open innovation. Whereas e.g. Chesbrough (2004) and Enkel et al. (2009) discuss management of open innovation at a strategic level in firms, this thesis has focused on the mundane managerial work. Regardless of what strategies for sourcing of knowledge that are used in individual organizations or in a collaboration, previous research has not addressed the actual everyday work of the manager is such situations. Where e.g. Sieg et al. (2010) discuss the managerial role mainly as a problem-solver, this thesis has proposed to view the manager as an author, interacting with others to construct the very setting in which she is managing. However, relevant the organizational questions raised by e.g. Wallin and von Krogh (2010) are for an open innovation manager, they do not provide any suggestions for how this influences managerial practices as this thesis has done. Finally, where Rampersad et al. (2010) sees rational behaviour and decision-making and e.g. Lütz (1997) discusses micro-politics, this thesis has highlighted the much more complex nature of open innovation management, and how many of the challenges as well as possible remedies are intertwined.

8.2 Implications for research and practice

The implication of this study on our understanding of open innovation management is that the thesis has illustrated the need for a more nuanced image of what managing in an open innovation collaboration is and can be about. By drawing attention to the complexities of open innovation collaboration from a managerial point of view, a concept of open innovation management has been outlined focusing on managing stability and instability, which, furthermore, implies a different way of thinking about management.

This thesis should be seen as an effort to extend and add empirical substance to the practical aspects of managing open innovation. The study has not been driven by a desire to provide managerial prescription, but rather to provide a fine-grained understanding of the nature of open innovation management, and provide examples of managerial practices. Open innovation collaboration is a complex social phenomenon, which evolves under the effects of multiple (and at times incompatible and uncontrollable) events, where it has become evident that individual actors can have significant impact. The influence of single individuals must however not too significant, so that it inhibits the contribution of others.

In addition to making a contribution to the research field on open innovation, contributions to two, perhaps more established, research fields are here outlined as well as implications for practitioners. The fields around inter-organizational collaboration and managerial practices were chosen as they have contributed to framing the thesis and the findings have implications also for them.

8.2.1 Implications for research on managing inter-organizational collaboration

Concerning managing in inter-organizational collaborations, whether it be alliances, networks, partnerships etc., there are today few models aiming at describing what management is or could be in the new contexts that are emerging. The studies by e.g. Rampersad et al. (2010), Vangen and Huxham (2003a) provide some guidance, but do not suffice to address the complexities of the large-scale open innovation collaboration and do not strive to confront conventional images of the role of the manager.

The contextual challenges identified in this thesis are an addition to what was previously known about collaborative settings, as previous studies have not looked into such complex environments as a large-scale open innovation collaboration. Handling *diverging expectations of the partners*, *engaging partners in knowledge- and value-creation*, *creating and sustaining a collaboration based on openness* and *handling a diverse group of people* are challenges that in this thesis have exemplified the increased complexity in open innovation collaboration, where organizations are invited to collaborate as peers rather than suppliers and buyers (Chiaromonte, 2006) and how that changes the dynamics of the collaboration. The illustration of an open innovation collaboration as a sphere (Figure 7) containing a connecting medium is a theoretical contribution that enables us to think differently about what inter-organizational collaboration is, and, furthermore, it has practical implications for the role of the manager – in this case to create the space "in-between", holding it all together. The importance of and challenges associated with such a shift in perspective has not been clearly addressed in previous research on inter-organizational collaboration. The contribution of this thesis is thus a starting point for developing models and theories of management more adapted to the organizational context of new actors emerging in the changing organizational landscape. Such models can infer a different perspective on management, which is needed to challenge the still dominant Mintzberg (1973, 1975) models of what management means.

As a consequence of the findings in this thesis, future studies on management of open innovation, or even inter-organizational collaboration, cannot as easily as before reduce the

issue of management to a known range of disembodied activities, or be simplified to the extent of Rampersad et al. (2010). Although, it is usually necessary to limit the scope of a research study, future studies will benefit from acknowledging the dynamic nature of open innovation management and the related tensions.

Furthermore, previous research on inter-organizational collaboration has suggested that companies should not work collaboratively, unless they have to (Huxham and Vangen, 2004), because inter-organizational collaboration is highly resource demanding and time consuming. The findings in this thesis confirm this view, and from a collaborative managerial point of view, dealing with partners, who do not realize what they have committed to, can take significant amount of time and energy. Therefore, if organizations are unwilling to commit the necessary resources, time and commitment and they have a choice in the matter, they should in fact, choose alternative ways to achieve their goal.

8.2.2 Implications for research on managerial practices

An open innovation collaboration devoid of hierarchies and where partners are supposedly equal, as illustrated in this thesis, is not possible to manage by forceful instruction according to the conventional principle of command and control. Provided that the open innovation manager does not have vicarious liability for the people working for him/her, other practices must guide the work, and expectations and interactions need to be adjusted to fit with the new paradigm.

This thesis proposes that a concept of open innovation management involves managing fluidity, uncertainty and complexity in a state of bounded instability by means of the wheel of authorship. Such a concept implies a fundamental shift from a management paradigm emphasizing technocratic control over resources, people, situations etc., to a paradigm, where the manager instead has control in the environment. There are practices reported by the SAFER director, where previous descriptions of management do not suffice to create an understanding of the sometimes contradictory actions an open innovation manager needs to perform. Thus, this thesis has built upon theories of managing in a post-managerial era (e.g. Karp and Helgö, 2008, Kärreman and Alvesson, 2004, Cunliffe, 2001) in order to add to theoretical models concerning what constitutes managerial practices in open innovation.

As this thesis has shown, it is a constant struggle for the manager to find the right level of stability in the arena, define roles as well as creating joint standards for project management etc., but at the same time safeguard instability and the possibility for people to explore and decide what to do and how, to play and experiment, without being too restricted by regulations, guidelines, or routines. It is important to recognize that the practices identified in this thesis, *identity building, attending to relationships, nurturing the spirit of the collaboration, sense-making and sense-giving* as well as *political behaviour* are used inter-changeably to promote stability as well as instability. Practices such as sense-making and identity creation could here be characterized as ways of creating structure in organizational life and become crucial to make the uncertainty bearable for individuals participating in the collaboration and to create a sense of stability in an otherwise instable environment.

The implications of this thesis for managerial practices are that depending on which perspective your understanding of management is founded upon, different courses of action become possible. As this thesis has introduced a way of viewing management in this setting as a manner of being and relating, rather than isolated activities, it can modify our understanding of what management can be. The managerial practices identified in this thesis, with their emphasis on sense-making, relationships and identity to balance in a state of instability, highlight practices that are often taken for granted and not recognized as particularly important. Since this thesis offers a different way of thinking about managing as well as some examples of managerial practices, an implication is that it may allow managers to construct organizational experiences in more deliberate ways. Managers as well as organizational participants and researchers can become more reflexive co-authors by, as Cunliffe (2001) states: *"developing an awareness of their influence in co-constructing organizational and individual discourse, jointly ordering impressions, creating shared significances about realities and self, and opening up possibilities for action in their everyday conversation."* (p 368). Thus, even small modifications of how we think about management can have significant impact on practice and what actions are thought possible.

8.2.3 Implications for practitioners

There are a few things that this thesis would like to highlight as key take-aways for practitioners concerning managerial practices for open innovation collaboration:

- The challenges that come from gathering multiple partners in a collaboration are easily underestimated as well as the resources (time and money) required to put together the collaborative agenda. In such situations, a manager will most likely become aware of different forces striving to pull the collaboration in different directions and may experience frustration concerning the difficulty of making decisions and moving forward. In such situations, you can benefit from thinking about the managerial practices described in this thesis, as they may offer ways of dealing with these challenges.
- By considering that management can be something else than a series of clearly defined activities and more of a *way of being and relating*, it is possible for managers (as well as other practitioners) to become more aware of how their actions influence others and, thereby, what other actions that are possible. Therefore, the chord that is struck by the manager resonates throughout the organization. If the manager through words and actions is inviting participants to merely exchange knowledge, then that is most likely what will happen. But, by choosing other words and actions, joint knowledge creation becomes possible. Being a "reflexive practitioner" and taking the time to reflect upon one's actions and their effect can enable managers to influence organizational action in more deliberate ways.
- From a partner's point of view, organizations engaging in open innovation collaboration can benefit from discussing what the aim and intention are with participating in open innovation collaboration at different levels in the organization. Having that clear will most likely be useful in discussions with the other partners, as well as internally, when it comes to evaluating your participation. But engaging in

open innovation collaboration also implies that previously decided strategies etc. may need to be reconsidered as a result of the interaction in the collaboration and should such a situation arise, there needs to be a preparation to handle such changes within the organization relatively swiftly. Furthermore, an awareness of that the open innovation collaboration is not an organization in the conventional sense and that individuals should be prepared for unclarities, few guidelines and less rigid structures will be helpful in engaging in the collaboration in the most fruitful way.

9 Reflections and future research

Although this thesis has provided some thoughts on what managing in open innovation could be, it represents only a starting point for further exploration of the managerial aspects of the open innovation paradigm. The choice of conducting a single case study was in this thesis motivated by the fact that it is still an up-and-coming research field, and rich data was needed to answer the exploratory research questions. However, one case represents a limited sample, and presents limitations for what type of generalizations that can be made.

To complement and build upon the findings in this thesis, other cases need to be studied and alternative research designs could be relevant in order to widen the sample, such as multiple case studies (of similar or diverging types of open innovation settings), or quantitative studies, which would support looking into other aspects of managing open innovation. On the other hand, to keep exploring managerial practices in-depth, from the inside, through ethnography or insider action research, would continue the process to shed more light upon the daily practices of open innovation managers. Ultimately, which research design that is chosen is often dependent on not only on the type of research questions posed, but also on the practical situation at hand. Needless to say, an in-depth study requires a significant amount of time and can generate a large amount of data.

This thesis proposes that there are two main areas, which require further research. First, with regards to managing in inter-organizational collaborations, there appears to exist few models aiming at describing what management is or could be in the new contexts that are emerging. The contributions in this thesis are specifically concerned with open innovation collaboration, but there is a need to also consider what the concept of managing could be in the wider context of inter-organisational collaboration, and to construct models challenging conventional conceptions of what management means. This thesis has illustrated that empirical material from new settings can be helpful in changing our perceptions of management. Open innovation is most likely not the only setting that can enrich our understanding of changing managerial practices. More studies on leadership in emerging contexts or contexts transcending the conventional organization, where managing "in-between" becomes a reality, are needed to support further theory building. Furthermore, it would be interesting to explore if balancing bounded instability is a concept that can be helpful in understanding managing "in-between" in such other contexts.

The second area concerns the practices of open innovation management, where a distinguishing feature appears to be the multitude of tensions that a manager must balance. This thesis outlined a concept for open innovation management including practices for bounded instability as a way for managers to maintain flexibility and fluidity, while still offering sufficient structural basis for the work. However, there is still more research needed to further our understanding of managerial practices that are suited for such conditions. This entails a more profound understanding of daily practices but also on a more strategic level, how such dialectic practices are balanced and used to gain influence. When exploring such managerial practices it is interesting not only to consider the manager's actions, but also the actions of others involved in the interaction – colleagues, partner organizations, superiors etc.,

in order to gain a more holistic understanding of how managerial practices are shaped. It could be interesting to explore how open innovation management is influenced by the actions of the initiating or hosting partner. There is also a trend of setting up collaborations between a range of open innovation actors, including such actors as SAFER. When including multiple open innovation collaborations in one collaboration, the situation becomes even more complex, where little is known about how to manage such meta-collaborations. Furthermore, previous research has tended to focus on describing management in successful cases, and there could also, according to e.g. Chesbrough et al. (2006), be significant value in looking further into open innovation collaborations that have failed, i.e. been terminated prematurely, to understand the underlying causes of why that happens and what managerial practices were used in those situations.

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