THESIS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Innovation jams as vehicles for innovation

An extended perspective on internal innovation jams

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Gothenburg, Sweden 2016

Innovation jams as vehicles for innovation: an extended perspective on internal innovation jams
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ISBN 978-91-7597-512-2

Doktorsavhandlingar vid Chalmers tekniska högskola
Ny serie nr 4193
ISSN 0346-718X

Division of Innovation and R&D Management
Department of Technology Management and Economics
Chalmers University of Technology
SE-412 96 Gothenburg

Printed by Chalmers Reproservice
Gothenburg, Sweden 2016

ABSTRACT

This thesis investigates the emerging phenomenon of the innovation jam, and its use by large firms. Innovation jams allow firms to engage with new actors (e.g. employees, customers, lead users) across company and geographical boundaries, and to direct innovative activity in novel ways. Despite the increasing use and popularity of innovation jams by firms, they have received relatively little scholarly attention compared to other, similar collective practices to promote innovation. Moreover, the previous literature focuses primarily on innovation jams as a vehicle for idea generation and knowledge creation while in order to realize an innovation, the firm needs to integrate the knowledge which calls for an extended perspective on this topic.

While innovation jams offer many opportunities to firms, their use also challenges the firm's established development practices. Previous studies rarely link them to firms' established development practices and other business activities. There is a need to understand an innovation jam as a situated practice, in order to better understand how it interacts with the surrounding organization. The aim of this thesis is to explore the innovation jam as a potential vehicle for innovation in large, established firms. To do so, the thesis draws on data from four exploratory case studies: three in-depth, single case studies, and one multiple case study. Data were collected through semi-structured interviews and observations over the period 2011 to 2016.

This thesis proposes to view an innovation jam as a dual search process: on the one hand, a series of knowledge search and knowledge creation activities, and on the other hand, a series of activities to achieve commitment from the firm's employees and managers. The thesis points also to a feedback loop which emerges between innovation jams which shapes further search for knowledge, and how problems for local search are formulated and defined. As a result of this feedback loop, innovation jam problems will tend to converge towards well-known problem definitions.

In order for an innovation jam to become a vehicle for innovation, firms could benefit from considering how well the knowledge attributes required to solve a problem corresponds with the firms' existing knowledge base, on the one hand, and with the firms' established coordination mechanisms, on the other hand. This thesis points also to that firms implementing and using an innovation jam, can benefit from reframing problems to 'fit' with the firm's established language, the development of new evaluation criteria, and adjustments to a firm's strategy.

***Keywords**: collective innovation practice, innovation jam, internal stakeholders, search process, innovation management*

ACKNOWLEDGEMENTS

A PhD project is often considered a lonely endeavor, and the PhD student is frequently described as isolated, surrounded by nothing more than a laptop, and piles of articles and books. This is far from the reality, and this thesis would not have been achieved without the contributions and support of my supervisors, colleagues, friends and family. There are some people who merit special and warm thanks.

First and foremost, I want to thank Sofia Börjesson for her continuous support and supervision over my years of study. Sofia has encouraged and challenged me to become an independent and critical researcher. I thank her for her endless advice, sharp observations and her challenges to go a step further. I am grateful also to Maria Elmquist who introduced me to the world of research, and awakened my interest and curiosity in the problems faced by large firms attempting to innovate and renew. Thank you for taking me on as a PhD student, and believing in me and my ability to do research. I also thank Dan Paulin who became an assistant supervisor in the latter phase of my PhD. You contributed a lot of energy and appreciated feedback! Thank you for helping me to see the bigger picture, and for always being positive and constructive.

Special thanks go to David Rönnberg Sjödin who provided valuable input at my licentiate level seminar, and helped me to prepare for the writing of this cover paper. I also thank Mats Magnusson who provided invaluable and constructive feedback at the final seminar. Thank you also to Martin Wallin, Christian Sandström, and Maria Elmquist who read and made helpful comments on previous versions of the cover paper. I also thank Jennie Björk and Marcus Holgersson who took the time to discuss my research. I would also like to thank Marcel Bogers who hosted me at Copenhagen University for a few weeks during the writing of this thesis.

I am grateful to the Center for Business Innovation at Chalmers University of Technology for direct financial support for this research, and indirectly the Swedish Government Agency for Innovation Systems (*Vinnova*). Thanks go also to my former colleagues in the Division of Innovation Engineering and Management, for providing an intellectually stimulating environment and helping me to cope with the frustrations and uncertainties of PhD study. I am grateful also to my colleagues in the Division of Innovation and R&D Management. I enjoyed working with Sophie Hooge in the autumn of 2011 when writing our paper. Special thanks are due to Yvonne Olausson, Birgitta Engrell and Angelica Linnehav for excellent administrative support! And also to Cynthia Little who helped by language editing.

A warm thanks to Sara Fallahi, Ingo Rauth, Lisa Carlgren, Angelica Linnehav, Marcus Linder, Pamela Nowell, Ahmet Anil Seezer, Maria Massaro, Alexandra Ericsson, Erik Eriksson, Yashar Mansoori, Marouane Bousfiha, Peter Altman, Ludvig Lindlöf, Siri Jagstedt, Hanna Rydehell, and Maral Mahdad for endless conversations, laughter and thought-provoking discussion.

Finally, I am very grateful to everyone in the companies I studied for giving me their time and sharing their knowledge. The research on which this thesis is based would not have been possible without them. I am forever grateful.

In addition to all those people I have met professionally during my PhD, my family has supported and empowered me. My father instilled in me the curiosity and stubbornness necessary to explore and question things that often are taken for granted. My mother gave me the courage to follow my curiosity, and the persistency to carry out the at times overwhelming task of doing a PhD. Robert continuously encouraged me and cheered me on! I am grateful to my brother, who believes that I can move mountains – I can't, but I love you for believing in me!

Ben, ti sarò riconoscente per tutta la vita!

Göteborg, November, 2016.

Anne Elerud-Tryde

LIST OF APPENDED PAPERS

Paper I Elerud-Tryde, A., and Hooge, S. (2014). Beyond the generation of ideas: virtual idea campaigns to spur creativity and innovation. Creativity and Innovation Management, Vol. 23, No. 3, pp. 290-302.

Paper II Börjesson, S., Elerud-Tryde, A., and Elmquist, M. (2016). Improving the odds for integration: tracking jam ideas at Volvo Cars. Submitted to an international journal.

Paper III Elerud-Tryde, A. (2016). The innovation jam as a strategy for involving innovation stakeholders in collective ideation. Submitted to an international journal.

Paper IV Börjesson, S. and Elerud-Tryde, A. (2016). The innovation jam: a means of promoting innovation or not? Exploring the use of and rationale for a jam in two firms. Submitted to an international journal.

ACCOUNT OF CONTRIBUTIONS

Paper I — The article is written jointly by Elerud-Tryde and Hooge. Data were collected individually by the respective authors, but were analyzed jointly. Theory and conclusions were also developed jointly.

Paper II — The article is written jointly by Börjesson and Elerud-Tryde. The paper concept, analysis and conclusions were developed by Börjesson and Elerud-Tryde. Data was collected by all three authors.

Paper III — The article is single-authored by Elerud-Tryde, and data were collected and analyzed by Elerud-Tryde.

Paper IV — The article is written jointly by Börjesson and Elerud-Tryde. Data were collected both individually and jointly by the two authors. Data were analyzed jointly, and also the paper concept, theory and conclusions were developed jointly.

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1. INTRODUCTION

1.1 PROBLEM BACKGROUND

Innovation is widely recognized as an enabler of economic growth and a basis for competitive advantage. As new ideas and knowledge are critical for innovation, innovation requires the firm to have the ability to access diverse knowledge and combine it into innovative outputs (Chesbrough, 2003; Grant, 1996; Kogut and Zander, 1992). Although many large, established firms acknowledge the importance of innovation and strive to become more innovative, their organization often supports efficiency rather than the creation of something new. Furthermore, firms' existing processes and business offers can prevent them from exploring new ideas and knowledge, and thereby prevent them also from delivering innovative offers to their customers.

Traditionally, firms have relied on internal research and development (R&D) to source new knowledge (West and Bogers, 2014). However, recent research puts particular emphasis on knowledge as unevenly distributed and residing both within and outside of company boundaries. As a consequence, firms have re-modeled their innovation activities with a focus on the 'collective' at its heart, and on 'crowds' and larger groups of actors rather than lone inventors (Afuah and Tucci, 2012; Björk and Magnusson, 2009). Furthermore, firms increasingly are using information technology (IT) to support their innovation activities which have spurred the diffusion of various collective practices for innovation which allow firms to engage with new actors (e.g. employees, customers and lead users) across company and geographical boundaries (e.g. Blohm et al., 2011; Dijk and Ende, 2002; Ende et al., 2015).

Along with similar collective innovation practices such as innovation contests, crowdsourcing, online communities, and idea management systems, innovation jams have emerged as catalysts for internal innovation activities. An innovation jam can be defined as a moderated and time-limited idea generation session using an online platform focused on a pre-defined challenge (Ringo, 2007; Bjelland and Wood, 2008). Initially developed by IBM in 2001, the idea of time-limited idea generating sessions has spread and increasingly is being used by other firms, and forms an important element of firms' innovation activities. While popular in practice and seemingly filling an increasingly important function for firms, empirical observations of innovation jams are limited, and the literature on innovation jams is in its infancy.

From a research perspective, collective innovation practices such as firm-hosted innovation contests and online communities which are typically used to involve external actors, in recent years have received increasing attention from scholars (cf. Afuah and Tucci, 2012; Dahlander and Magnusson, 2008; Haas et al., 2015; Jeppesen and Frederiksen, 2006; Lakhani and Panetta, 2007; Piezunka and Dahlander, 2015), while use of practices involving internal actors for instance innovation jams, have received less attention. From a practical point of view, firms also are realizing the potential of collective innovation practices that involve internal actors, and of involving employees more broadly in the creation of new knowledge.

1.2 RESEARCH PROBLEM

Previous studies of firms' use of innovation jams often group the phenomenon with other collective innovation practices such as crowdsourcing (e.g. Stieger et al., 2012) – especially innovation contests (e.g. Adamczyk et al. 2012; Leimeister et al., 2009) – and even strategy practices (e.g. Jarzabkowski et al., 2016). While the existing literature discusses innovation jams in relation to other practices, it is unclear to what extent these practices share the same characteristics. For instance, an innovation contest is organized to involve *external* stakeholders (Afuah and Tucci, 2012; Piller and Walcher, 2006; Leimeister et al., 2009; von Krogh et al., 2012a), and thus enables firms to search for knowledge residing outside the firm, while internal innovation jams are organized to involve the firm's *internal* stakeholders (cf. Bjelland and Wood, 2008; Remneland, 2013), and focused on the search for internal knowledge.

Despite previous work on innovation jams, identifying what they are and how they differ from similar collective innovation practices is not straightforward. A better distinction of these practices and their characteristics would support the development of techniques and tools for appropriate management of these practices. It would be useful to distinguish among collective innovation practices, and to have a better understanding of how innovation jams function in firms' efforts to source and search for knowledge.

Several studies examine the role of innovation jams to support the generation of new ideas (e.g. Bjelland and Wood, 2008), and they have been studied from the perspective of the creation of new knowledge. However, firms need also to be able to integrate and transfer knowledge to produce commercially viable applications (Grant, 1996; Govindarajan and Trimble, 2010; Berggren et al., 2011). These other (than idea generation) functions remain unexplored, and especially their links to the firm's innovation activities. There is a need for an examination that goes *beyond* idea generation as the primary function of innovation jams.

Some authors argue that innovation jams can change how firms create and share knowledge (Magnusson and Björk, 2016), and can alter the locus of innovation in the firm (Diasio, 2016). Diasio (2016) observed how the IBM innovation jams evolved over a 10-year period as the company learned to link them to its innovation activities. It would seem that innovation jams can have a dynamic impact on and interact with firms' established practices. However, while traditional mechanisms for control and coordination in the firm tend to constrain collaboration within firms (Fjeldstad et al., 2012), this interaction has been largely unexplored with the exception of a few studies (e.g. Diasio, 2016; Remneland, 2013).

1.3 PURPOSE AND RESEARCH QUESTIONS

This thesis focuses on the emerging phenomenon of innovation jams, and more specifically, on internal innovation jams and their wider function in firms' innovation activities.[1] The aim is to explore the innovation jam as a potential vehicle for innovation in large, established firms. As a first step towards this, I distinguish the innovation jam from similar collective innovation

[1] Innovation jams have also been hosted by firms to involve external actors (cf. Bjelland and Wood, 2008; Hienerth et al., 2011), but the focus in this thesis is on firm-hosted innovation jams to involve internal actors.

practices, and explore and identify the key characteristics of an innovation jam. I employ a phenomenon-based research investigation strategy which focuses on capturing and describing empirical facts and constructs surrounding an emerging phenomenon whose theoretical underpinnings have not been examined (von Krogh et al., 2012b). The approach is aimed at enabling further theory development, and is appropriate to support this in the context of innovation jams.

This thesis sets out to deepen the understanding of innovation jams by addressing the following research questions:

- *Research question 1*: How can an innovation jam be understood?
- *Research question 2*: How do firms use innovation jams?

I draw on four exploratory and qualitative case studies. Data were collected primarily through semi-structured interviews and observations. The thesis consists of this covering paper and four appended papers. Chapter 2 reviews the literature on collective innovation practices, innovation jams, and related processes. Chapter 2 elaborates the research questions addressed in this thesis. Chapter 3 presents the methodological choices related to the research conducted for this thesis, and describes the research design and data collection methods. Chapter 4 provides a summary of the contents of the appended papers. Chapter 5 revisits the research questions and discusses them in light of the appended papers and the empirical findings. Chapter 6 presents the conclusions and the theoretical implications of this research. Chapter 7 discusses some implications for managers and directions for future research.

2. FRAME OF REFERENCE

The central focus of chapter 2 is elaboration and discussion of the research problems addressed by this thesis. The literature on innovation jams is emerging, and the notion of an innovation jam is often grouped with other ideation practices such as innovation contests and idea management systems; thus, work on innovation jams is found in several research streams. In order to examine the notion of an innovation jam and its potential for innovation, it is useful to draw on several theoretical perspectives. This section provides the theoretical background to i) the concept of innovation and the organization of innovation activities in established firms (*sections 2.1* and *2.2*), ii) the trend towards collective practices for innovation, and innovation jams as part of the firm's activities for creating and recombining knowledge for innovation (*section 2.3*). Finally, in *section 2.4* I elaborate on the research problem and the importance of broadening the innovation jam concept and examining it within the wider innovation context.

2.1 A NOTE ON INNOVATION

Innovation is a multi-faceted and complex concept, and the innovation literature focuses on a variety of different aspects and draws on multiple theoretical perspectives (Crossan and Apaydin, 2009). Thus, the innovation literature offers various definitions of the concept of innovation. For instance, innovation can refer to both an output and a process, as well as to the activities involved in creating and developing an innovative output. Therefore, it is important to distinguish between an innovative output and the process which creates a certain output (Garcia and Calantone, 2002). An innovation needs to provide economic value and be diffused to individuals other than the originators of the idea (Oslo manual, 2005[2]); thus, an innovation is often defined as the successful commercialization of creative ideas (e.g. Amabile et al., 1996; Garcia and Calantone, 2002). The innovation process refers to the transformation of an idea into an innovation which is made available on the market (van de Ven, 1986). In other words, the generation of a new idea is a first step; the idea must be transformed into a useful business-, product-, service- or technical application.

The importance of knowledge creation and transfer for innovation and competitive advantage is widely acknowledged (e.g. Felin and Zenger, 2014; Grant, 1996; Kogut and Zander, 1992; Nickerson and Zenger, 2004), and gave rise to the knowledge based view of the firm (Grant, 1996). The knowledge based view of the firm argues that the firm's ability to internalize and control dispersed knowledge makes it superior to the market, and is the reason why firms exist (Kogut and Zander, 1992; Felin and Zenger, 2014). As such, knowledge is a key factor for firms striving to be competitive and innovative.

Firms can advance their knowledge base in two ways, either by absorbing knowledge external to the firm (Nelson and Winter, 1982; Nelson and Winder, 2002), or by identifying a problem, followed by development of a valuable solution to the stated problem (Nickerson and Zenger, 2004). Nickerson and Zenger (2004) argue that firms need to identify 'valuable' problems and then conduct a search for solutions. The development of knowledge is facilitated by organizational routines and problem-solving activities, and hierarchies are thought to both

[2] The Oslo manual (OECD and Eurostat, 2005) has a Schumpeterian view on innovation.

constrain and facilitate knowledge creation and transfer (Grant, 1996; Kogut and Zander 1992; Felin and Zenger, 2014). Thus, this dissertation follows previous research (cf. Nickerson and Zenger, 2004; Macher and Boerner, 2012) and assumes that the firm's primary objective is to create valuable knowledge. In contrast to Nickerson and Zenger (2004) and Macher and Boerner (2012) which examine the context of technological development, in this thesis the notion of an innovation problem is used also to refer to problems related to the development of new products, services, business models and other applications. The focus is on knowledge creation and knowledge integration in the context of innovation, which typically is characterized by different levels of uncertainty and complexity.

Knowledge creation within firms is facilitated by established organizational practices and problem-solving activities. Firms focus on solving problems able to yield valuable knowledge (Macher and Boerner, 2006), which emphasizes problem solving activities to develop an innovation. The problem solving perspective builds on the idea of problems as complex systems which differ in their structure and complexity (Felin and Zenger, 2014; Simon, 1973). Problem structure can be understood as the interactions among the knowledge sets involved in the potential solution to a problem. Thus, problems can range from well-structured to ill-structured problems, depending on whether the interaction among the knowledge sets is well-known, or is unexpected or unknown (Macher and Boerner, 2012). Problems differ also in terms of how well the firm understands the interdependence among knowledge sets (Felin and Zenger, 2014).

The differences in the diverse dimensions of a problem, and how well the interactions among knowledge sets are known and understood, suggest that the search for knowledge about how to resolve these problems will also differ. In other words, well-structured and ill-structured problems require different problem-solving approaches, and different levels of coordination among knowledge sets. According to Felin and Zenger (2014), a problem's attributes determine what search strategy the firm employs, and whether it should search internally or externally for solutions. For instance, hierarchy is argued to be the better option for coordinating search efforts for solutions to problems which are complex or ill-structured (Felin and Zenger, 2014) since firms have established authority structures which allow managers to structure and facilitate knowledge-flows (Felin and Zenger, 2014). Firms also have established routines for coordinating the interactions among different knowledge sets (Macher and Boerner, 2012).

Innovative outputs often are categorized in terms of *novelty*, and in the innovation literature novelty is often discussed according to different, often juxtaposed scales (for a review of some dichotomies, see for instance, Masciatelli, 2000; Garcia and Calantone, 2002). Since the focus of this dissertation is on knowledge creation and recombination processes in large, established firms, novelty of ideas and innovative outputs refers here to the extent to which the firm can rely on existing organizational routines and established organizational interfaces when combining knowledge into innovative outputs. Thus, of interest is the uncertainty associated with transferring knowledge into valuable outputs, and the extent to which firms need to adjust existing organizational routines to integrate new knowledge.

Berggren et al. (2011) argue that the uncertainty involved in incremental improvements tends to be low, while the level of uncertainty involved in radical developments tends to be high. Radical changes require new forms of coordination mechanisms, redefinitions of established interfaces and employee interactions, and often a new common knowledge base. In a similar vein, Reid and de Brentani (2004) and de Brentani and Reid (2012) propose that the problems related to radical and incremental innovations are structured differently. Firms often have in place processes suited to dealing with incremental improvements and structured problems (Reid and de Brentani, 2004). For the firm to be able to make use of knowledge and problems which are structured differently, may require a change of frame or mental model (Backman et al., 2007; Bessant et al., 2010).

2.2 ORGANIZING FOR INNOVATION IN LARGE, ESTABLISHED FIRMS

In large, established firms, the concept of innovation often is used to refer to the development of new products. In the past, firms relied primarily on internal R&D to source new knowledge (West and Bogers, 2014), and the translation of scientific discoveries into commercial applications was often organized based on so called stage-gate systems (cf. Cooper, 1988; 2008). Most large firms have in place a stage gate model to guide their new product development processes (Grönlund et al., 2010). This view of how firms organize for innovation builds on the assumption that the sources of knowledge are internal (within the firm), and are relatively easy to identify and access. It is assumed also that the firm holds all the resources required to develop and produce innovative outputs (Snow et al., 2011). In this view, firms rely on hierarchy as the main means of control and coordination to access and combine knowledge sources (March and Simon, 1958).

Stage gate systems are organized to reduce key uncertainties and risks as early as possible in the development process (Cooper, 1988; Wheelwright and Clark, 1992). The development work is split into sequential stages, and control over the development process is exercised through rigorous stage gate review criteria (Sethi and Iqbal, 2008). Assessment criteria to evaluate the progress of a new development project are defined in advance as is the input required for each stage. This view of the organization of development activities assumes that an idea exists and is clearly defined at the beginning of the stage gate model. Consequently, ideas are treated as inputs (Elmquist, 2007). The stage gate model assume that the firm knows how to apply the new ideas and knowledge to produce a viable new product. While stage gate models have several advantages, and help to reduce lead times and increase efficiency, these practices are not organized to support the creation of new knowledge (Govindarajan and Trimble, 2010), and leave little room for innovation. For instance, Sethi and Iqbal (2008) found that use of too rigid control reviews restricted the learning required for innovation to take place, and thus, hampered the performance of firms' new products, i.e. the output of firms' development activities.

Moreover, the assumption that ideas exist and can be 'fed' into a development process suggests that the problems related to innovation are well understood by the organization. It suggests also that these problems are relatively well-structured and that the knowledge set interactions are well understood (cf. Macher and Boerner, 2012; Felin and Zenger, 2014; Reid and de Brentani, 2004). Thus, firms' established structures and processes for creating and integrating new

knowledge present challenges for its innovation activity. As a consequence of these challenges, the very early ideation activities are now acknowledged to present the greatest opportunity for the firm to explore new ideas and allow new ideas to take shape (Backman et al., 2007; van den Ende, Frederiksen, and Prencipe, 2015).

Until recently, this view of how firms develop innovations prevailed. However, scholars have begun to challenge the assumption that innovations are created and controlled within a single firm, and are suggesting that innovation is distributed across multiple stakeholders within a value network (Bogers and West, 2012). The adherents to this view consider sources of knowledge and innovation to be dispersed, and to reside both outside as well as within the firm's boundaries (Chesbrough, 2006). These scholars consider various external stakeholders such as suppliers, customers, competitors and universities, to be potential sources of valuable knowledge (Von Hippel, 1988). Many firms have 'opened up' their value creation processes to be able to leverage from external sources of knowledge, and to capitalize on new forms of collaboration with external actors (Chesbrough, 2003; West and Bogers, 2014). A distributed perspective argues that the innovation process not only takes place within the firm, but relies also on the recombination of knowledge residing outside the firm (Felin and Zenger, 2014). This view promotes external search for sources of innovation, and for firms seeking to capitalize on external sources of innovation, identifying and searching for distributed knowledge sources is a crucial activity (Bogers and West, 2012).

Firms increasingly are experimenting with new collective innovation practices to search for and recombine externally distributed knowledge, such as open source software communities, user innovation and crowdsourcing. These practices differ clearly from more traditional innovation models in areas such as locus of innovation, coordination mechanisms, and incentives (Fjeldstad et al., 2012; Sawhney and Prandelli, 2000), and often are characterized by self-selecting participation and self-organized coordination and collaboration (Lakhani and Panetta, 2007). Previous research on these phenomena focus mainly on the knowledge flows between the firm and users or other external stakeholders, and firms' efforts to source external knowledge (e.g. Enkel, Gassmann and Chesbrough, 2009; Lakemond et al., 2016). However, firms are also realizing the potential of searching for and recombining internally distributed knowledge. Poetz and Schreier (2012) show that external 'crowds' do not necessarily outperform employees in generating new ideas. Also, internal search is argued to be more cost-efficient and easier to coordinate (Birkinshaw et al., 2011; Felin and Zenger, 2014; Lakhani et al., 2012). Finally, since appropriability regimes are negotiated and established via employee contracts (Felin and Zenger, 2014), there is less risk that the firm will lose critical knowledge as the result of intellectual property rights issues.

2.3 PREVIOUS RESEARCH ON INNOVATION JAMS

The notion of an innovation jam was introduced by IBM in 2001 but have been gaining increasing popularity in other firms. They have been used by Dell and Starbucks among others (Diasio and Bakici, 2010). Despite their increasing popularity, scholars have paid relatively little attention to innovation jams compared to other similar ideation practices, such as idea management systems (e.g. Dijk and Ende, 2002; Sandström and Björk, 2010) and

crowdsourcing (e.g. Afuah and Tucci, 2012; Dahlander and Piezunka, 2014). The literature often groups the innovation jam with practices such as crowdsourcing (e.g. Stieger et al., 2012), innovation contests (e.g. Adamczyk et al. 2012; Leimeister et al., 2009; Bullinger et al., 2010) and strategy practices (e.g. Jarzabkowski et al., 2016). Table 1 provides an overview of the current literature on innovation jams.

Table 1: Overview of current studies of innovation jams

Author(s)	Main focus	Method	Definition of innovation jam	Main points
Helander et al. (2007)	IBM innovation jam.	Quantitative study of forum data.	An innovation jam is viewed as a moderated, online discussion aimed at generating innovative ideas.	The article discusses forum data with the objective of identifying the characteristics of jam ideas.
Ringo (2007)	Collaborative innovation.	The author draws on his own experience as a manager at IBM.	An innovation jam is defined as "moderated, open forums where a large group can engage in an online discussion for a concentrated time period" (Ringo, 2007:6).	The article discusses the potential of innovation jams to increase collaboration and knowledge sharing, and to generate breakthrough ideas.
Bjelland and Wood (2008)	IBM innovation jams.	Qualitative.	An innovation jam is defined as a moderated, online brainstorming session that takes place over a few days.	The article discusses the challenges and opportunities of innovation jams, and provides some lessons learned.
Diasio and Bakici (2010) *Conference paper*	IBM innovation jams.	Longitudinal and retrospective study.	An innovation jam can be defined as an open innovation and collaborative IT-platform; the article highlights the evolutionary nature of these platforms.	The article discusses how innovation jams allow firms to engage with external networks.
Gordon and Tarafdar (2010)	Information technology.	Quantitative and qualitative.	An innovation jam is defined as an online brainstorming session "where participants interact and collaborate to generate ideas" (Gordon and Tarafdar, 2010:41)	The article discusses the benefits of IT, and how it can support innovation activities. IBM is presented as an example of a company that has successfully used IT to develop 'collaborative capabilities'.
Hienerth et al. (2011)	User-centric business models.	Qualitative.	An innovation jam is defined as a 'crowdsourcing' idea, and as a means to involve users in the company's business processes.	The article discusses how firms can implement user-centric business models. IBM is presented as an example of a company that has integrated users successfully into its core business process.
Bosch-Sijtsema and Bosch (2015)	User involvement in 8 software companies.	Qualitative.	The article explores the use of physical innovation jams to involve users in the innovation process. An innovation jam is defined as a full-day event where product developers and users interact in order to test and develop product prototypes.	Drawing on open innovation the article discusses how firms can collect and incorporate user feedback in their innovation processes, and proposes a conceptual framework.
Diasio (2016)	IBM innovation jams.	Qualitative and longitudinal study.	Innovation jams are considered a technology that is "embedded in a larger technological system" (Diasio, 2016:127). An evolutionary perspective is used to describe how the innovation jams at IBM came to be understood, over three stages: 1) New medium to bring people and ideas together 2) Tool to align employees to a common purpose and structure for large scale discussion 3) A virtual round table to stimulate ideas, drive innovation around specific topics and collaborative solutions	The article uses jazz as a metaphor to explain how the organization of innovation jams at IBM evolved, and to explain how an innovation jam host interacts with jam participants.
Magnusson and Björk (2016)	Collective creativity.	Qualitative and quantitative	An innovation jam is defined as an "IT-based creative session where participants are encouraged to contribute with ideas, and comments on ideas, during a limited period of time" (Magnusson and Björk, 2016:59).	The article discusses how firms try increasingly to steer ideation activities. Ideation platforms are discussed as a means to support collective creativity and knowledge.

Table 1 shows that previous work on firm-hosted innovation jams (with the exceptions of Bosch-Sijtsema and Bosch, 2015 and Magnusson and Björk, 2016) mainly report empirical observations of the IBM innovation jams. An innovation jam is often described as a time-limited brainstorming session, focused on a specific topic, where participants can create and share new ideas (e.g. Bjelland and Wood, 2008; Gordon and Tarafdar, 2010; Magnusson and Björk, 2016; Ringo, 2007). Innovation jams can be both IT-based (see Bjelland and Wood, 2008; Diasio, 2016) and physical (Bosch-Sijtsema and Bosch, 2015). Virtual innovation jams allow the firm to engage with large numbers of actors in geographically dispersed areas, while physical jams have an upper limit on the number of actors who can participate. Although innovation jams often are defined and described in similar ways in the literature, the characteristics of innovation jams have not been studied specifically.

Previous studies focus mainly on a single innovation jam, and the innovation jam frequently is discussed as a static notion with fixed and clear boundaries. In contrast, Diasio (2016) studied IBM's use of innovation jams over a 10-year period, and found that innovation jams at the firm behaved rather dynamically. While other articles propose a 'fixed' definition of an innovation jam, Diasio proposes several definitions which to an extent captures the changing function of the innovation jams at IBM which went from being an IT-platform for the generation of new ideas, to acting as a virtual meeting area to stimulate ideation. Although common to the definitions in the literature is that innovation jams refer to the collective creation of new ideas, it is unclear to what extent innovation jams are dynamic, and which of its components are likely to evolve in successive jams.

In addition, previous studies of innovation jams have focused on the innovation jam *process* (e.g. Bjelland and Wood, 2008), *forum data* from jam sessions (e.g. Helander et al., 2007), *mechanisms* to incorporate users and user input (e.g. Bosch-Sijtsema and Bosch, 2015; Hienerth et al. 2011), and the *use* of innovation jams to support creativity, knowledge and collaboration (e.g. Gordon and Tarafdar, 2010; Magnusson and Björk, 2016). The previous literature focuses also on the possibilities offered by innovation jams to create and mature ideas, and involve large groups of actors in these activities. For instance, the literature emphasizes innovation jams as effective for involving different actors in the innovation process (e.g. Bjelland and Wood, 2008; Bosch-Sijtsema and Bosch, 2015; Hienerth et al., 2011), as a new organizational model for innovation (Diasio, 2016), and a means of fostering collective creativity (e.g. Magnusson and Björk, 2008).

2.3.1 KEY CHARACTERISTICS OF INNOVATION JAMS

The ideation literature distinguishes among different kinds of firm-level ideation activities such as planned versus emergent (Björk, 2011), formal versus informal (Björk et al., 2010), and unsolicited versus top-down (Alexy et al., 2012; Birkinshaw, Bouquet and Barsoux, 2011). Ideation activities can be continuous or time-limited as in the case of innovation jams. Thus, innovation jams can be characterized as planned and time-limited ideation activities focused on a specific topic defined by management. Innovation jams focus the attention of participants on a specific problem, and unlike ideas management systems do not allow for unsolicited

submission of ideas (cf. Sandström and Björk, 2010; Dijk and Ende, 2002). In addition, since innovation jams are time-limited they do not allow for continuous submission of ideas. Although they differ with regard to continuity from idea management systems, firms often use both practices to involve internal actors. Bjelland and Wood (2008) describe the innovation jam process as a linear process which includes the following activities: goal formulation, problem definition, idea generation and idea evaluation. Innovation jams focus on a specific topic which is defined prior to the generation of ideas. In other words, in this regard, innovation jams are similar to innovation contests since the direction of search for new ideas is determined before idea generation (cf. Afuah and Tucci, 2012).

In innovation jams, responsibility for the process and for problem formulation lies with a manager, with knowledge creation delegated (distributed) to employees. In this regard, an innovation jam builds on the traditional problem framing and problem solving perspective, and the main task of the manager is to identify and formulate 'valuable' problems (Nickersson and Zenger, 2004). Moreover, innovation jams build on the idea that knowledge is dispersed across multiple stakeholders, and that conscious interactions and communication among individuals are likely to result in the generation of high-quality ideas. According to the knowledge based view of the firm, managers do not know where the relevant knowledge resides, or which knowledge will become relevant. Instead, the firm needs to develop mechanisms appropriate to identify and access relevant sources of knowledge. Since the firm cannot know who holds the knowledge relevant to solve a certain problem, it is important to enable the participants in an innovation jam to *self-select* (cf. Jeppesen and Lakhani, 2010; Poetz and Schreier, 2012).

Self-selection implies that the choice to submit ideas is at the discretion of the contributors who themselves decide whether they want to invest time in submitting solutions (Lakhani and Panetta, 2007). For firms this implies that traditional control mechanisms such as employee contracts or hierarchy, normally employed to promote action, are not applicable. Much of the crowdsourcing literature focuses on understanding participants' motivations to join a crowdsourcing initiative (cf. Ebner et al., 2009; Füller, 2010; Jeppesen and Frederiksen, 2006; Jeppesen and Lakhani, 2010). For example, it has been suggested that recognition from a hosting firm can influence participants' willingness to self-select (Jeppesen and Frederiksen, 2006; Piller and Walcher, 2006). Lakhani and Panetta (2007) suggest that self-selection for tasks is influenced also by the comments and interests of other participants to submitted ideas. In an internal context, employees may also self-sensor and constrain their ideas in order to avoid appearing unskilled in front of their peers and superiors (Remneland Wikhamn, 2013).

In the context of internal innovation jams, it can be argued that firms have the means to control participation, and that managers are more likely to be aware of where to search for relevant knowledge. However, participation in innovation jams is rarely encouraged by the offer of pecuniary reward; instead the idea giver may be rewarded by free time and a budget to work on his or her idea (Bjelland and Wood, 2008). Given the complexity of large, established firms, difficulties related to identifying and accessing the knowledge within the organization may persist (Agogué et al., 2015) resulting in 'hidden knowledge', i.e. unawareness on the part of managers about where the relevant knowledge resides. Felin and Zenger (2014) argue that in

situations where the knowledge is hidden developing mechanisms that allow participants to self-select is critical. Identifying participants and developing appropriate attraction mechanisms is a vital aspect of innovation jams. Although firms' efforts to increase employees' motivation have been explored thoroughly, they have not been studied in the context of innovation jams (cf. Amabile, 1996; Bergendahl et al., 2015).

The literature suggests that innovation jams offer several advantages for firms. Firstly, they allow firms to involve new actors and large groups of individuals, in the collective creation of new ideas, regardless of geographical distance or functional boundaries. Innovation jams make it possible for employees to communicate and to interact with new individuals, and to discuss ideas across functional and geographical boundaries. Second, holding an innovation jam allows the manager to focus on and direct the attention of individuals to strategically important topics. Finally, innovation jams support the refinement and maturation of new ideas, and build support for new ideas (Bjelland and Wood, 2008).

Although innovation jams allegedly offer advantages, these have been barely explored in the literature. In addition, the literature on innovation jams, though still emerging, focuses primarily on the possibilities provided by innovation jams for the creation of new ideas, and acting as a tool for idea generation and management. However, as Diasio (2016) suggests, innovation jams can have other, more dynamic effects and fulfill several functions along the firm's innovation process. Diasio (ibid.) suggests that innovation jams can contribute to shaping the firm's innovation process, and changing the locus of innovation within the firm. However, with the exception of Diasio's work, the potential of innovation jams to enable for innovation remains relatively unexplored.

2.3.2 Innovation jams as a collective innovation practice

In the crowdsourcing literature, in addition to focusing on developing a participation architecture and incentive structures, it is suggested that firms should formulate well-decomposed problems (e.g. Afuah and Tucci, 2012; von Krogh et al., 2012a; Lüttgens et al., 2014). This is argued to increase participation since individuals are able better to match the formulated problem to their skills, prior knowledge and expertise (Haas et al., 2015). The literature suggests that firms are likely to formulate clearly defined problems since this is likely to result in increased participation. However, innovation jams do not target only innovation problems, they also target company values, new product and service ideas, and management issues (Bjelland and Wood, 2008; Diasio, 2016). They have also been used to involve employees in general discussions about a new strategy (Jarzabkowski et al., 2016; Stieger et al., 2012).

Although Bjelland and Wood (2008) emphasize problem definition as a key activity in an innovation jam, to view the innovation jam process as primarily one of problem-solving might be inaccurate. For instance, the IBM innovation jams emerged out of an initiative to drive innovation internally and to unite employees working from home in joint discussions on urgent topics (Bjelland and Wood, 2008; Diasio, 2016). In contrast, crowdsourcing practices typically

focus on identifying solutions to predefined problems (cf. Poetz and Schreier, 2012; von Krogh et al., 2012a). Thus, it is unclear how firms use innovation jams to solve problems, and innovation jams seemingly might have different application in different firms. Although it is claimed that innovation jams are similar to innovation contests and other crowdsourcing practices, it is unclear to what extent the findings on crowdsourcing apply to the topic of innovation jams.

Table 2 provides an overview of how innovation jams are categorized in previous studies. It shows that innovation contests and idea competitions are treated as separate phenomena although both are often assumed to be sub-sets of crowdsourcing. Table 2 groups articles which categorize the innovation jam in similar ways (it also includes the articles from the previous table).

Table 2: Studies mentioning or grouping innovation jams with other similar phenomena

Innovation jams as brainstorming and idea creation			
Author(s)	Method	Definition of brainstorming/idea creation	Comment
Helander et al. (2007)	Quantitative.	Brainstorming is described as the joint generation and discussion of ideas.	The article investigates the social network structure of the ideas generated in an innovation jam.
Ringo (2007)	The author draws on his own experience as manager at IBM.	Brainstorming is described as the joint generation and discussion of ideas	Innovation jams are described as powerful tools to enable innovators to connect and collaborate with each other. It is argued that innovation jams can contribute to the firm's innovation culture.
Bjelland and Wood (2008)	Qualitative.	Brainstorming is considered joint generation and discussion of ideas.	Although the joint generation of ideas is discussed as a key element of innovation jams, the article also points to the challenges of making it happen within a large crowd.
Gordon and Tarafdar (2010)	Quantitative and qualitative.	Innovation jams are considered to be online brainstorming sessions, and allow innovators to connect with one another.	The ability to stimulate innovators' sharing of knowledge, information and ideas is argued to be a key element of a firm's collaborative capabilities.
Magnusson and Björk (2016)	Quantitative and qualitative.	Innovation jams are described in the context of collective creativity, and the underlying idea is that individuals who are well-connected and collaborate with other members in the organization generate higher quality ideas.	The book chapter discusses firms' use of IT in their efforts to steer and direct creative and innovative activity.
Innovation jams as crowdsourcing			
Author(s)	Method	Definition of crowdsourcing	Comment
Simula and Vuori (2012)	Conceptual and qualitative.	Crowdsourcing is related to the involvement of internal and external crowds in idea and innovation generation.	The article investigates how firms can interact with different kinds of crowds, and discusses the benefits and challenges of crowdsourcing.
Stieger et al. (2012)	Qualitative.	Crowdsourcing refers to the incorporation of external and internal stakeholders in the value creating process.	The article proposes a framework for the application of internal crowdsourcing methods.
Blohm et al. (2013)	Qualitative.	An organization (the crowdsourcer) proposes a challenge to be solved, to an undefined group of contributors (the crowd).	The article discusses the challenges related to implementing crowdsourcing and provides recommendations about how firms can absorb and integrate the crowdsourced data.
Boudreau and Lakhani (2013)	Qualitative.	The outsourcing of a challenge or problem to a crowd.	The article discusses why firms should consider including crowdsourcing as a 'corporate innovation tool kit'.

Majchrzak and Malhotrac (2013)	Conceptual.	The act of broadcasting a challenge to an external crowd of solvers (draws on the definition proposed by Howe, 2006).	The article discusses how information technology can be a shaper of firm-crowd interaction. This requires design of the IT-system to focus on the possibilities for the crowd to develop ideas.
Simula and Ahola (2014)	Conceptual.	Crowdsourcing is the act inviting a crowd to solve a predefined task. Both internal and external crowdsourcing are considered.	The article identifies and discusses four different configurations of crowdsourcing.
Innovation jams as an innovation contest or idea competition			
Author(s)	Method	Definition of innovation contest	Comment
Piller and Walcher, 2006	Qualitative.	In an ideas competition a group of users submit solutions to a predefined challenge within a given timeframe. A panel reviews and evaluates the submissions and the winning contribution is rewarded.	Ideas competitions are discussed as a means to access novel and innovative solutions from users but also as a means to identify lead users.
Leimeister et al., (2009)	Conceptual and qualitative.	Ideas competitions are defined as an organizer inviting a crowd to submit contributions to a certain topic within a predefined period of time.	The article discusses how participation can be increased. Characteristics of ideas competitions are identified, and design mechanisms proposed to increase crowd participation.
Bullinger et al. (2010)	Conceptual	Innovation contest are web-based competitions where innovators use their skills, experience and creativity to provide a solution to a predefined contest challenge formulated (drawing on definitions in Piller and Walcher, 2006 and Ebner et al. 2010).	10 design elements of innovation contests are identified and discussed in light of how firms deploy innovation contests.
Adamczyk et al., (2012)	Conceptual.	Innovation contests are defined as IT-based and time-limited competitions arranged by an organization calling on a crowd to submit solutions (drawing on the definitions proposed by Walcher, 2007 and Bullinger et al., 2010).	Innovation contests are discussed as a means to enable new product and service solutions. Design elements of innovation contests are proposed.
Remneland Wikhamn (2013)	Qualitative.	Innovation contests are web-based competitions that involve innovators who use their skills and creativity to generate solutions to predefined challenges (draws on the definitions proposed by Piller and Walcher, 2006 and Bullinger et al., 2010).	Argues that innovation contests are 'socially embedded', and discusses innovation contests as vehicles for capability development.
Zogaj et al. (2014)	Qualitative.	Crowdsourcing refers to the outsourcing of corporate activities to an external crowd (drawing on the definition in Howe, 2008).	The article discusses the use of crowdsourcing intermediaries in firms' crowdsourcing efforts, and discusses the associated challenges.
Armisen and Majchrzak (2015)	Qualitative.	An innovation contest is viewed as a form of crowdsourcing, where a firm encourages an external crowd to co-create and generate innovative solutions to a challenge defined by the firm.	The article investigates the online discussions in order to foresee whether innovative ideas are generated, and also identifies ideal profiles for an innovative ideas submitter.
Innovation jams as open innovation			
Author(s)	Method	Definition of open innovation	Comment
Sandulli and Chesbrough (2009)	Conceptual.	The article discusses open business models which refers to the 'sharing of internal resources with a third party to create value, or the reverse, the incorporation of external resources in companies' own business model'	The article discusses different facets of open business models and seeks to understand how firms can implement open business.
Diasio and Bakici (2010)	Qualitative and longitudinal.	Open innovation is discussed drawing on the definition proposed by Chesbrough (2006).	Innovation jams are discussed as one approach firms can use to connect and involve external actors in the innovation process.

Hienerth et al. (2011)	Qualitative.	The article discusses user involvement in firms' business processes.	Innovation jams are described as a means to involve users in a firms' business process.
Keinz et al. (2012)	Qualitative.	The article discusses user involvement in particular but recognizes the involvement of external individuals and organizations in the innovation process as part of the open innovation paradigm.	The article discusses different user innovation strategies, and derives implications for each strategy in the organizational design of firms.
Bosch-Sijtsema and Bosch (2015)	Qualitative.	User involvement is considered one element in the open innovation paradigm.	The article discusses the incorporation of user feedback to the innovation process, and proposes user involvement types and different approaches to collecting user data.
Diasio (2016)	Qualitative and longitudinal.	The article discusses innovation jams as a new, emerging organizational form in the open innovation paradigm.	Jazz bands are used as a metaphor to derive themes for describing the underlying organizational form of innovation jams.
Innovation jams as a strategy practice			
Author(s)	Method	Definition of strategy process	Comment
Whittington et al. (2011)	Conceptual.	Strategy is defined as "a structurally precarious profession, subject to cyclical demand and shifts in organizational power" (Whittington et al., 2011:531)	IBM innovation jams are presented as an example of 'open strategy', and firms are more open to include outsiders in the strategy process.
Jarzabkowski et al. (2016)	Conceptual.	Strategy is viewed as a practice which is enacted by individuals, thus the practice is interlinked with the individual who is enacting it and with how the practice is enacted.	IBM innovation jams are presented as an example of a new strategy practice which emerged as a result of changing contemporary conditions.

Table 2 shows that various theoretical perspectives have been deployed to study innovation jams, e.g. open innovation and user innovation, knowledge creation and collective creativity. In a firm-internal context, previous studies of internal ideation practices focus primarily on these practices in the context of collective creativity, idea creation and development (cf. Dijk and Ende, 2002; Magnusson and Björk, 2016). The ideation literature tends to focus on aspects such as the social behavior of participants, motivation and factors increasing idea quantity and quality (e.g. Björk, 2012; Björk and Magnusson, 2009). As Berggren et al. (2011) argue, innovation activities involve both knowledge creation and knowledge integration activities. However, both activities are necessary in order successfully to recombine knowledge into valuable customer applications. In order to examine the potential of innovation jams as vehicles for innovation there is a need to extend the view of an innovation jam to include knowledge integration activities.

In this thesis, the innovation jam is seen as representing a collective innovation practice. It considers knowledge to be dispersed and distributed among multiple stakeholders. Although this thesis acknowledges that knowledge can be found outside the firm's boundaries, the focus is on internal stakeholders. Traditionally, firms have relied on internal R&D to source new knowledge (Bogers and West, 2012) but innovation jams emphasize the involvement of employees outside of R&D. Innovation jams also emphasize the involvement of a 'collective' rather than an individual. Thus, innovation jams imply a shift away from the traditional view of how innovation activities should be organized.

Collective innovation practices do not necessarily 'fit' within the context of established organizations. For instance, the crowdsourcing literature suggests that implementation of

crowdsourcing practices can engender internal resistance to the initiative (Hienert et al., 2011; Lüttgens et al., 2014; Remneland Wikhamn, 2013). Also, Hienerth et al. (2011) argue that established companies often are not prepared to the consequences of integrating users into their business processes, and that firms implementing new collective practices require effective strategies to overcome internal resistance. Although the literature points to the advantages of collective innovation practices, integrating these into firms' ordinary activities seems far from straightforward.

So far, innovation jams have been studied mainly in the context of knowledge creation and user involvement. Although arguably having the potential to contribute to changing how knowledge and new ideas are created, shared and developed within firms (Dahlander and Gann, 2010; Diasio, 2016; Magnusson and Björk, 2016), few studies examine innovation jams as situated in contexts with established practices for creating and integrating knowledge. A firm's established routines, language and embedded forms of knowledge in certain situations can work to constrain the creation of new knowledge, or prevent firms from acquiring critical new knowledge especially in cases where knowledge requires a different discourse, organizational interface or practice (Berggren et al., 2011; Poppo and Zenger, 1998). Diasio (2016) suggests that innovation jams by their nature are dynamic, and that their inherent functionalities are able to evolve. Though not indicating why these functions evolve, Diasio's study suggests that an innovation jam interacts with the organization which calls for a situated perspective on innovation jams.

In summary, in the recent years, there has been increased emphasis on new practices for innovation, practices which are more collective and distributed in character than the firm's established practices. The emergence of collective innovation practices is accompanied by challenges which need to be better understood and more thoroughly addressed in order to contribute to an increased understanding of how these practices can be sustained over time in organizations. There is a need especially for a more situated and dynamic perspective on these practices. In other words, innovation jams provide both new opportunities and new challenges both of which need to be examined.

2.4 REVISITING THE RESEARCH PROBLEM

In summary, firms in recent years, have experimented with different forms of structuring and organizing knowledge flows, resulting in collective innovation practices such as crowdsourcing, idea management systems and innovation jams. These practices imply a shift in how knowledge sources are viewed, and firms are turning to the 'collective' rather than the 'lone inventor' as a source of knowledge. This suggests a shift in the locus of innovation from primarily being the responsibility of the R&D department in large firms, to all employees being involved in the creation of new ideas and knowledge for innovation.

Previous studies on innovation jams mainly examine them from the perspective of knowledge creation (e.g. Magnusson and Björk, 2016) or of accessing external knowledge sources (e.g. Hienerth et al., 2011). However, from the firm's perspective, a key aspect is how firms integrate knowledge and succeed in transforming the knowledge into commercially viable applications.

Thus, collective innovation practices emphasize the firm's ability to combine and recombine knowledge with its existing knowledge base.

In other words, it is likely that an innovation jam fulfils other functions in the firms' innovation activities which go beyond the generation of new ideas and sourcing of new knowledge. The implementation of innovations jams does not necessarily result in new ideas (cf. Remneland Wikhamn, 2013), nor does the creation of new knowledge necessarily result in the integration of this knowledge in the firm's existing knowledge base. Thus, in order to explore the potential of jams for innovation, there is a need to extend the view of the innovation jam and to consider other possible functions beyond the generation of new ideas.

Although most previous work on innovation jams studies single innovation jams, according to Diasio (2016) and Remneland Wikhamn (2013) successive innovation jams can have dynamic effects on the firm. For instance, Diasio (2016) found that innovation jams contribute to shaping the innovation process, and changed the locus of innovation at IBM (Diasio, 2016). Magnusson and Björk (2016) suggest that innovation jams can change how knowledge and ideas are created and shared within the firm although few studies examine the wider impact of innovation jams on firms' established development practices. In addition, the established development practices firms may have in place build on different assumptions about the organization of innovative activity. This suggests that collective innovation practices may not be compatible with established practices which could result in a gap which needs to be managed in order for the firm to build on these practices over time.

In other words, while innovation jams offer great opportunities, they can also challenge the firm's established development practices. While previous work to some extent has discussed the effects of innovation jams on firms' existing practices, there are no studies of the impact of firms' established practices on the innovation jam. Although innovation jams seem to affect the firm, previous studies scarcely link them to established development practices. There is a need to better understand how innovation jams interact with the surrounding organization, and to understand innovation jams as situated practice. Moreover, Diasio (2016) observed that innovation jam functions are dynamic and can evolve over time. In order to capture the dynamic character of innovation jams and their functions, it is necessary also to understand why and how these functions evolve.

This dissertation views the innovation jam as a collective innovation practice. Although innovation jams previously have been grouped with similar innovation phenomena such as crowdsourcing and brainstorming, innovation jams still represent an emerging phenomenon. In order to examine them as a collective innovation practice, we need to combine theoretical perspectives in order to understand the phenomenon and its effects.

In this dissertation I focus on innovation as the process through which a firm combines and recombines existing knowledge and inputs to create new valuable outputs. Thus, in this dissertation, innovation activities are considered to involve the creation and integration of new knowledge. My interest lies in how firms organize both their knowledge creation activities and

their *recombinative* processes (cf. Felin and Zenger, 2014). This dissertation extends work on innovation jams by studying their application across the innovation process from problem formulation to knowledge integration. The present work considers possible functions fulfilled by innovation jams across these activities, including but not limited to the generation of new ideas.

Given the aim to explore innovation jams as a potential vehicle for innovation, I address the following research questions:

1. *Research question 1:* How can an innovation jam be understood?
2. *Research question 2:* How do firms use innovation jams?

3. METHOD

This chapter presents the methodology for the research approach chosen to address the thesis research questions. *Section 3.1* shortly discusses the starting points for this research. *Section 3.2* describes the overall research approach and *section 3.3* discusses the basic assumptions underlying this research. *Section 3.4* presents an overview of the different research studies. The empirical studies are outlined in *section 3.5* and *section 3.6* discusses the methodological considerations of this research.

3.1 CAPTURING AN EMERGING PHENOMENON

My affiliation as a PhD student was to the Center for Business Innovation (CBI), a research center which conducted research grounded in firms' real challenges related to innovation, and identifies and formulates research problems in collaboration with the firms it studies. Following the research tradition within CBI, the starting points of this thesis research were empirical observations of a phenomenon, and examination of the areas which firms find problematic and lack the knowledge required for their resolution. This thesis focuses on the emerging phenomenon of innovation jams in the context of large, established companies. Here, innovation jams are defined as firm-hosted and focused idea generation sessions which take place during a time limited period on an IT platform. Chapter 2 discussed arguments presented in the previous literature (see Magnusson and Björk, 2016) in relation to the potential for innovation jams to change how firms create and generate new knowledge. Also, firms' use of innovation jams suggests a shift away from established practices for creating and recombining knowledge which can be difficult for firms. Since innovation jams are an emerging phenomenon, firms need to search for knowledge to resolve some of the difficulties their use implies. The relevance of the research problem is thus judged not only in relation to its relevance for existing theory but also its relevance for practitioners.

3.2 OVERALL RESEARCH APPROACH

The overall research approach can be characterized as phenomenon-based (von Krogh et al., 2012), and is driven by the ambition to capture and conceptualize an emerging organizational phenomenon (Schwarz and Stensaker, 2014). The aim of the research is to generate and develop constructs and insights which will guide and enable further theory development as opposed to testing existing theory. Given the overall aim to capture an emerging phenomenon, an exploratory case study approach was considered appropriate since phenomenon-based research often is aimed at enabling further theory development rather than confirming previous theory (von Krogh et al., 2012b). A case study approach is recommended when a phenomenon is poorly understood, and there is little or no previous theory (Eisenhardt, 1989; Flick, 2009). Furthermore, since my aim was a deep understanding of the organizational context in which innovation jams are used, and how organizational members interpret the notion of an innovation jam a case study approach was deemed to be the most relevant choice (Flyvbjerg, 2006). This approach allowed me to collect information on and provide detailed descriptions of the studied phenomenon, and to reveal complexity and hidden dynamics related to the focal research problem.

The research problem to be addressed was identified and formulated in collaboration with the studied firms; although an initial and broad research question was defined, the thesis research questions addressed in the thesis emerged from the four studies undertaken for this dissertation. In this sense, the thesis research questions did not guide the research process but rather guided the writing of the thesis and the development of the theoretical framework for this cover paper. This implies also that the empirical findings were construed retrospectively and in light of the emerging research questions.

Although the choice of research approach contributed to a better understanding of the organizational context and the multiple and sometimes conflicting needs inherent to daily organizational life, it resulted in a research process best described as emergent and iterative, and sometimes chaotic. Furthermore, a considerable amount of my time was spent trying to negotiate access to firms and relevant organizational settings, and to build the trust necessary to develop and maintain relationships. Though this was facilitated by the close connections between CBI and industry, it was far from straightforward and I often had to renegotiate access to the studied firms.

3.3 BASIC ASSUMPTIONS

Before outlining the methods used for data collection, there is a need to discuss the assumptions underpinning the underlying research for this thesis. These assumptions influenced and guided the choices involved in conducting the research, and analysis of the data collected. Innovation jams are an emerging phenomenon, which suggests that knowledge about innovation jams is still developing in both practice and theory. This thesis is concerned with understanding how individuals make sense of and interpret the world around them. It views firms' use of innovation jams as situated, and as a social practice performed by individuals through their everyday behavior and interactions (cf. Cunliffe, 2015, Lozeau et al., 2011). This research is thus qualitative in nature (Bryman and Bell, 2007).

In contrast to a theory-driven, deductive research strategy where the researcher attempts to make sense of a phenomenon from the 'outside', and takes a neutral and detached position towards the study objects, I wanted to be close to the phenomenon and to study it in the context from which it emerged. I view innovation jams as a practice enacted by people, and that people's understanding of these practices emerges from interacting with the practice but also that this understanding influences the practice and how it is enacted in the firm. At the start of this research the firms had little prior knowledge and experience of innovation jams which emphasized the need to participate in the field and interact with practitioners. In order to gain deeper knowledge and learn about the innovation jam and its use, I saw interactions with the practitioners as a means to better understand how the practitioners made sense of the phenomenon, and thereby also to better understand the phenomenon (cf. Adler and Shani, 2001; Cunliffe, 2015).

As von Krogh et al. (2012b:279) state "a long period of observation of the phenomenon must often transpire before theorizing can proceed". This applied to this research, especially given the aim to understand the innovation jam as a vehicle for innovation, not just for the generation

of new ideas. An abductive strategy was used to make sense of the collected data. According to von Krogh et al. (2012) there is often a need to differentiate a phenomenon when the phenomenon and associated research field are in an embryonic phase. In order to distinguish and define innovation jams as a distinct phenomenon, it was necessary to iterate between the empirical findings and theoretical insights. These iterations to a large extent were driven by the need to define the notion of an innovation jam, and to identify relevant and comparable cases. In parallel with data collection, I continuously compared and contrasted the empirical findings to the theory within multiple theoretical domains. The findings from the empirical studies motivated the continued search for theory, and the analytical lens used to make sense of the findings emerged largely from the iterations between theory and findings (see Adler and Shani, 2001; Dubois and Gadde, 2002).

As a result of the continuous theorizing throughout the research project, different theoretical perspectives are applied in the appended papers and in this cover paper. Thus, the collected data were analyzed several times, from different perspectives. While the data analysis for each study is described in the appended papers, development of the theoretical framework used in this cover paper can be described as 'abductive' (see Dubois and Gadde, 2002). Thus, the focus of this cover paper is on developing theory by combining the findings from all four studies and identifying interesting patterns, and issues in need of further theory development. In other words, the aim of the proposed theoretical developments is not to develop predictions but rather to propose constructs and develop possible connections (Cunliffe, 2015). Finally, as is often the situation when conducting qualitative studies on emerging phenomena, the research questions emerged out of iterations between the collected data and the intermediate theories developed based on my observations during this research project.

3.4 Overview of studies

Figure 1 provides an overview of the relationship between the research questions, the appended papers, and the related research studies. It illustrates how the insights from each individual study contributed to shaping the design of the following study, and how the research questions emerged out of the studies and the appended articles.

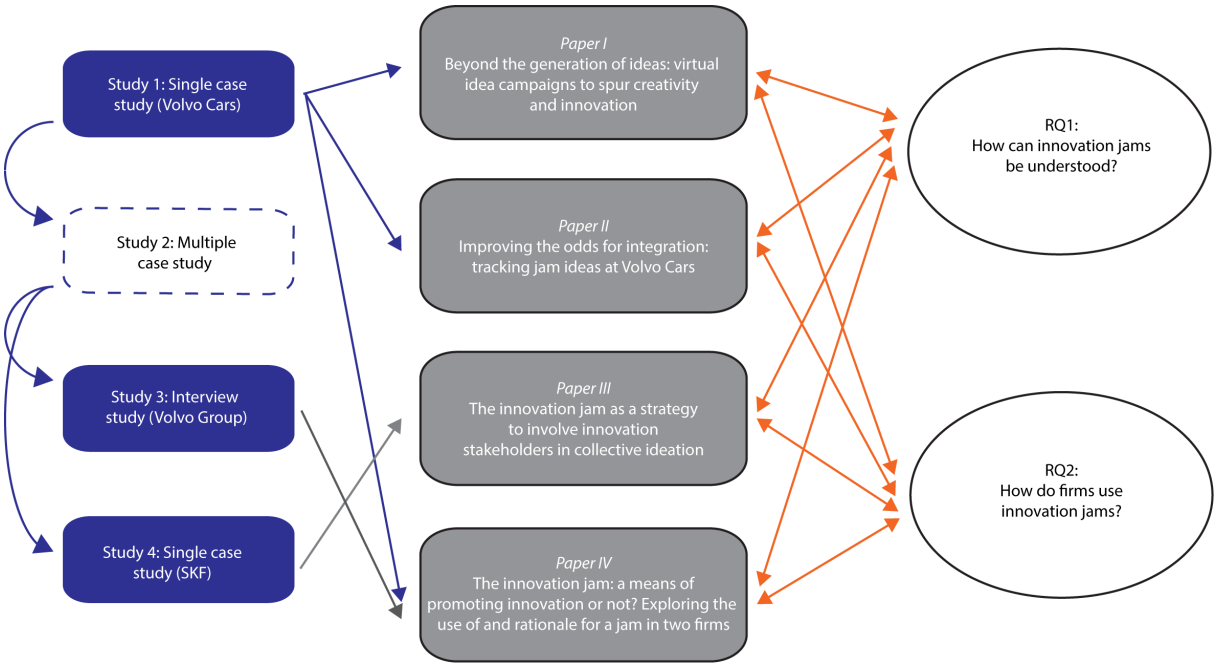

Figure 1: Relationship between research questions, the appended papers, and the related research studies

The research is based on four qualitative research studies conducted between 2011 and 2016 which involved a total of 57 interviews and 30 hours of observations. Innovation jams in this dissertation are studied in the context of large manufacturing firms with established practices for creating and integrating new knowledge. This is a knowledge-intensive context which tends to be characterized by high uncertainty and complexity. In addition, it is a context where firms often have in place established practices for creating and generating new knowledge. This implies that the application of existing knowledge is always intertwined with the creation of new knowledge, and that innovation requires the ability to recombine and reapply knowledge which is dispersed across multiple stakeholders and different functional and geographical boundaries (cf. Berggren et al., 2011). Table 3 presents a summary of the studies, the corresponding research design, and the data collection and analysis methods.

Table 3: Summary of studies and the corresponding data collection and analysis methods

	Research design	**Methods for data collection**	**Methods for data analysis**
Study 1	Single case study	Interviews (26) and observations Continuous discussions and follow-up e-mails	Overall abductive approach • Narrative analysis • Retrospective sense-making
Study 2	Multiple case study	Interviews (18)	• Processual analysis
Study 3	Interview study	Interviews (3) Continuous discussions and follow-up e-mails	Overall abductive approach • Narrative analysis
Study 4	Single case study	Interviews (10) Continuous discussions and follow-up e-mails	Overall abductive approach • Narrative analysis

Established relationships between industry and CBI provided opportunities for me as a researcher to gain access to relevant case companies. The starting point for this research was a single case study of an innovation jam process at Volvo Cars conducted in 2011. The innovation

jam formed the foundations for a new ideas handling process and was intended to be repeated annually at Volvo Cars. The initial focus lay on understanding innovation jams as a vehicle for the generation of radical ideas, and as a potential driver of radical innovation capability. The focus of this study initially was on how Volvo Cars identified and evaluated radical ideas. The study of Volvo Cars resulted in **papers I** and **II** (see figure 1). **Paper I** reveals the manifold managerial objectives related to running an innovation jam, and thus, the initial perception of an innovation jam as primarily a vehicle for radical idea generation was abandoned in 2013. Study 1 also reveals the dynamic character of the innovation jam, and the interaction between a jam and the firm's established development practices. **Paper II** reveals the challenges involved in integrating ideas from an innovation jam, and describes how the innovation jam became a facilitator for the integration of new ideas.

The idea to explore different functions beyond idea generation emerged out of study 1. Study 2 – conducted in 2013 – was designed to explore additional functions of the innovation jam and its possible applications. Study 2 was designed as a multiple case study involving nine large, established firms. The initial focus was exploratory to identify interesting and relevant cases that could be investigated in more depth. Given the emerging nature of the research process, the study was quite broad in order to capture and identify the research problem. A first round of interviews was conducted in 2013.

In late 2014/beginning of 2015, I revisited the study 2 companies, and conducted a second round of interviews. The results revealed large variety in the activities conducted in relation to innovation jams in the studied firms. In addition, the studied firms differed in how they viewed the primary function of innovation jams and the benefits of hosting them. I conducted a first-level analysis of the collected data which resulted in seven cases being abandoned, and two cases – AB Volvo (study 3) and SKF (study 4) – identified for in-depth study.

During 2015, I conducted an interview study at AB Volvo, and began discussions with SKF about a potential study. A collaboration had been established in December 2014, and during 2015 (January to August), I conducted an in-depth case study of SKF. The data collected at AB Volvo allowed for cross-comparison with the data collected at Volvo Cars, which resulted in **paper IV**; the data collected at SKF resulted in **paper III**. Figure 2 presents a timeline over the case studies and the development of the appended papers.

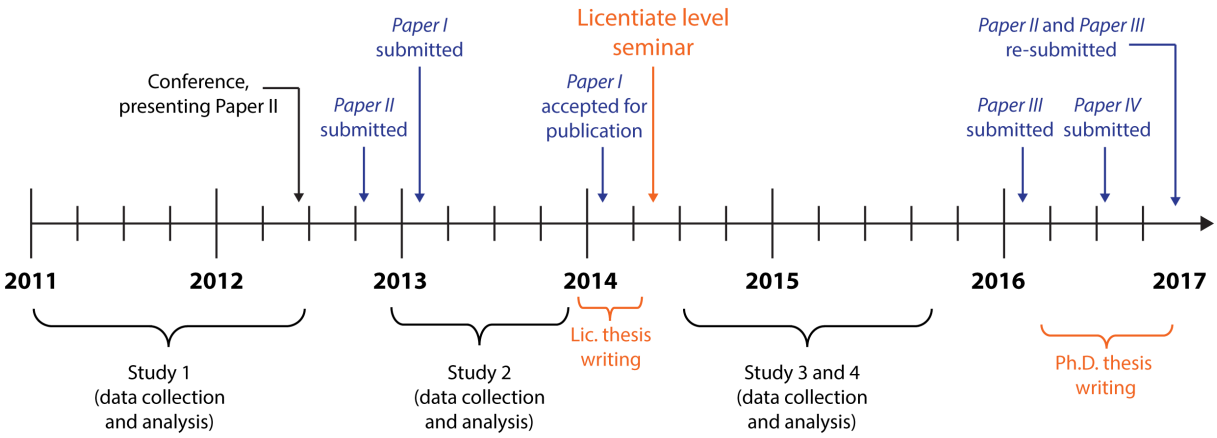

Figure 2: Timeline over the studies and the development of the appended papers

3.5 EMPIRICAL STUDIES

3.5.1 STUDY 1

The first study was part of an already established collaborative and longitudinal research project, ongoing between CBI and Volvo Cars, a Swedish car manufacturing company, since 2000 (see Börjesson and Elmquist, 2011; Börjesson et al., 2014). In Volvo Cars, the innovation jam had emerged from an initiative aimed at developing the firm's innovation capabilities. This initiative was launched in 2000, and the innovation jam was one of several activities intended to support the development of innovation capabilities. The innovation jam formed the first step in a new ideas handling process, and was seen as a driver of radical innovation and change in the organization. Therefore, the study initially focused on the innovation jam as a potential driver of radical innovation. The study of Volvo Cars began in 2011, and was ongoing until 2016 which allowed for longitudinal data to understand the innovation jam process in the company.

Study 1 was designed as an exploratory case study of Volvo Cars. An exploratory case study was chosen because of the emerging nature of the phenomenon and the seemingly limited literature on innovation jams (Flick, 2009), thus this study aimed to develop rather than to test theory (Eisenhardt, 1989). The first round of data collection at Volvo Cars was conducted in spring 2011 aimed at following the introduction of the innovation jam process in order to gain in-depth and detailed insights into the innovation jam. This first round of data collection was aimed also at developing a framework for selecting the ideas generated in the innovation jam. Thus, this study explored i) how early innovation ideas were selected, and ii) the criteria used in the selection process.

Data were collected through semi-structured interviews, direct observation, and action research. 14 interviews were conducted with moderators and project team members; interviewees included designers and engineers, R&D engineers, and marketing and sales personnel. Seven activity sessions were observed directly (including idea generation, screening, categorization, and evaluation). The overall themes covered in the interviews are presented in appendices 1 and 3. Continuous reflection meetings were held with the organizing project team members to

share and discuss the researcher's insights from observation of the innovation jam activities. The interviews covered the moderators' and the project teams' experience and perceptions of the innovation jam sessions, and of the screening and evaluation of ideas. The interviews addressed the changes associated with implementation of an innovation jam at Volvo Cars (such as adjustments to an established IT-system, involvement of new actors in the creation of new ideas, a new ideas handling process, new interfaces for established development practices, new temporary organizational roles, new decision forums and evaluation criteria, new organizational functions, and organization of creativity and inspiration workshops). Although these dimensions are not specific to innovation jams, they were used to further differentiate the phenomenon.

Data collection and analysis took place mostly in parallel, and an abductive approach to research was adopted (Dubois and Gadde, 2002). The data were analyzed in light of the knowledge gained from direct participation in the various activity sessions. The researcher was able to interact with the project team members and moderators during the screening and evaluation sessions, and to propose new evaluation criteria or suggest improvements to the evaluation process. A case narrative was constructed outlining the innovation jam process and the subsequent screening and evaluation sessions. The activities involved in the studied process were identified and ordered chronologically, as were the involved stakeholders and their corresponding roles.

The collected data allowed for comparative analysis between the Volvo Cars' innovation jam process and the Renault Cars' ideas campaign process. The purpose of this comparison was to investigate how large firms use IT platforms for internal idea generation, and how their use contributes to the innovation process in large firms. The analysis was conducted jointly with Sophie Hooge, from MINES ParisTech in France, who had collected data on Renault Cars' Renault Creative People in 2010 and 2011. The project within which Sophie Hooge collected her data had been ongoing since 2005, and was part of an established, collaborative partnership between the Center for Management Science at MINES ParisTech, and Renault Cars. In collaboration with Sophie Hooge I compared and analyzed the data in 2012; the data analyzed were collected separately and over different time periods between 2010 and 2012. The process of generating theory from the findings began during the collaborative studies; it continued and was enriched by the identification of similarities and differences between the two cases. Observation of different activities provided a contextual understanding of the campaign activities. These observations allowed us to map the content of each activity, and the overall idea management processes in the two companies. This initial mapping provided information on the how the virtual idea campaigns were used to support the innovation processes in the respective firms. This comparison resulted in **paper I**.

In spring 2012, a second round of data collection was conducted together with Sofia Börjesson. The innovation initiative at Volvo Cars had been formalized into a new corporate function, the Corporate Innovation Office (CIO). Data were collected through seven interviews with CIO members responsible for the ideas and their integration, and with R&D engineers. These interviews focused on the ideas selected following the 2011 innovation jam, and the challenges

involved in integrating these ideas. The interviews were directed towards gaining an understanding of the managerial work undertaken to implement the ideas, and were open and semi-structured. This study also involved identifying key stakeholders related to these ideas, and the link between the innovation jam activities and established business processes and activities.

Data were analyzed initially in 2012. As is often the case when conducting longitudinal research, we needed to reduce the amount of data collected (Åhlström and Karlsson, 2009). The data provided a basis for a narrative of the overall process starting with the innovation jam and ending with the idea implementation efforts undertaken by the CIO management team. The narrative allowed us to identify patterns which were interpreted in light of existing theory on the capabilities for innovation (see Dubois and Gadde, 2002; Van de Ven, 2007; Eisenhardt, 1989). We studied the data on the implementation of the two ideas in light of the contextual knowledge gained about Volvo Cars (Shani et al., 2004), and we combined the data on innovation initiatives at Volvo Cars with the data collected in this research – the innovation jam, the innovation forum, and the interview study – and applied the theoretical ideas and principles to ways of seeing and structuring the empirical findings (Alvesson and Sköldberg, 2007). Thus, the process of generating theory from the findings began during the fieldwork stage, and we continuously compared emerging findings with the theory in order to extend it. Throughout 2011 and 2016, Sofia Börjesson and I conducted five follow-up interviews in order to track the ideas and follow up on the annual innovation jams. As before, data were analyzed in parallel with data collection, and analyzed in light of the contextual understanding of Volvo Cars and the firm's innovation jam process. This analysis resulted in **paper II**.

The collaboration with Volvo Cars allowed for repeated e-mail correspondence, yearly follow-up interviews with the CIO management team, reflection meetings and feedback sessions which allowed us to follow the evolution of the innovation jam process, and how its relation to ongoing processes had developed and changed since the start in 2011. The data collected are summarized in table 4.

Table 4: Data collected in study 1

Company	#of employees (2016)	Interviews	Other data sources
Volvo Cars	28,000	*Data collection round 1 (2011):* CIO management team (5): responsible for setting up and running the innovation jam process Moderators (9): acted as moderators during the innovation jam in 2011 *Data collection round 2 (2012):* 7 interviews (CIO management team, R&D engineers) *Follow up interviews (2013-2016):* 5 interviews (CIO management team)	Internal marketing material (presentations, posters) Informal visits to the company office Observation of the innovation jam and the evaluation of ideas (30 h) Continuous reflection meetings

3.5.2 STUDY 2

In order to deepen the insights from study 1, and to explore the additional functions of an innovation jam in different contexts, a second study was conducted in 2013. A multiple case study (Yin, 2003) was used, since it is recommended if the objective is to understand a phenomenon in different contexts (Bryman and Bell, 2007). The study of multiple cases can

also enable the development of more deeply grounded propositions about the studied phenomenon (Eisenhardt and Graebner, 2007). The overall purpose of the study was to explore and identify the different functions of an innovation jam and also to address the managerial rationales for hosting innovation jams and the underlying motivations for the innovation jam process organization. Initially, this study was exploratory in order to identify interesting cases that could be investigated more in-depth. In addition, given the emerging nature of this research process, the focus of this study was initially quite broad in order to capture the phenomenon, and identify the research problem. Given that innovation jams and their deployment in firms is still an emerging phenomenon, snowball sampling seemed appropriate to identify relevant cases (Edmondson and McManus, 2007). Nine cases were identified using snowball sampling and connections within CBI (table 5).

Table 5: Data collected in study 2

Case	Industry	#of employees (2016)	Interviews	Other data sources
1	Financial software	8,000	VP, Engineering Process (previous) (1): responsible for designing and upholding the firm's open innovation strategy	
2	Business management software	78,000	Innovation Manager (1): responsible for setting up and executing innovation jams	
3	Automotive	610,000	Future Affairs, R&D (2): responsible for setting up and executing 'prediction markets' (cf. Soukhoroukova et al., 2012) within the R&D department	
4	Biopharmaceutical	62,000	Associate Director Business Improvement (1): responsible for setting up and running innovation campaigns at the firm	
5	Defense and aerospace	83,000	Innovation Manager (2): responsible for running and developing a new ideas handling process	Internal marketing material (presentations)
6	Aerospace	55,000	IP Manager (3): responsible for implementing and managing a new ideas handling process, current owner of the IT-system Research Engineer (1): user of the IT-system, and ideas handling process Research and technology manager (1): responsible for the development of new technologies	Internal marketing material (presentations)
7	Networking and telecommunications	115,000	Business Development and Innovation Driver (previous) (1): responsible for setting up and running a new IT-system for the collection of new ideas Innovation leader (1): owner of an idea box, and responsible for stimulating the generation of new ideas by coaching employees	
8	Automotive (trucks)	100,000	Innovation Manager (2): responsible for designing and executing innovation jams	
9	Bearing	49,000	Head of Connectivity Room (2): implemented and designed the innovation jam process, and had overall responsibility for a new technology area within the firm and increasing the use of digital technologies within the firm and among its customers	

Empirical data were collected in two data collection rounds; the first was in the first half of 2013, and the second was in early 2014. The focus of the interviews was to capture important dimensions of an innovation jam as a phenomenon, and differentiate it (cf. von Krogh et al., 2012b). Since semi-structured interviews allow for rich descriptions of the studied phenomena (Eisenhardt and Graebner, 2007), these were deemed appropriate for data collection. The interviews typically lasted 60-90 minutes and included individuals who were or had been involved directly in the setting up and management of the innovation jam in the respective

firms. Thus, the respondents had gained deep insights and had good knowledge about the innovation jam process and the motivations for hosting a jam. A total of 18 interviews was conducted. The overall themes covered in the interviews are presented in appendix 1.

For each firm, a sequential process analysis was conducted outlining the key events and activities (Pettigrew, 1992). I compared these analyses across the cases in order to identify patterns that might reveal further insights about the phenomenon (Yin, 1994). The aim of this comparison was to capture the phenomenon in different contexts in order to identify characteristics inherent in the phenomenon, and specificities attributable to the phenomenon rather than its particular context. When comparing narratives, it became clear that there was huge diversity in the activities undertaken by the firms in relation to innovation jams. It was clear that the studied firms were not comparable (they did not represent comparable cases, cf. Ragin and Becker, 1992), and it was necessary to better define what the studied firms represented, and why they represented interesting cases.

The cases were distinguished based on whether the innovation platforms were used for problem-focused and time-limited idea generation, or were used continuously and allowed for unsolicited ideas. Out of the nine firms, four were conducting time-limited brainstorming sessions focused on pre-defined topics. Among these four firms, two held these sessions on an online platform, and two firms held physical workshops. The innovation jams at Volvo Cars were also virtual, and it was decided to investigate the firms which held virtual and time-limited events. In addition, I compared the remaining cases based on the changes which had been implemented within the firm along with the innovation jam. This was done to contrast the findings with the data collected in Volvo Cars, and to gain an understanding of the organizational context of each firm and its underlying managerial rationale. This analysis resulted in a working paper which does not constitute a part of this thesis.

Two of the remaining firms – AB Volvo and SKF – had identified innovation jams as an important element of their innovation activities. Both had also already conducted several innovation jams, and had the ambition to host further innovation jams internally. The innovation jam initiative had emerged within projects which lay outside the firms' ordinary activities, and most importantly, outside regular R&D activities. In both firms, the person responsible for organizing the innovation jam believed that an innovation jam could be a powerful tool to generate radical ideas. They both viewed the NPD-process as one possibility for developing the ideas further but not as the primary outlet for further idea development. Thus, they did not view the innovation jam as a tool related to the firm's existing NPD-process. In addition, similar to Volvo Cars, both firms had a long history of technological innovation and currently were facing an increasingly competitive environment. Both firms were purposefully sampled for a more in-depth study, and were selected in order to enable cross-case comparison (Flick, 2009).

3.5.3 STUDY 3

Study 3 is an interview study of AB Volvo. Data were collected by means of semi-structured interviews. In total, five interviews were conducted (see tables 5 and 6), three of them together with Sofia Börjesson. Interviews were held with the team responsible for the innovation jams

at the studied firm. These interviewees had been responsible for introducing the innovation jam and designing and setting up an innovation jam process. They were involved in other innovation activities in the firm, and had deep knowledge about the innovation jams and their rationales. Interviews lasted between 60 and 90 minutes, and after each interview, we discussed our impressions from the interviews and compared notes. See appendices 1 and 2 for the interview guides used.

Table 6: Data collected in study 3

Company	#of employees (2016)	Interviews	Other data sources
AB Volvo	100,000	Innovation Manager (2): Responsible for designing and executing innovation jams VP, Technology Strategy & Innovation (1): Responsible for developing and running a new innovation process	Internal marketing material about the innovation jams (presentations)

Following the analytical principles described previously, a case narrative was constructed covering the emergence of the innovation jam process in the firm, its evolution during the studied time period, and the adjustments made to the jam process. The narrative allowed us to identify key activities in the company's innovation jam process, key stakeholders, and the tactics used by the innovation jam manager to increase the visibility of the innovation jam process and participation in the jams. It allowed us to identify how the innovation jam process and its relationship with existing business processes and other innovation activities had evolved. The patterns identified allowed us to draw conclusions about how the functions of succeeding innovation jams had evolved in the company. In the same period, follow-up interviews were conducted at Volvo Cars. These interviews revealed that adjustments to the innovation jam process and its organization were also being made at Volvo Cars, and the idea to compare the two cases materialized. This comparison resulted in **paper IV**.

3.5.4 STUDY 4

Study 4 was a single case study of SKF and was initiated in late 2014 and lasted until late summer 2015. The purpose of the study was to gather more in depth knowledge about the notion of an innovation jams, its organization, and the rationale and motivation underlying the innovation jam. In addition, drawing on the insights from study 1 and 2, I formulated a secondary objective of studying the practical considerations and contextual factors which might influence the innovation jam process, and force the person responsible for organizing the jam to make adjustments to it. The study was designed to follow the set up and execution of an innovation jam planned for May 2015, and retrospectively to study three previous innovation jams.

A total of 11 semi-structured interviews were held (table 5 and 6). I conducted seven of these interviews with individuals who had been involved directly in the design and implementation of the innovation jam process, and in the execution of the studied innovation jams. See appendices 1, 2 and 3 for the interview guides used during study 4. Interviewees were selected based on their in depth knowledge of the innovation jams, and the challenges and practical implications of their use. Four of these interviews were with key stakeholders in the innovation jam process. These interviewees were extremely knowledgeable about ongoing innovation

activities in the firm, and provided information on the relationship between the innovation jams and the firm's ongoing business processes and activities. Table 7 presents a summary of the collected data.

Table 7: Data collected in study 4

Company	#of employees (2016)	Interviews	Other data sources
SKF	49,000	Head of Connectivity Room (1): implemented and designed the innovation jam process, overall responsibility for a new technology area within the firm and increasing the use of digital technologies within the firm and among its customers Innovation Manager (3): responsible for the innovation jam process in 2014-2015 Product development manager (1): responsible for the Automotive jam Mobility application manager (1): acted as moderator in one of the innovation jams Project manager idea management (2): responsible for coordinating existing ideation initiatives, and developing a new idea management process (2015) Program manager of the Innovation board (2): responsible for coordinating existing ideation initiatives, and developing a new idea management process (2015-onward)	Internal marketing material (presentations and flyers), Informal visits to the company office Continuous reflection meetings Access to 141 ideas from one of the innovation jams

Because of the inductive nature of this study, the categories for analyzing the data were derived from the findings (Flick, 2009). First, I analyzed each innovation jam separately by constructing a timeline. I also conceptualized the innovation jam activities and identified key stakeholders and decision points in the innovation jams. Second, I compared the analyses of each innovation jam in order to derive a conceptual description of the innovation jam process. I constructed a case narrative, describing the initiative which the innovation jam process was part of, outlining the rationale behind this project and the motivations for each innovation jam. This case narrative was validated and confirmed by the person responsible for organizing the innovation jam in the studied firms. Following this case narrative, I identified key events which had prompted adjustments to the innovation jam process. This resulted in **paper III**.

3.6 Reflections and methodological considerations

The overall aim of the research was to capture an emerging phenomenon, and enable further theory development. The focus was on developing theory not testing existing theory, and the choice of research approach was based on the 'fit' between the research question, research design and the theoretical contribution (Edmondson and McManus, 2007).

Generalizability of data collected in a qualitative case study is low (Eisenhardt, 1989). However, according to Flick (2009: 31) generalizability of insights from a qualitative study is more about the "quality of sampling decision" than about the number of cases studied and the degree to which the findings can be generalized to other contexts. Therefore, when selecting cases, it is important to be able to identify which questions the cases represent, thereby allowing for some generalization. In this research, the cases were sampled carefully and were also chosen in order to gain deeper insights into a particular organizational context. Thus, the cases chosen were illustrations of a *special* context in order to support the development of theoretical themes (cf. Siggelkow, 2007).

Phenomenon driven research requires the researcher to define the phenomenon being studied. In order to do so, I drew on the insights from study 1 in order to ensure that I identified cases to which I could apply some of the insights gained from study 1. In addition, the phenomenon was identified based on insights from the literature on internal innovation platforms (particularly idea management systems). This was an attempt to increase the analytical generalizability of the findings (theoretical generalizability), and to draw conclusions which were more general. All four studies contributed to distinguishing and better defining innovation jams since each study provided new insights. In addition, the selected cases helped to identify patterns across all three cases which otherwise would not have been apparent. This is highlighted especially in paper IV and in this cover paper where the focus is on developing theory by combining the findings from all three cases and identifying interesting patterns and issues in need of further theory development.

One of the difficulties involved in conducting phenomenon based research is that the phenomenon may be evolving (von Krogh et al., 2012b), which makes timing critical to the research process. For instance, at the outset of this research, there were few empirical observations of innovation jams, and in the studied cases the innovation jam approach was new and untested. In the studied firms, the innovation jams initially were seen as a powerful tool to generate radical ideas. At the start of the research process in 2011, there was tremendous hype around innovation jams, and the interviews and discussions revolved around the *potential* of the innovation jams. In 2016, innovation jams have become an integral part of these firms' innovation activities and the firms rely also on continuous idea management systems to collect new ideas from their employees. The ambition to generate radical ideas still exists in the studied firms but the innovation jam is no longer considered to be a driver of generation of radical ideas.

Lincoln and Guba (1985) propose that qualitative studies are best assessed using the concepts of trustworthiness and authenticity. Transferability is one of the criteria constituting trustworthiness, and is enabled by 'thick descriptions', or detailed accounts of the research context (Lincoln and Guba, 1994). Transferability allows other researchers to *transfer* the findings to different or similar contexts. Innovation jams were studied in a context characterized by differing degrees of uncertainty and complexity. In addition, all the studied firms had established practices for creating and recombining new knowledge. In order to increase the transferability of the insights from these studies, the findings are described in light of this context, and detailed accounts are provided to as large an extent as possible in the appended papers and in this covering paper.

I relied primarily on interviews as the source of data. Authenticity relates to the fact that qualitative research should be meaningful and provide valuable insights which can benefit theory development (Lincoln and Guba, 1985). Thus, the concept of authenticity implies that the researcher must demonstrate fairness when interpreting data and must balance contradictory perspectives. In order to ensure fairness, continuous follow-up questions were posted to respondents via e-mail and phone. This was facilitated by the close collaboration with the studied case companies. Case narratives were also shared with key respondents who

commented and validated them. Furthermore, interviews were often recorded and transcribed. If not, notes were shared with the respondent to ensure that the interview was correctly documented. In several cases interviews were conducted jointly with Sofia Börjesson. After each interview we shared and discussed our understanding, in order to increase the reliability of the study.

In all the studied firms, the innovation jam process was designed and implemented within new initiatives which lay outside the firms' regular activities. In all of the firms, I identified the R&D organization as an important stakeholder of the initiative and the innovation jam process. In order to increase authenticity, we sought to interview key stakeholders in the R&D organization in the studied firms. This was possible in studies 1 and 4 but not study 3. There were indications in all three firms that those involved in the new initiatives and the R&D organization had different perceptions. These differences in perceptions were related to the benefits to the firm of an innovation jam process, and its function in the firms' innovation activities. Adopting a critical stance to the studied firms' use of innovation jams and examining the motivations for conducting the innovation jams, compensated in part for the lack of multiple perspectives. In order to further increase authenticity of the findings, the data in study 2 were compared with the existing literature which validated some of the indicated tensions.

4. SUMMARY OF APPENDED PAPERS

This chapter provides a summary of and brief presentation of the main findings from the four papers appended to this cover paper. The appended papers are not presented in chronological order. Rather their ordering follows the ordering of the arguments in this thesis. As described in chapter 3, theorizing based on empirical findings was an ongoing process, and different theoretical perspectives are therefore applied in each of the four papers. For this reason, different concepts are used in the papers to described the innovation jams.

Paper I was written in 2012 and is based on data collected on the first innovation jam hosted by Volvo Cars (study 1). It focuses on the dual managerial rationales for hosting innovation jams, and argues for the need to look beyond ideas as the primary, intended outcome of an innovation jam. An extended perspective is applied in Paper II, which draws on data collected in study 1, and focuses on investigating the managerial activities to integrate ideas. Paper II captures and provides empirical illustrations of the interplay between the innovation jams at Volvo Cars and the firm's organizational context, demonstrating the evolving character of the different functions of an innovation jam.

Paper III captures how SKF used innovation jams across the innovation process, and provides empirical illustrations of the different functions fulfilled by an innovation jam. The paper shows how SKF selectively involved managers in order to enable the commitment of resources to the jam ideas. Paper IV captures how Volvo Cars and Volvo Group used innovation jams to enable innovation. The paper views innovation jams as a situated practice, and thus links them to these firms' ongoing innovation and other business activities. The potential of innovation jams to promote innovation is discussed in the paper.

4.1 *PAPER I: BEYOND THE GENERATION OF IDEAS – VIRTUAL IDEA CAMPAIGNS TO SPUR CREATIVITY AND INNOVATION*

Elerud-Tryde and Hooge

The literature on internal innovation platforms focuses mainly on these platforms as vehicles for idea generation. However, the outcomes for the organization of online innovation platforms, beyond new ideas, are mostly ignored in the literature. Previous work focuses on describing design mechanisms to increase the quantity and quality of innovation ideas but it is unclear how online innovation jams can support other firm innovation activities. This paper investigates how two firms use online innovation platforms internally to generate ideas, and how their use contributes to these firms' innovation processes. The investigation is based on comparing data collected within study 1 with data on Renault Cars collected by Sophie Hooge.

It is argued that both firms use online innovation platforms as *campaigns* to promote innovation, and to involve employees in the innovation process. Therefore, the notion of virtual idea campaigns is used to describe the online innovation platform and the related ideation activities in each firm. In both firms, incubation activities are considered key firm activities in the virtual idea campaigns. The paper suggests that virtual idea campaigns can support the innovation process in firms by 1) encouraging employee creativity in idea generation, and 2) involving

employees as well as managers in the innovation process. It is argued also in the paper that firms need to take a holistic perspective on ideation activities in order to exploit these internal innovation platforms to the full. To focus only on idea generation activities is not enough, incubation and integration activities as well as stakeholder involvement, employee participation and creativity must also be considered.

4.2 PAPER II: IMPROVING THE ODDS FOR INTEGRATION – TRACKING JAM IDEAS AT VOLVO CARS

Börjesson, Elerud-Tryde and Elmquist

In the literature, ideas are often considered the source of and first step towards innovative solutions and offers, and systematic management of these ideas is a central aspect of innovation management. However, firms often struggle to realize their innovative ideas, and previous studies highlight several organizational barriers which can prevent the development of new ideas in large firms. Firms are increasingly exploring new ways to capture ideas from employees. Furthermore, IT based systems are allowing firms to structure early innovation activities, and to systematically manage the generation and further maturation of new ideas.

This paper explores the innovation jam as a deliberate approach to managing new ideas. While the previous ideation literature mainly has focused on the generation of new ideas, this paper underlines the need to investigate the integration of new ideas, as one important part of firms' early innovation activities. In the paper, the following research question is explored: *how can an innovation jam be an enabler for the management of idea integration?* To do so, the paper draws on data from study 1, and focuses on a series of annual jams held at Volvo Cars over the period 2011 to 2016.

It was found that although the innovation jam initially was perceived as a new channel 'outside' the firm's regular processes at Volvo Cars, their repetition led to their being accepted and considered a reliable channel. In the paper, we propose a conceptualization of the various managerial activities enabled by the innovation jam to facilitate idea integration. In the paper, we thus argue that an innovation jam can serve as a means to shape the managerial activities to suit a specific idea, thereby acting as an enabler for idea integration. This was found to be especially true in the case of ideas with an 'odd' character. While the previous literature has pointed to the need for managing ideas differently depending on their nature, this paper contributes to the literature by proposing organizational routines a firm can put in place to support the development of 'odd' ideas.

4.3 PAPER III: THE INNOVATION JAM AS A STRATEGY TO INVOLVE INNOVATION STAKEHOLDERS IN COLLECTIVE IDEATION

Elerud-Tryde

In the literature, the innovation jam is often grouped together with similar practices, such as innovation contests, to involve actors within and outside of companies' boundaries. Previous studies on innovation contests typically favors a problem solving perspective on these practices. While previous studies on innovation jams identify problem formulation as a key activity, these studies also suggest that firms use innovation jams also for other reasons than to solve problems;

it is unclear to what extent an innovation jam be understood as a problem solving process. Moreover, the importance of involving stakeholders on multiple hierarchical levels in ideation activities, is underlined in the literature. While prior research has investigated firms' efforts to involve employees, less attention has been paid to their efforts to involve managers in ideation activities.

This paper addresses innovation jams in a firm-internal context, and explores how a large, established firm involve managers in a firm-hosted innovation jam. To do so, the paper draws on data collected in study 4. The innovation jam was designed and implemented within the scope of a new project at the case firm aimed at initiating a new strategic direction for the firm. It is found that the innovation jam was used to draw attention to and support this strategic change. It was also found that the firm studied selectively involved managers in formulating innovation jam challenges, which enabled the commitment of resources to ideas created in an innovation jam session. Based on these findings, I argue that the innovation jam constituted a strategy to involve innovation stakeholders in firms' collective ideation efforts. The paper responds to calls for more knowledge about how IT contribute to shaping early innovation activities.

4.4 Paper IV: The innovation jam – a means of promoting innovation or not? Exploring the use of and rationale for a jam in two firms

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This paper investigates two firms' efforts to systematically and deliberately manage ideas. It analyzes the innovation jam from an innovation capabilities perspective in order to understand the wider function of innovation jams in the broader innovation initiative context. The previous ideation literature has mainly focused on the process of idea generation, with a particular emphasis on increasing idea quantity and quality. However, less attention has been paid to the rationale behind firms' ideation activities, or how these relate to firms' overall innovation activities.

By investigating the managerial rationale behind innovation jams and the related innovation jam activities, the study investigates how an innovation jam is embedded in an innovation initiative, and how the studied firms make use of innovation jams to support their ambition to develop innovation capabilities. To investigate this, the paper draws on data collected within studies 1 and 3. In both firms, the innovation jams were implemented as part of established innovation initiatives.

It is argued that an innovation jam can be a powerful tool for generating ideas and drawing attention to innovation efforts. However, due to its event-like characteristics there is a risk that an innovation jam will be regarded as an event disconnected from the firm's innovation work. The paper seeks to contribute to the growing stream of literature on innovation capabilities which has been criticized for being mainly conceptual and lacking empirical validation.

5. DISCUSSION: INNOVATION JAMS AS VEHICLES FOR INNOVATION

This thesis explored the emerging phenomenon of innovation jams and their potential for promoting innovation in large, established firms. In this chapter, the research questions outlined in the introduction of this thesis are discussed. To investigate the research questions, I draw on empirical data collected in four case studies. In *section 5.1*, I discuss how innovation jams can be understood as a vehicle for innovation. The implications of an extended perspective are discussed with regard to the innovation management literature in general, and the emerging literature on collective innovation practices in particular. The focus in *section 5.2* is on how firms make use of innovation jams for innovation. Finally, *section 5.3* discusses the overall aim of this thesis and highlights some of the problems faced by firms conducting innovation jams.

5.1 RQ 1: HOW CAN AN INNOVATION JAM BE UNDERSTOOD?

In addition to the increasing importance of knowledge for innovation, ideation practices play an important part in firms' innovation activities. Research on ideation practices dates back to the early 1970s, and the quality movement (Neyer et al., 2009). In recent years, these practices have been recognized as multi-level and complex phenomena. Recent research exploring ideation practices draws on multiple perspectives including psychology (Bergendahl et al., 2015), knowledge creation (Bjelland and Wood, 2008; Magnusson and Björk, 2016), and social network theory (Burt, 2004; Björk and Magnusson, 2009; Kijkuit and van den Ende, 2007) among others. There is also an emerging body of literature emphasizing the importance of knowledge governance choices (Lakemond et al., 2016; Felin and Zenger, 2014; Foss et al. 2010). While previous work has addressed different aspects of ideation, it tends to focus on the involvement of employees, and the quantity and quality of the outcome of ideation practices (e.g. Ebner, Leimeister and Krcmar, 2009; Blohm et al., 2011), with less attention being paid to their potential for innovation.

Although recent studies indicate that an extended perspective might be fruitful to more clearly linking ideation to innovation (cf. Lakemond et al., 2016), few works adopt an extended view of emerging ideation practices aimed at broadly involving employees in the firm's innovation process. Adopting such a perspective on ideation practices and knowledge integration activities, provides an understanding of how these practices contribute to realizing innovation, beyond the generation of new ideas. An extended perspective allows for a deeper understanding of the interrelation between knowledge creation and knowledge integration activities, and can inform decisions about how to facilitate the creation of new knowledge and the firm's ability to integrate the knowledge, and vice versa. From a practitioner viewpoint, ideation often is associated with the generation of new ideas, and the integration of new ideas frequently is underemphasized (see paper IV). Thus, an extended perspective on ideation practices could help practitioners in the search for both new ideas and new tools and mechanisms to support the organization of innovation activities.

In their attempts to work more systematically to develop innovations, companies are employing collective practices of innovation. These practices build on the assumption that knowledge sources are distributed, and thus, emphasize the involvement of new actors in innovation

activities. In contrast to a more traditional view of knowledge sources, and how to organize for innovation, these emerging practices emphasize the development of new means for incentivizing and controlling participation, and for coordinating the interactions between various knowledge sources in order to integrate new knowledge into the firm's existing knowledge base (Bogers and West, 2012; Macher and Boerner, 2012). Innovation jams are one example of the application of more distributed and collective innovation principles, and similarities can be found between innovation jams and other popular innovation phenomena such as idea management systems, brainstorming, innovation contests, and other crowdsourcing practices.

While these phenomena have been the focus of scholarly attention in the past, less academic attention has been devoted to innovation jams which involve employees. Innovation jams often are grouped together with these other phenomena, and in only a few cases are they treated as a distinct phenomenon (e.g. Bjelland and Wood, 2008; Diasio, 2016). Since innovation jams are being used by organizations increasingly around the world, insights from previous studies on related phenomenon could contribute to a richer understanding of innovation jams carried out in contexts characterized by high uncertainty and complexity. However, these insights account for only some of the empirical findings, and this thesis has drawn on multiple theoretical perspectives to explain and discuss the findings presented in the appended papers.

In line with the previous literature, an innovation jam in this thesis is characterized as a 'top-down' innovation practice (Birkinshaw et al., 2011). Innovation jam challenges are formulated in advance, and advertised to a potential crowd (Bjelland and Wood, 2008). The literature suggests that it is important to enable participants to self-select into a challenge (cf. Afuah and Tucci, 2012) since the firm cannot know where the relevant knowledge resides. Although an innovation jam is hosted internally, and in theory, the firm has more possibilities to dictate participation than in the case of external crowdsourcing initiatives, this did not seem to apply to the firms studied (see papers I, III and IV). A critical aspect for firms hosting innovation jams internally, is whether the hosting manager has formal authority to dictate participation. As papers I, III, and IV show, this was not the case in either of the firms studied, and the jam manager had to rely on several mechanisms to attract and incentivize participation.

Papers I, III and IV show that the studied firms appealed to the employees' intrinsic motivation rather than relying on pecuniary rewards. Employees responsible for the winning contributions were rewarded with free time and resources (and in a few cases a budget) to work on their idea. At AB Volvo, employees were invited by the company headquarters to participate in its 2011 global innovation jam (paper IV), and in one of the SKF jams some employees received individual invitations to make them feel specially chosen, and indicating that their input during the innovation jam was especially valued (paper III).

The literature also underlines the importance of formulating well-defined problems in order for participants to better match their skills and prior knowledge with the advertised problem (Haas et al., 2015). As can be seen from both the previous literature (e.g. Diasio, 2016; Stieger et al., 2012) and the appended papers, innovation jams can target a range of different issues, not just

innovation problems. Papers I, III and IV reveal how innovation jam challenges varied from targeting open topics such as future strategic visions, to more problem oriented challenges. The empirical findings suggest that this is because innovation jams can accommodate several objectives, including but not limited to the generation of new ideas. Papers I, III and IV show that the studied firms sought to identify new ideas and relevant solutions to existing problems while simultaneously seeking to motivate employees to engage in exploration activities, and increase their willingness to share knowledge. While this approach tends not to generate ideas that provide clear solutions to an obvious need in the firm, it can help to communicate an increased focus on innovation (see paper I).

The firms studied put equal emphasis on marketing and drawing attention to the innovation jam *as an event*, and the importance of sharing knowledge, as they put on advertising the innovation jam problems (see paper III). In addition, the firms communicated and marketed the innovation jams as a fun event, and tried to create a degree of hype around the event. All three firms relied on elaborate marketing campaigns to advertise the upcoming innovation jam sessions within the firm (papers I, III and IV). In addition, papers III and IV show that both SKF and AB Volvo engaged powerful champions to promote and communicate the importance of the upcoming innovation jam session, and to create a sense of an urgency among employees to participate. The attract stage of an innovation jam involved mechanisms to draw attention to the jam challenges and to the jam as a new innovation activity, and to signal the importance of innovation.

Moreover, innovation jam challenges do not necessarily target an obvious innovation problem or need. Thus, innovation jams can produce highly diverse ideas which vary in their maturity, feasibility and fit with the organization (see papers I and IV). This can be problematic in the context of established structures and development processes, as paper II shows. These problems may be magnified if ownership of the ideas is ambiguous or there is no managerial demand for the idea. Thus the firms sought to increase managers' commitment to investment of time and resources. In the firms studied, three mechanisms to increase managers' commitment were observed: (i) the establishment of a new decision forum, review committees and dragons' dens (see the cases of Volvo Cars and AB Volvo, papers I, II and IV), (ii) the reduction of ownership ambiguity in the definition and formulation of the innovation jam problem (see the case of SKF, paper III), and (iii) the increasing alignment of the problem definition over time to fit the existing product portfolio (see the cases of AB Volvo and Volvo Cars, paper IV).

In order to describe an innovation jam and its constitutive activities, I applied an abductive approach with frequent iterations between the empirical findings and the literature. I identified two main phases. In the first phase, activities are shaped by the need to increase commitment to defining the innovation jam problem. In the second phase, activities are shaped by the need to increase the commitment of resources to the ideas generated in the innovation jam session. Figure 3 provides an overview of the innovation jam process and the interrelation among the different activities.

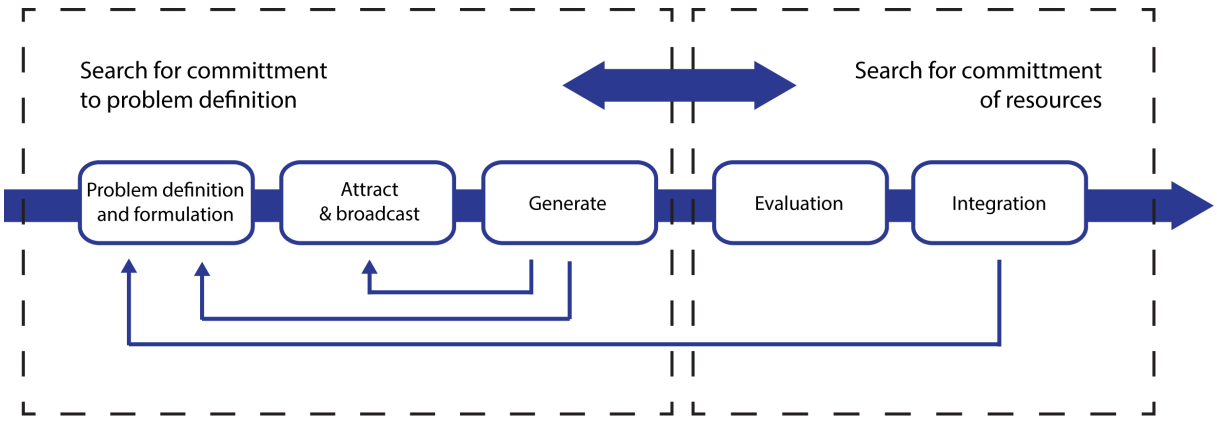

Figure 3: Innovation jam process (source: author)

Figure 3 depicts an innovation jam as a process in which two parallel search processes take place. Drawing on the problem-based perspective (Nickerson and Zenger, 2004; Felin and Zenger, 2014), it can be suggested that an innovation jam consists of a series of knowledge search and knowledge creation activities. On the other hand, an innovation jam can be considered also to consist of a series of activities to achieve commitment from the firm's employees and managers. Thus, firms hosting internal innovation jams seek to increase participation in them (employee commitment to problem definition), and to increase the chance of managers willingly investing time and resources into maturing the ideas generated (managerial commitment to problem definition). Similar to innovation contests and other crowdsourcing practices, since knowledge is hidden and managers cannot know where the relevant knowledge resides, participation in an innovation jam is based on self-selection to generate and submit ideas.

The process of knowledge search stresses the need to formulate innovation jam problems so that participants are able to decide whether they have the prior knowledge, skills and expertise to contribute. However, the search for commitment stresses the need to formulate the innovation jam problem so that managers also self-select and demonstrate willingness to invest resources in maturing the ideas. In the firms studied, these dual search processes had several implications as shown in the appended papers. This thesis considers innovation jams to be a temporary form of organization with different rules for interacting than those guiding the regular work organization. They allow employees temporarily to connect and create new linkages with other employees. During an innovation jam, the dominant view of the concept of innovation changes based on new discourses, new routines and evaluation criteria to assess the ideas. In an innovation jam, the host (jam manager) identifies and formulates an innovation jam challenge which is communicated to an internal crowd via an online platform.

This thesis argues that it is necessary to extend the perspective of an innovation jam to include along with knowledge creation the activities involved in integrating the knowledge created. It views the innovation jam as a tool for idea generation and management, and also innovation management. In an extended perspective, two phases in an innovation jam can be identified involving two search processes: i) search for knowledge which is dispersed and unevenly distributed within the firm, and ii) search for commitment from employees and managers to

definition of the jam problem. It is argued that the firm's decision to define and broadcast an innovation jam problem has to be balanced against the need to gain commitment from employees and managers to the problem formulation. Employee commitment is necessary to increase participation in the innovation jam session, and thereby to increase the chances of obtaining high-quality ideas. Management commitment is necessary in order to increase the willingness of managers to invest time and resources in maturing and refining the ideas. In other words, the firm's decision to search locally for knowledge has to be balanced against the decision to integrate the knowledge created. This suggests the presence of a feedback loop where in successive jams the firm learns how to formulate innovation jam problems in order to maximize employees' and managers' commitment to the jam.

5.2 RQ2: How do firms use innovation jams?

In the studied firms, the innovation jams were aligned to these firms' specific innovation needs. The appended papers show that the innovation jams emerged within established initiatives with overarching aims to initiate new ways of working with innovation and new technologies. They were seen as vehicles for idea generation but also as mechanisms drawing attention to and embedding new distributed and collective innovation principles. Thus, unlike innovation contests which notably are used by firms to solve specific problems (cf. Afuah and Tucci, 2012; Poetz and Schreier, 2012), firms see innovation jams as a way of achieving an impact beyond the generation of new ideas. Innovation jams can play several different functions beyond the generation of new ideas at both the front end of innovation, and along the innovation process in large firms in general. Table 8 presents the functions identified in this thesis research.

Table 8: Innovation jam functions observed in the studied firms

Company	Functions
Volvo Cars (paper I, II and IV)	1. Facilitate local search for new ideas, and generate new ideas 2. Support the integration of new ideas 3. Increase commitment to innovation jam problems 4. Embed and legitimize innovation activities
AB Volvo (paper IV)	1. Facilitate local search for new ideas, and generate new ideas 2. Support knowledge sharing 3. Involve innovation stakeholders in the innovation process 4. Direct the attention of the organization to innovation jam problems
SKF (paper III)	1. Facilitate local search for new ideas, and generate new ideas 2. Support knowledge sharing, and integration 3. Involve innovation stakeholders in the innovation process 4. Direct the attention of the organization to innovation jam problems 5. Increase commitment to innovation jam problems

Similar to both firm-hosted innovation contests and idea management systems, innovation jams have the obvious function of generating new ideas as shown in the appended papers. In contrast to idea management systems but in line with innovation contests, innovation jams allow firms to direct the search for new ideas (see papers I and III). The inherent possibilities for an innovation jam to communicate about innovation within the firm at low cost, combined with the fact that jam sessions occur during a time limited period makes them suited to focusing the organization and creating a sense of urgency among organizational members. In addition,

innovation jams allow firms to involve employees in innovation activities, and shifts responsibility for innovation from the R&D department and 'star inventors'. Papers I, III and IV show that most innovation jams were cross-functional, and aimed at fulfilling the desire of the firms to engage employees in innovation, and to combine different knowledge domains in their search for new ideas.

Firms use innovation jams to facilitate the search for new knowledge and ideas, and to recombine different knowledge sources. The literature on innovation jams discusses innovation jams as vehicles for idea generation, and provides insights into how firms can manage innovation jams to increase the quality of the ideas generated and increase collaboration among participants (e.g. Bjelland and Wood, 2008; Gordon and Tarafdar, 2010; Ringo, 2007). The strong focus on knowledge creation can inhibit the identification of mechanisms to support the jam's other functions. For instance, paper II shows that firms can find it difficult to integrate ideas from an innovation jam session, and there is a need for knowledge on how to resolve the problems firms encounter after an innovation jam session has taken place.

By extending the perspective on innovation jams, it is possible to identify how firms make use of innovation jams for innovation beyond the generation of new ideas, and leading to the development of new mechanisms to support other functions, such as the integration of new knowledge. Previous studies identify how firms engage and motivate employees (Bergendahl et al., 2015; Flynn et al., 2003) and make use of employees' collective creativity (Magnusson and Björk, 2016). This thesis emphasizes also the involvement of managers in innovation jams, an aspect which is largely overlooked in the previous literature.

5.3 INNOVATION JAMS AS VEHICLES FOR INNOVATION

The thesis discussed how innovation jams can be understood as a dual and parallel search process, and discussed how firms can exploit innovation jams for more than the generation of new ideas. In this section, I elaborate on the view of an innovation jam as a dual search process enabling innovation.

The diffusion of collective innovation practices implies a shift away from the firm's previous practices for sourcing and generating knowledge from within the R&D department. The consequences incurred by this shift ultimately might constrain the firm's possibilities for leveraging from collective innovation practices. Papers I, II, III and IV show that the firms studied faced various problems associated with repeating innovation jams. They resulted in adjustments to the innovation jam process, the discourse used by the innovation jam host, and the framing of the innovation jam problem. Although these adjustments enabled clearer alignment to existing development processes, and clearer problem formulations, they reduced the possibilities for the firms to capitalize on the potential of an innovation jam (see papers III and IV).

Nickersson and Zenger (2004) suggest that firms seek to formulate valuable problems, that is, problems likely to yield valuable knowledge. Moreover, according to Felin and Zenger (2014) and Macher and Boerner (2012) firms seek to reduce the coordination costs involved in solving

specific problems, and improve performance by aligning knowledge attributes with the organization. Firms try to increase the likelihood that innovation jam problems will yield knowledge that can be integrated using established coordination mechanisms, and existing development routines and organizational interfaces.

From this perspective, the different discourse and framing of problems as ‘radical’ (paper IV) is related to aligning the problem framing and discourse to the firm's 'language', to facilitate communication and reduce coordination costs (see papers III and IV). Papers III and IV show that initially some innovation jam challenges were not formulated as specific problems. They were open and related to future scenarios, to the firm's overall strategy, or a new technological area. However, in successive innovation jams, the scope was narrowed and became increasingly aligned to existing business processes and projects, and focused on problems which were well-understood by the R&D organization.

Clearer formulation of the jam scope contributes to convergence towards the definition of well-known problems, and thereby contributes also to reducing ownership ambiguity. Firms will seek to increase the chances of ideas being integrated, which implies narrower knowledge search. If the scope of the innovation jam is narrower and better aligned to the firm’s existing mechanisms for coordinating knowledge interactions, it is more likely that the innovation jam will result in the creation of knowledge that is relevant to the firm, compared to if the jam problems are less well-defined and ownership of the resulting ideas is ambiguous. Also, it is more likely that coordination for the integration of ideas will be aligned to established organizational procedures, and can rely on well-defined organizational interfaces (Berggren et al., 2011). It is likely also to lead to incremental improvements, as illustrated by the case of AB Volvo discussed in paper IV.

Therefore, to increase the commitment of employees and managers to a problem definition, firms will tend to align the different dimensions of the problem. This thesis suggests that in addition to considering problem complexity and structure, firms tend also to consider how well the attributes of the knowledge required corresponds with the firms’ existing knowledge base. These considerations increase the commitment of employees and managers to the problem definition, and increase the participation of employees in the creation of new knowledge and the commitment of managers to make the efforts needed to integrate the knowledge. Innovation jam challenges need to be framed in such a way that they can be understood by the organization (cf. Reid and de Brentani, 2004) and ‘fit’ with the firm's language and mental models (Bessant et al., 2010; Kogut and Zander, 1992).

The increasing alignment of the dimensions of a jam problem, suggests that there is a shift in the functions of an innovation jam, from contributing to the firm's innovation activities to playing a more refined function in the firm's ideation activities. There is a risk that despite the firm's efforts to access distributed knowledge sources, and enable new knowledge recombinations, the reinforcement of established development practices and attention to well-known problems are the more likely outcomes. In other words, there is a risk that innovation jams are superficially adopted and play only a ceremonial function in firms (see paper IV).

The principles of collective innovation practices may not fit with existing organizational practices for developing new products, and the difficulties involved in integrating new principles for organizing innovative activity (cf. Boudreau and Lakhani, 2012; Lifshitz-Assif, 2015). In line with previous studies of organizational practices (Foss et al., 2010; Remneland and Wikhamn, 2013), this thesis suggests that in order to realize the innovation potential of an innovation jam, the firm might need to adjust its established development practices. It underlines the need for new knowledge and new managerial solutions to help to resolve some of the problems faced by firms when shifting to collective innovation practices.

The empirical findings suggest that the firm might need to reframe its innovation discourse and problems, implement new assessment criteria, and adjust its firm strategy. Finally, the empirical studies show that the introduction of innovation jams in large firms is a complex and dynamic task which requires time and resources devoted to innovation jams. Firms need to be aware of the constraints imposed on the introduction of collective innovation practices, such as innovation jams, by established development practices and discourse. Firm-specific routines and language can generate barriers to the creation and further development of valuable knowledge.

6. CONCLUSIONS AND CONTRIBUTIONS

This thesis explored the innovation jam as a potential vehicle for innovation. To achieve this aim, I extended the perspective of an innovation jam and also considered the activities required to integrate knowledge. While previous work (e.g. Bjelland and Wood, 2008) proposes a fixed view of innovation jams and as detached from the organization, this thesis proposes a dynamic and situated view of innovation jams. The previous literature focuses mainly on innovation jams from the perspective of knowledge creation, and thus considers the innovation jam as primarily aimed at the generation of new ideas. This thesis has highlighted the interplay between the innovation jam and the surrounding organization, and identifies how the different functionalities of an innovation jam evolve and change as a result.

The empirical findings presented in this thesis contribute to a better understanding of the innovation jam as a collective innovation practice. In so doing, it has highlighted the presence of two search processes which occur in an innovation jam; on the one hand, a series of knowledge search and knowledge creation activities, and on the other hand, a series of activities to gain the commitment of the firm's employees and managers. These dual search processes imply the presence of a feedback loop between repeated innovation jams which shapes the further search for knowledge and how problems for local search are formulated and defined.

This thesis has underlined that innovation jams are situated, and suggests that innovation jam problems will tend to converge towards well-known problem definitions, and that the innovation jam process will become increasingly aligned to the firm's established development practices. Although this convergence facilitates the integration of knowledge, it reduces the possibilities for the firm to access distributed knowledge sources and enable new knowledge recombinations which might limit its innovation outputs. Finally, this thesis highlights the need for firms to adjust their established development practices, in order to leverage an innovation jam as a vehicle for innovation.

6.1 CONTRIBUTIONS AND IMPLICATIONS FOR PRACTICE

This thesis research has identified the complexity involved in collective innovation practices. It highlights a dual search process involved in firms' internal and collective innovation practices. It has demonstrated the need for the firm to balance decisions about local search of knowledge with decisions about the integration of knowledge. The implications of this balancing act were discussed in the context of innovation. While previous work on innovation jams studies them mainly from the perspective of knowledge creation, I have argued for the need for a holistic perspective which includes knowledge integration activities. A better understanding of how these activities are interrelated and how firms balance decisions and sometimes conflicting needs, could lead to the development of a more informed theory of innovation management practice.

This thesis adopted a situated and dynamic view of the innovation jam, consistent with previous studies on organizational practices (e.g. Lozeau et al., 2012; Stensaker and Falkenberg, 2007).

This research constitutes a foundation for the development of collective innovation practice models which consider the organizational context in which these practices are introduced and adopted. Such models could combine multiple perspectives to enrich the understanding of collective innovation. Moreover, understanding the interplay between these practices and firms' established practices, and conceiving the functions of collective innovation practice as 'becoming' rather than as fixed and inherent, allows a rethinking about how firms organize ideation and innovation activities. By addressing innovation jams as a dynamic and situated practice, this thesis proposes a different way of understanding collective innovation practices and their functions. The previous literature argues for the need to acknowledge the dynamic nature of idea maturation (e.g. Björk, 2011); I have argued for the need to acknowledge the dynamic nature of collective innovation practices as a result of their being situated in a particular organizational context.

Finally, previous studies describe how firms seek actively to engage employees in the generation of new ideas (Adamzcyk et al., 2012; Bjelland and Wood, 2008; Stieger et al., 2012). I show that firms seek also to engage managers who can invest time and resources into maturing new ideas. Previous work emphasizes the need to enable participants to self-select into innovation jam challenges while I have suggested there is a need to enable managers to commit to problem definitions.

The findings presented in this thesis have implications also for firms' efforts to source and search for knowledge internally. First, hosting innovation jams is a complex and dynamic task, and the time and resources are often underestimated. Established development practices and discourse can constrain the firm's ability to create valuable new knowledge. Thus, an increased awareness of the constraining factors would support managers to more deliberately manage innovation jams and their functions. An innovation jam may require additional changes to established development practices. Examples of such changes in the literature include developing additional mechanisms to facilitate interaction among the actors involved, developing a new discourse, and proposing new evaluation and assessment criteria.

Second, by acknowledging the dynamic character of innovation jams, and understanding innovation jam functions as something that emerge from their interplay with the organization, managers can more easily consider potential organizational responses to the introduction of an innovation jam. Creating an increased awareness of this interaction can help managers overcome the potential difficulties imposed by the organization. Moreover, increased awareness of these challenges could allow managers to articulate and prioritize the managerial rationales for hosting an innovation jam.

Third, the few opportunities to engender the commitment of employees and managers suggests that innovation jams are not so much managed but should be considered a form of coordinated interaction. Awareness of how the dual search processes proposed in this thesis influence decision making could help managers to make better informed decisions, and balance conflicting needs. Finally, while innovation jams are useful to 'kick-start' firms' efforts to implement and work with collective innovation practices, these practices risk having only a

ceremonial function, thus serving as an alibi for innovation. The organization's focus can be diverted to the number of ideas generated, rather than including the integration of ideas. Managers should have in place a strategy for integrating ideas in order not to undermine future efforts to initiate innovation activities.

6.2 REFLECTIONS AND FUTURE RESEARCH

In common with studying an emerging research phenomenon, the research process is emergent and involves frequent iterations between the empirical findings and the literature. Since innovation jams are an emerging phenomenon, they need to be defined in order to identify what is an innovation jam. In this thesis, innovation jams are considered to represent a collective innovation practice. Further research on innovation jams could allow a more delineated conception of innovation jam, and distinguish it from similar phenomena.

This thesis proposed a situated view of the innovation jam, understood in the context of innovation in large, established firms. Innovation jams have been used in other contexts such as user innovation and the public sector. This research suggests opportunities for future research on the interactions between collective innovation practices and the organization, and innovation jams in other contexts which could contribute to a better understanding of what is attributable to the notion of an innovation jam and what is attributable to the particular context of the jam.

This thesis research constitutes a first step towards a process-oriented and longitudinal understanding of collective innovation practices. In order to better understand the dynamic involved in collective innovation practices, future research could conduct similar studies to allow development of better informed research to support the implementation and use of these practices.

Finally, there are challenges involved in studying and capturing an emerging phenomenon. One of the problems involves going beyond purely narrative descriptions and deriving more general insights which could be investigated in more depth. The innovation jam functions observed evolved in all the firms, in line with Diasio's (2016) observations of the IBM innovation jams. This suggests the criticality of timing when studying an emerging phenomenon, and the possibility that the continuous and deliberate use of innovation jams in the firms studied fulfilled additional functions which were not visible. Given the alleged temporary nature of the innovation jam and its functions, it would be interesting to conduct further research to understand the underlying mechanisms causing their evolution and change.

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APPENDIX 1: INTERVIEW GUIDE 1

Comment: This interview guide was used in the first research phase of all four studies in order to capture the phenomenon. Since the interviews were semi-structured and open-ended, the guide was not followed strictly. Rather, the guide indicates the areas which were of interest to investigate during the interviews.

Introduction:
Could you please indicate your role in the company?
How were you involved in the innovation jams?
What did you do? What were your tasks and responsibilities?

Background information:
What is an innovation jam to you? How would you describe an innovation jam?
When did your company come up with the idea of conducting innovation jams? Whose idea was it?
Why did you continue to host innovation jams?
How did you develop the IT-platform that was used to host innovation jams?

Innovation jam process:
How are innovation jams conducted?
Which are the most important steps and activities of an innovation jam?
Who is responsible for the innovation jam and its organization?
How are innovation jams financed?
How are innovation jam topics chosen? Could you give a few examples of previous innovation jam topics?
How are ideas submitted to the IT platform? Were there any requirements for how the ideas should be described?
How are participants rewarded? Do they receive a monetary compensation for participating?
How are ideas evaluated? Do you categorize ideas somehow?
What has happened to the ideas from the innovation jam?
Have the ideas been integrated? How were they implemented?
How many ideas would you say have been implemented?
How are the integration activities financed?
Why have you chosen this organization of the innovation jams?

Other interesting aspects:
What are the challenges involved with hosting innovation jams? Have you considered other similar approaches which would render the same results as an innovation jam?
How would you describe the primary function of an innovation jam?
What benefits for the company do you see in hosting innovation jams?
How is the innovation jam process aligned with the daily business activities, the development activities in particular?

APPENDIX 2: INTERVIEW GUIDE 2

Comment: This interview guide was used in the second research phase of studies 1, 3 and 4 in order to capture the evolution of the phenomenon and its interaction with the organization. Since the interviews were semi-structured and open-ended, the guide was not followed strictly. Rather, the guide indicates the areas which were of interest to investigate during the interviews.

Introduction:
Could you please indicate your role and how you were involved in the implementation of innovation jams?
What did you do? What were your tasks and responsibilities?
Apart from you, who were involved in the implementation of the innovation jams?

Background information:
What is an innovation jam to you? How would you describe an innovation jam?
When did your company come up with the idea of conducting innovation jams? Whose idea was it?
Did anyone oppose the idea of innovation jams at the company?
Did you consider any alternative approaches instead of an innovation jam? Why not?
What were the main reasons for implementing innovation jams?
Apart from you, who were initially involved in the project?

Implementation phase:
Can you recapitulate the most important steps of the process of implementing innovation jams?
What were the most important factors that enabled the implementation?
How did you develop the IT-platform that was used to host innovation jams?
What are the activities that constitute the innovation jam process? How did you arrive at a formalized process for the innovation jam?
Were there any changes within the company as a result of the decision to implement innovation jams? Which ones?
What challenges did you face in light of the implementation of the innovation jams? Why do you think that you faced these challenges?

Other interesting aspects:
Which organizational members do you try to integrate in the innovation jam process? Why these members?
How is the innovation jam process aligned with the daily business activities, the development activities in particular?
Have you been forced to make adjustments to the innovation jam process since the start? If yes, why? If no, why not?
How would you describe the primary function of an innovation jam? Has this view of the function of a jam changed over time?

How would you say that an innovation jam enables innovation in the company?
Do you see other application areas of an innovation jam in the company? If yes, which ones?
What benefits for the company do you see in hosting innovation jams?

APPENDIX 3: INTERVIEW GUIDE 3

Comment: This interview guide was used in the first and second research phase of studies 1, and 4 in order to capture organizational members' perceptions of an innovation jams and its outcomes. Since the interviews were semi-structured and open-ended, the guide was not followed strictly. Rather, the guide indicates the areas which were of interest to investigate during the interviews.

Introduction:
Could you please indicate your role and how you were involved in setting up of the innovation jam?
What did you do?
Apart from you, who were involved in setting up the innovation jam?
Who was the sponsor of the project?

Background information on the innovation jam:
What is an innovation jam to you? How would you describe an innovation jam?
Who came up with the idea of hosting an innovation jam?
Why did you decide to host an innovation jam?
What were the goals of the innovation jam?
How was the innovation jam received in the organization? Did anyone oppose the idea?

Problem formulation:
What was the topic of the innovation jam?
How was the topic chosen?
Who were involved in choosing the topic? Why were these people involved?
Which business functions had an interest in the innovation jam topic?

The innovation jam session:
How did you go about setting up the innovation jam? Which activities were undertaken in relation to the innovation jam?
When did the innovation jam take place? For how long did it last?
Who were invited to participate in the innovation? How were employees invited?
Was it an open or closed innovation jam session? Why?
Was it easy for employees to free up time to participate in the innovation jam? How did you make sure that employees could participate?
Were there specific roles during the innovation jam? E.g. moderators or facilitators?
What happened during the innovation jam? How many participated?
How were ideas submitted to the IT platform? Were there any requirements for how the ideas should be described?
How were participants rewarded? Did they receive a monetary compensation for participating?

Outcome and evaluation:
What was the outcome from the innovation jam? How many ideas were generated?

How would you describe the ideas that were generated in the innovation jam?
How did you evaluate the ideas? How many ideas were finally selected?
Are you happy with the outcome? If yes, why? If no, why not?

Integration of ideas:
What has happened to the ideas from the innovation jam?
Have the ideas been implemented? How were they implemented?
Who were responsible for developing the ideas?

Benefits of the innovation jam:
Would you regard the innovation jam as a success?
How would you describe the benefits of the innovation jam?
Would you consider doing an innovation jam again? If yes, why? If no, why not?
If you would do an innovation jam again, would you do anything differently?
Can you describe the most important success factors when setting up and conducting an innovation jam?
Could you please indicate if there are other people who were involved in the innovation jam that I could talk to?