Studying innovation processes in real-time: the promises and challenges of ethnography

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STUDYING INNOVATION PROCESSES IN REAL-TIME

The promises and challenges of ethnography

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Research highlights

- Ethnography is a challenging yet promising way to study innovation-in-the-making
- Follow the actors to untangle the complexity of innovation
- Ethnography reveals uncertainty as it is experienced before outcomes are settled
- Ethnographic data enables the theorizing of innovation as a process and practice

Abstract

This paper discusses the promises and challenges of innovation ethnographies. We depart from the notion that innovation processes are highly contingent, messy and non-linear and examine ways in which these processes have been studied. Our focus is on the challenges posed by the use of ethnographic methods to study innovation in-the-making. Our discussion is illustrated by an example culled from a longitudinal, real-time study of an innovation process in the food industry, inspired by actor-network theory (ANT) and its injunctions to focus on controversies and follow the actors. We conclude that although innovation ethnographies pose plenty of theoretical, methodological and practical challenges, they remain a promising and powerful method to map out the complex and tortuous paths of these processes.

Keywords: ethnography, real-time, method, innovation processes, industrial networks

1.INTRODUCTION

In a recent publication, Sørensen *et al.* (2010) argued that there is a mismatch between our knowledge of innovation processes and the methods commonly employed to study them. While Sørensen *et al*. suggest experimental methods as the way forward, in this paper we propose to explore the benefits and challenges of doing a 'real-time ethnography' of innovation processes. We do this in response to the call for more 'process studies'[3] of innovation and organization (Pavitt, 2005; Tsoukas & Chia, 2002; Van de Ven & Poole, 2005; Hernes, 2007; Håkansson & Waluszewski 2007). Heeding these calls involves making the notions of process and interaction the point of departure for studying innovation. There is thus a need to improve our understanding of the mechanisms and dynamics of how innovations emerge and unfold in practice. In addition, we note the recent calls from Watson (2011) and Van Maanen (2011) on the need for more organization and management ethnographies, and suggest that our argument for improving our understanding of innovation processes has some relevance for the study of other processes, such as strategy development and organizational change.

Our empirical starting point is the recent doctoral thesis of one of the authors (Hoholm, 2009; forthcoming 2011), an ethnographic and longitudinal study of innovation processes inspired

[3] See also Olsen (2011) for a constructive critique of such calls for 'process studies', which argues that *ontological* process metaphysics will be of limited value to the field, but that its *epistemology* will make interesting and potentially useful contributions at the level of analytical conceptualisation.

by actor-network theory (ANT) and conducted in a food industry setting. We will use this study as an exemplar of the issues faced in ethnographic research. The aim was to 'follow the actor' (Latour, 1987), wherever the action happened to unfold, to understand the processes and practices of industrial innovation "in-the-making", avoiding the traps of managerial and technological determinism. We know from the innovation literature that these processes produce interactions across organizations, industrial networks and even distant sectors. In this study the object was a top-end food brand consisting of a salami of salmon, and hyper-fresh high quality salmon loins, embraced by some of the world's best known chefs. Based on this study, we will problematize the initial premises of the study - follow the actors, the artefacts, and the controversies - seeing them as attractive but challenging option. We will use the data collection phase of this study as an example of the problems and benefits of doing 'real-time ethnography'[4]. In this sense, this paper is twice removed from the empirical phenomena, as it is a reflection on what Van Maanen (2011:228) calls "constructions of other people's constructions of what they and their counterparts say and do".

Since the late 1970s, ethnography has become a common approach to studying knowledge production within science and technology studies (Hess, 1992, 2001; Law, 2004) – henceforth STS. According to Law (2004:18-19), this is because it reveals "the relative messiness of practice", helping us to "understand the often ragged ways in which knowledge is produced in research". If the central issue in industrial innovation is knowledge (both when it is available and when it is missing), then it is reasonable to think that similar methods could be fruitfully applied to understand how knowledge is produced in these settings. The main difference

[4] We acknowledge that ethnography is, by definition, 'real-time'. However, we would by this term exclude ethnographic studies of more stable phenomena, such as 'culture' or 'practice' or 'coordination' within established settings. Instead we are interested in the actual process of innovating.

between laboratory and industrial ethnographies is the spatial distributedness and the heterogeneity of actors found in industrial settings. These include scientists and technologists, but also marketing and sales personnel, business managers, logistics actors, politicians, bureaucrats, investors as well as suppliers and customers. This implies that action in such settings is highly distributed in both space and time. In short, the ethnographer is challenged to observe and track many different practices without the privilege of focusing on just one of them, and resigned to the notion that it is impossible to capture 'everything' relevant to the innovation process.

Our aim in this paper is not only to de-centre the laboratory as the privileged site of knowledge production but also business organizations, regarded as the prime sites of innovation in much of the management literature. Corporate boardrooms and management offices in the organizations studied are just a few of the many sites one may have to visit to track down innovations in-the-making. But, in fact, most of the time in the field is spent with project participants, such as middle and project managers, scientists, technologists and marketers, in a variety of sites and locations.

The structure of this paper is as follows: in the second section we try to distil the essence of what we know about innovation processes. In the third section, we review and appraise the range of methods used to study innovation processes. We use our ethnographic study to highlight the practical issues of study innovation in-the-making in the fourth section. We reflect on the challenges of innovation process ethnographies in the fifth section before offering some conclusions in the final section.

2.WHAT DO WE KNOW ABOUT INNOVATION PROCESSES?

In engaging with innovation processes, we follow the common distinction between invention (novel ideas) and innovation, the latter being reserved partly for the process of developing and

implementing new ideas into use, and partly for the outcome of such processes (e.g. Van de Ven, 1986). We relate to Van de Ven *et al.*'s (1999) definition of a 'generic innovation journey', emphasizing innovation processes that are purposeful for developing a novel idea, yet constitute substantial uncertainty regarding the market, technology and organization, a collective effort over time and require greater resources than those possessed by the people who undertake these efforts (Van de Ven *et al.*, 1999: 22). A number of generic characteristics of innovation processes have been identified over the last few decades. We know that innovation processes are highly situated and contingent (Van de Ven *et al.*1999; Pavitt, 2005), while acknowledging that there is room for agency in these processes (see e.g. Garud & Karnøe, 2003). Product innovation may be depicted as 'disciplined problem solving' in which 'process performance' matters, and where the behavior of both intra- and inter-organizational actors is important for the outcome (Brown & Eisenhardt, 1995).

We further know that innovators rarely have all the resources and knowledge needed to realize their ideas on their own (Stevenson & Jarillo, 1990). This means that network resource mobilization is one of the central tasks innovators face (Hoholm, 2009, forthcoming 2011); the implication is that innovation processes depend on and are shaped by interaction with others (Håkansson & Waluszewski, 2007; Fagerberg, 2005). The complexity and uncertainty of innovation leads to learning in interaction with other actors as well as with materials and technologies (Orlikowski, 2002; Ven de Ven *et al.*, 1999). Contingency means that innovation processes are likely to follow tortuous tracks, sometimes failing to connect to crucial actors and resources, while (sometimes) succeeding to connect to actors and resources other than the ones anticipated (Latour, 1996; Van de Ven *et al.*,1999; Hoholm, 2009). The need to connect an innovation process to other, ongoing processes is crucial: unless an innovation can be adapted to the established world out there, it is unlikely to succeed (Bijker & Pinch, 1987; Håkansson & Waluszewski, 2007; Hoholm, 2009). Thus novelty is a necessary but

insufficient condition for a new idea to become an innovation unless it connects to users of various types (Von Hippel, 1988; Pinch & Oudshoorn, 2003; Håkansson & Waluszewski, 2007; 2009).

Last but not least, we know that organizations and people tend to forget or hide most of the complexity and controversy involved in the making and implementation of an innovation (Latour, 1987; 1996), including their politicized and contested character (Brekke, 2009). However, despite significant progress, there is still much work to be done in order to develop methods that facilitate the systematic study of these processes. It is to this task that we now turn.

3.METHODS TO STUDY INNOVATION PROCESSES

There are many challenges to researching innovation in-the-making. First, accounting for outcomes of innovation processes demands analytic tools that can study humans, artefacts and their interrelationships. Secondly, accounting for interaction processes in which entities get stabilized and de-stabilized, is a different task from the more common social science problems of measuring input and output factors to demonstrate cause-effect relationships, or to map out the social realm as if comprises stable and universal entities. Thirdly, if only 'hard facts' are accounted for, it would be impossible to tell stories about process and ordering. We need to include the intentions, strategies and compromises that are made and how ordering is produced.

Studying how ordering is produced is not simply about looking at the same phenomenon from multiple angles or levels. While Gupta et al. (2007) call for more comprehensive studies of

innovation, we do not concur with their advocacy of 'multi-level' studies. Starting with the notion of multiple levels settles "...the question of scale in advance" (Hernes, 2007:74). When the innovation researcher follows the action, or the "connections and associations made between heterogeneous actors" (Hernes, 2007:74), the term 'context', and the distinction between micro and macro-levels are no longer relevant as analytical concepts. Context, if anything, becomes an empirical question on how the actors draw boundaries and 'frame' their activities. As Mouritsen *et al*. (2010: 298) note, we should start from observable practices rather than from assumed contexts. Before going on to illustrate what we mean by 'real-time ethnography' of innovation processes, we will review briefly the most common methods for studying innovation process; quantitative methods, historical studies, action research and case studies.

Quantitative methods have been used to study a number of issues related to innovation processes, such as public and private R&D investments, intellectual property rights, firm growth, open and user-driven innovation, (see e.g. David *et al*., 2000). However, with quantitative studies based on large samples, what we gain in terms of understanding macro-level drivers and outcomes, we lose in grasping the complexity of situated processes and the possibility of letting time frames and process pathways become an outcome of the innovation process itself.

Business history has contributed with a large number of studies of businesses and innovation processes within particular time periods. Histories of innovation cover a variety of settings, from the firm as the originator of innovations (Hounshell & Smith, 1984; Galambos & Sewell, 1996), to user-producer interactions in particular settings (Misa, 1995), to industrial districts and specialty production (Scranton, 1997) to communities of practitioners as vehicles

for innovation (Meyer, 2006). While many of these studies are richly textured and painstakingly documented, with these studies we tend to lose some of the complexity and open-endedness of innovation, as 'stabilized' history rarely reveals much about the dead-ends, chance events, and controversies involved in innovation processes. Hence, we often get somewhat truncated views of history, despite the researcher's best efforts to critically examine and cross-check sources. The end results are stylized accounts of the past, where it is difficult to break away from the stories collectives prefer to remember.

Hence, it is possible to look at past processes and see only a linear path towards a known outcome – e.g. an innovation, a significant event. An altogether different challenge is to ride the waves of history without the foggiest idea of where they may be heading. In summary, multi-finality (the possibility of multiple endings) is always a concern for the embedded, real-time researcher. The historian, with another sense of temporal perspective, can focus on one outcome and trace the patterns of events and their sequence that led to the outcome of interest. Too often, the notion that things could have easily turned otherwise is lost in these retrospective accounts.

Nevertheless, it is difficult in practice to avoid retrospection altogether as there often is a need to use archival materials to supplement our understanding of contemporary processes. Sometimes, it may be necessary to include events that happened before the ethnographer entered the field to construct a contemporary ethnography (Hoholm, 2009; forthcoming 2011). In these cases, one has to rely solely on documents and interviews with participants, cross-checking the information with different actors, to rule out the possibility that important aspects of past events may have been lost. Still, the aim is to re-construct and re-present the challenges faced by situated actors in a trustworthy and credible fashion. No method offers

truth beyond doubt, dialogue or revision (Mouritsen *et al*., 2010). Thus, in terms of the process of gathering data, there are two different methodological challenges that need to be faced: the distributedness of (inter-) organizational ethnography in real-time, and the danger of actors' post-hoc rationalization of past events. One way to handle these challenges is to cross-check the accuracy of historical records, and keep in regular contact with key informants in order to catch up with recent events while they are still 'fresh' and their meaning has yet to be collectively stabilized.

Cox & Hassard (2007) review retrospective methods in organizational research and warn against positivist and interpretivist positions that assume the past may be controlled or distinguished from the present in retrospective research. Instead, they advocate a position of re-presentation, in which the present is not understood as being independent of the past, but rather that the past, present and future are co-constituted both in the negotiation of meaning in organizations, and during the writing of the researcher. In this sense, the stabilization of history is an interesting topic in itself – of how actors delete and/or re-interpret aspects of their past in the ongoing processes of realizing their present projects and identities. One could argue that this acute sense of temporality is present in George Herbert Mead's notion of time and indeed, in the view of agency proposed by Emirbayer & Mische's (1998). Agency is seen as a temporally embedded process, informed by the past (habits and routines) but also oriented toward the future (as a "projective" capacity to imagine future scenarios). The present, often seen as the agential moment, is regarded as a "practical-evaluative" capacity to contextualize past habits and future projects within the contingencies of the "here and now". The implication is that situated actors and the real-time ethnographer are very much in the same boat, even if the character and purpose of their narratives are rather different. The researcher also has to acknowledge that his story is just one of a number of potential versions

(Law, 2004; Oppenheim, 2007; Gad & Jensen, 2010), provide a transparent account for how his story was constructed, and make an argument for its value. The resulting time and shape of the re-presented processes are therefore both products of the participants' negotiations, and of the researcher's purpose, questions and fieldwork (e.g. interviewees, documents accessed, when and where observations were conducted).

Action research (AR) and intervention research have been employed for facilitating innovation processes for a long time (see e.g. Gustavsen *et al.*, 2008; Sørensen *et al.*, 2010 on action research, and Engeström, 1987 on intervention research/activity theory). Recently, Sørensen *et al.* (2010) suggested that experimental methods (EM) – laboratory as well as natural experiments – should be used more frequently for studying and influencing innovation processes, particularly those related to open innovation. Their argument is that systematic treatment of innovation cases as 'experiments', controlling for a variety of relevant factors, will enable cross-case generalizations while at the same time providing actionable input for adjusting innovation practice.

Case studies are a very popular method for studying innovation processes (e.g. Slappendel, 1996; Ferlie *et al.*, 2005; Håkansson & Waluszewski, 2007). In practice, this often means using combinations of interviews and written materials to capture the contemporary (and/or past) state of some phenomenon of interest. Sometimes it also includes observations and repeated interviewing over time, with the ambition to follow processes in real-time (see e.g. Lundgren, 1994), and the chosen time frame of the case study has effects on its interpretation (Dubois & Araujo, 2004). However, many innovation case studies are rather static and focus on representations of variables such as 'cultures' and 'structures'. In this paper our focus is on

the real-time ethnography of innovation processes. In the following section we seek to explain what we mean by a 'real-time' ethnography before we provide an illustrative case.

3.1 What is it to follow innovation in-the-making?

Ethnography may be said to be about participant observation, with the ethnographer "participating, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions – in fact, collecting whatever data are available to throw light on the issues that are the focus of the research" (Hammersley & Atkinson, 1995:1). In a recent dialogue between Watson (2011) and Van Maanen (2011), Watson admits that ethnography suffers from problems of research access as well as convincing journal reviewers and editors of its contribution. Still, he argues for the necessity of participant observation for learning "what 'actually happens'" in organizations (Watson, 2011:204). The benefits of ethnography may thus be the production of knowledge that can make the reader "able to cope and survive on board such organizational vessels". Ethnography should be involved in "systematic generalizations about 'how the world works'" (ibid: 209). Van Maanen support this ambition, as the 'headwork' of ethnography involves "developing concepts, theories, or frameworks that fit one's particular research questions and studied situations" (2011:223), reinforcing the ethnographic ideal that the universal "can be found in the particular" (ibid: 227). Van Maanen (2011: 224) identifies a 'shift' in recent organizational ethnography as being "less confined to single-site studies", and instead moving towards 'multi-site ethnography' (ibid:224), following the increased distributedness of organizational practices.

To study innovation in-the-making, we thus need to get in a position to follow actors and resources through the different phases of innovation processes. However, it is not easy to ”follow the action” when it is unclear what constitutes “action” and where and when it is occurring. The challenge is not just that organizations are no longer “...exclusively local or whole” (Van Maanen 2011: 225), but also the need to trace multiple and parallel activities some which will lead to dead-ends while others may turn out to succeed in one way or another. In this sense, the research account needs to be kept open to revision throughout the innovation journey. This also means that there are risks associated with innovation ethnographies, as the researcher may easily enticed to follow the wrong trail. Our conception of studying innovation is to focus an emerging object or practice from the inception of an idea to its successful realization (or indeed failure). Furthermore, it involves studying interactions of the actors involved, such as scientists, engineers, managers, marketing and production staff or customers, governments and financial institutions, not to mention the non-human actors, such as technologies, texts and buildings. Studying innovation in real-time is about observing and accounting for an object or practice that is also a heterogeneous and evolving network (Latour, 1987): to investigate how ideas, knowledge and meaning gradually get transformed and embodied in a variety of media (e.g. documents, artifacts), thereby making the innovation more “real” as it unfolds.

How do these considerations inform empirical research? Industrial innovation processes involve sets of epistemic and economic practices These are practices with different aims, frames and evaluation criteria from scientific practices; the stabilization and evaluation of knowledge is performed less according to scientific norms of knowledge production than economic norms of profitability, return on investments, and so on. This deficiency has also been partly addressed by Mouritsen & Dechow (2001) and Mouritsen *et al.* (2009) amongst

others. For these authors, management technologies for example related to accounting, logistics, or business planning, are not just passive agents waiting to lend force to arguments for innovation. They also have the power to mobilize others, to create contexts for innovation. Management technologies have the power to represent the detailed and varied practices involved in innovation as well as contextualize innovation within a broader set of concerns. Hence, transformations of scientific knowledge into industrial and economic practices are often uncertain processes demanding considerable time and resources (Håkansson & Waluszewski, 2007). The inclusion of practitioners of various kinds and in various places is beneficial towards the understanding of such complex processes; arguably the main source of uncertainty is found in the interaction between various practices and practitioners – especially between those that are new to each other. The advantages of this methodology are the opportunities to follow socio-technical practices *as they evolve*.

In ethnography, the emphasis is put on the interaction between the ethnographer and actors in the field, hence the argument that ethnographic fieldwork has a dialogical nature (Hess, 1992). Such real time studies have the power to elucidate the uncertainties and contingencies the actors experience in the course of deciding and acting. This is not a matter of constructing definitive version of events; rather it is an attempt at re-constructing the actors' experiences, interpretations and actions in the face of the 'opportunities' and 'uncertainties' of innovation. The aim is to re-construct/re-present some of the difficulties, controversies and choices that the involved actors faced, as well as avoid post-hoc rationalization. When situated actors and the ethnographer make sense of stories as they unfold, there is a strong temptation both to align and compact narratives. Deuten & Rip (2000) raise an interesting point in this context. The narratives of successful innovations tend to successively eliminate the tortuous traces of their own production in favor of simpler, linear narratives. By contrast, failures tend to be

more amenable to complex, detective story genres (who did it?) one finds in Latour's *Aramis* (1996), for example. Latour (1987: 258) underscores the need for studying knowledge production *in action*, in order to "either arrive before the facts and machines are blackboxed or (...) follow the controversies that reopen them", thereby looking for the transformations the innovation go through. On the basis of 'real-time' studies of contingent processes, and the provision of 'thick descriptions' (Geertz, 1973) of the field, ethnography may produce both deep insights as well as a number of different interpretations. The ethnographer's account is not granted supremacy over other interpretations of events. If research is regarded as an ever-evolving discussion amongst several constituencies (e.g. practitioners, experts), multiple interpretations should be celebrated rather than derided. If the analysis of social issues is the researcher's "constructions of other people's constructions of what they and their compatriots are up to" (Geertz, 1973: 9), the ethnographer's interpretation should be confronted with lay actor's accounts as a matter of necessity. The boundaries between experts and users of social research should not be drawn tightly not should we assume that social science arguments are necessarily more compelling than lay arguments.

However, ANT ethnographies are not without critics. Vickers & Fox (2004) argue that ANT has tended to focus on elites, and its claim for symmetrical analysis, it tends to give prominence to some humans over others. ANT has also been accused of taking a moral relativist standpoint namely in relation to ethics. Vickers and Fox' solutions to this issue are to focus on non-elite people, and on processes of counter-enrolment or resistance. Fox (2000) argues that ANT relies on de-contextualization, and thus that context is dependent on the viewpoint of the studied actors as well as those of the observer. However, in line with the de-contextualization argument, and in line with Czarniawska (2004) and Hoholm (2009) we find that there is good reason to stretch ANT ethnographies beyond what has commonly been by

tracing the network building activities beyond local sites and projects, and connecting the focal narrative to some of the other processes with which it interacts.

4.DOING INNOVATION PROCESS ETHNOGRAPHY: AN EXAMPLE

4.1 Gathering materials

In this section we detail the data collection methods of our exemplary ethnography (Hoholm, 2009) to highlight the practical issues of using ethnography to study innovation. The study consisted of gathering a highly heterogeneous mix of research materials, using participant observation, informal conversations, interviews and document analysis. During an initial period of 6 months, the ethnographer spent a lot of time at the focal company's R&D department, both with some workgroups, and talking to various people in the organization. The project teams consisted of scientists, product developers and marketing personnel, and during these early stages they were located at the R&D department (at production facilities 20 km away from the administrative site). He also began conversations with what would become a small set of key informants; a research manager, an innovation manager, a product developer, and an international marketing manager. After a few months, he went with two of them to a Salmon Farm partner to observe the first attempt at large scale production of a new salmon-based product. He also joined the project manager on a new trip to the Fish Farm a second time three months later, and finally visited the Fish Farm two years later for a last round of interviews with the management of the farm.

After having spent a few months in regular contact with the R&D department, he gradually increased the contact with people on the commercial side; the marketing manager of the

salmon project, managers, and people working on several issues, such as intellectual property rights, and so on. Shortly afterwards, it was time for the first international market trip for the project team, and the researcher joined them to a large food exhibition in Paris, thus getting a chance to get to know better a number of people involved in the project. At this stage, it still was not clear whether the salmon project was the innovation process to follow. To ensure access to interesting data, at the beginning several projects within the same portfolio of agro-marine innovation projects were traced in parallel. In particular, an innovation relating to biomarine and functional foods was investigated. This involved, amongst other things, a trip to the remote location where the plant was situated together with two of the project managers from the Food Company. Gradually, through getting a better picture of the potential output and the time frames of each project, it became easier to select one of them as the project to follow in detail.

During the first months of the second year, the researcher occupied a desk in the open-plan offices of the Food Company's administration. He spent several days a week there to observe work practices among the marketing and the management people, strengthening his informal dialogue with central actors in the relevant projects, conducting a first round of interviews, and going systematically through documents in project and individual archives. Several of these people, particularly the marketing director for the salmon project and the department manager, became key informants in his fieldwork, in addition to the person who worked with international marketing and intellectual property rights issues. The researcher met with these people relatively often, as they were willing to openly share their views and experiences. As the product and production technologies became relatively stable, more of the action in the project had moved to the marketing department, the production facilities, and various

customer locations. Still, he kept regular contact with the project manager and a few others at the R&D department.

With regard to his status and role during the fieldwork, as a newcomer to the organizations, he was allowed the role of an 'acceptable incompetent' (Hammersley & Atkinson 1995:103), thereby having the opportunity to ask 'silly' questions about things 'insiders' took for granted. Related to Junker's (1960) typology of social roles in the field, he was perhaps closest to the 'observer as participant' role, meaning that he did not take part in performing any of the activities he studied, and he did not have any tasks or responsibilities. At the same time, everyone knew that he was a researcher, and he spent a great deal of time talking and interacting with the actors. This is 'participant observation' (Hess, 1992), not to just observe behavior, but also to engage in dialogue. As with many other ethnographers, the informal conversations at the desk, by the coffee machine and over lunch provided him both with valuable information and with an in-depth understanding of the practices of the organization. These informal conversations were particularly useful to get information of more controversial issues, like 'micro-politics' within the team and between the involved organizational network, and to get access to some of the immediate responses when people experienced frustrations and set-backs, as well as surprising opportunities and progress.

The researcher did not use a structured interview guide during any of the interviews; instead he brought lists of topics that he wanted to cover during the conversation. This constitutes, according to Hammersley & Atkinson (1995:154), the clearest difference between the way survey interviewers and ethnographers structure interviews, between 'standardized' and 'reflexive' interviewing. It was not a matter of unstructured versus structured; rather, the ethnographer structured the interviews – together with the interviewees – as conversations,

where the order and mode of questions could shift as the conversations evolved; non-directive, directive and even confrontational. In addition to these interviews, his understanding of what was going on, including emerging innovation strategies, work practices and power relations, was to a large extent shaped by the informal interaction over time with the various participants in the studied processes. Meeting up with individuals and groups during their daily work activities, sitting at a desk in their open plan offices, and travelling with them to partner and customer meetings produced a large number of interesting observations and informal conversations.

For practical reasons, he did not have the opportunity to balance his time spent ‘in the field’ evenly throughout the process or across the places where things happened. First, this was because parts of the relevant processes had already taken place. In the salmon project, the initial exploration and science based phase was finished, as well as the first stage of the product development phase. These phases involved going from an idea of a new product, via a series of scientific experiments, to travelling to various countries to study their food cultures and markets, and to developing early product prototypes. For these parts of the story, the ethnographer had to rely on a combination of interviews, informal conversations and document analysis. Key personnel from these early phases who were no longer participants in the projects still needed to be interviewed. Secondly, the real-time processes under investigation were unpredictable and complex. Sometimes meetings and discussions had taken place at short notice in times and places where the researcher was not present. Even if the hosts showed an open attitude to his presence, it did not always mean that he was invited to business meetings or other events of potential impact on the innovation he was studying. At other times, things happened in several places at once, like when the people at the production site (at the fish farm, 500 km away from the administration site) struggled to improve and

stabilize their production routines together with people from the R&D department, the marketing people worked with adapting their strategy towards potential customers, and the management worked on renegotiating agreements between the parties involved.

On a few occasions, the researcher had the opportunity to present his preliminary interpretations of the innovation process back to project participants and well-informed groups of people. This was done in meetings with upper echelons, middle managers and project participants, in seminars attended by board members, and by getting project participants to read and give feedback on working papers describing and analyzing the innovation case.

4.2 Re-organizing and reconstructing materials: Writing ethnography

In ethnographic research, observation does not precede analysis as they are better depicted as constituting an intertwined process, a 'dance' between observing, talking, reading, thinking and writing. However, as many anthropologists have noted, perhaps the most demanding task of ethnography is *writing* (Geertz, 1973). Methodological resources are also needed for the textual treatment of the often massive amount of field materials (e.g. notes, interviews, documents, artefacts, pictures, videos). Writing is a process of ordering these materials into a meaningful text, a text that provides new insights into the particulars of the investigated setting, as well as what can be learned from this in dialogue with other studies of similar phenomena. Thus, how can we account for real-time studies of innovation processes, noting in passing that at this stage, the case is already *past*? An ethnographic research strategy in inter-organizational settings tends to produce a voluminous amount of detail, which is incomprehensible without some framework through which the story can be reformulated and

analyzed. An ‘ordering strategy’ was needed for handling the complex data (or ‘capta’ as suggested by Hernes, 2007).

Many ideas about how the story should be told, and how theoretical discussions and contributions should be framed, were tested in writing and discussion with colleagues, before the final text took shape. Should the chronology of events, the themes the researcher wanted to emphasise, or even the process of investigation, form the underlying structure for presenting (re-constructing) the empirical stories in the text? The researcher ended up deciding on a chronological and detailed description of the case. In line with Geertz’ (1973) concept of ‘thick description’, and Hess’ (1992) suggestion to include more of the field materials in the account to avoid finite interpretations from a ‘superior’ ethnographer, he used field materials extensively. With regard to the outcome of the study, he aimed to contribute to the field of innovation studies, by providing rich insights into an under-researched phenomenon, and by engaging in dialogue with related literature on conceptualizing key characteristics of innovation processes, as well as discussing the relationships between them (see Weick, 1989; Walsham, 1995; Hammersley & Atkinson, 1995; Law, 1994 for discussions of generalizations from interpretive research). The theorizing process is therefore best understood as a conceptual generalization. The empirical account and the following analytic scheme was used to suggest theoretical implications for innovation processes, while challenging as well as complementing previous innovation studies.

5.THE CHALLENGES OF INNOVATION PROCESS ETHNOGRAPHY

One of the reasons why we have seen too few in-depth and longitudinal ethnographic studies of innovation processes to date is that it can be very challenging. First and similar to other

longitudinal studies, one easily run into time constraints. It is, for example, doubtful that the aforementioned study could have been done within the ordinary time frame of a doctoral project. The time frame of the empirical study had to be kept open for quite some time, simply because it was impossible to know how the innovation process would unfold or indeed, what process should be tracked. Thus, we may legitimately wonder whether our theories of innovation are fundamentally shaped by our methods and practical constraints. Secondly, there is the problem of choosing which activities and 'sub-processes' to follow. In the heat of the action, there is not *one* innovation process, there are many ongoing processes at the same time, sometimes interacting and sometimes moving in different directions. In some cases, peripheral processes suddenly become pivotal, while perhaps moving back to the periphery at a later stage. Innovation studies (e.g. Van de Ven *et al.*, 1999) tell of false starts, abysmal failures and sometimes, apparent failures that are recovered and transformed into something else. The researcher observing such complex situations faces the same problems as the situated managers: lack of foresight about how things will turn out, absence of criteria for judging what parts of the process to monitor, and little guidance as to what kind of data will turn out the most useful. One cannot obviously be in multiple places at the same time, and the organizations and networks we are interested in are highly distributed. Many of the events that later will turn out to have been critical to the innovation process happened in places the researcher did not visit or visited at the wrong time.

There are, at least two issues emerging from the preceding discussion that are worth reflecting on further: a) is there such a thing as a real-time ethnographic study?; b) how much can we theorize about processes? The answer to the first question is that capturing events in real time confronts the ethnographer with the same problems historians face in terms of parsing event chains to fit into narratives that are necessarily partial and selective. Trying to write history on

the fly has a marked disadvantage to the historian's distance from a set of events and knowledge how those events fit into a broader pattern. The second question raises interesting issues regarding the relationship between history and the social sciences. At one extreme, Van de Ven & Poole's (1995) advocate that one can theorize about processes in general and catalogue ideal process types as building blocks for larger, empirically-grounded processes. While this may seem an attractive proposition, it is also problematic as it seeks to leave out (too much) of the context. In the opposite corner, we have those who emphasize contingency and conjunction, as well as sensitivity to both path dependence and creation to put the title of Garud & Karnøe's (2001) book to good use. In this sense, there is no such thing as process in general, only very specific processes that we can artificially delimit in space-time for narrative purposes. Abbott (2001) argues that not only do theories have methodological implications, but methods also have theoretical assumptions built-in. While ethnography lends itself towards the particularistic side, in our experience it carries a great potential for the kind of theorizing that takes the uncertainties of ongoing activity seriously. This resonates with the recent dialogue between Watson (2011) and Van Maanen (2011) and their call for more ethnographies to help us understand 'how things work' in organizations.

In short, we need to abandon the romantic view of ethnography meaning that all the ethnographer needed to do was to negotiate access to a research setting and patiently record and classify data about people and events in the immediate surroundings. Instead, we suggest that the innovation ethnographer should see ethnographic research as a process of searching for and tracing fragments of processes that could not have easily been recorded via other methods. Furthermore, there is a need to strike a finer balance between method and theory. First, by keeping methods strong and open to enable systematic observations while remaining alert to events that turn out differently than expected. Secondly, by keeping theoretical

frameworks strong and open enough to enable ambitious theorizing based despite the necessarily messy, situated and constrained nature of empirical observations.

6.CONCLUSIONS

The study mentioned in a previous section leads us to offer a few conclusions about the value of innovation ethnographies. In our case, the innovation turned out to become a success-story for the participants, but not necessarily for the reasons the participants or the researcher anticipated. Whilst in the field, the researcher had the opportunity to observe a number of processes as they happened and was able to describe choices, controversies and compromises when everything was still in flux and nothing had yet settled. Law (2004) aptly describes such situations as ‘messy’. This real-time tracking of processes enabled the systematic development of analytical frameworks and theorizing, taking controversy and uncertainty of how to relate the innovation to other networks and processes as a starting point. Novel insights were generated that could not have been easily obtained through a retrospective study, or dismissed as mere speculations had the researcher not witnessed them first hand.

How can a real-time ethnography help us theorize innovation processes? Our reply to this question comes in three parts. First, real-time ethnography can give us a heightened sense of the uncertainties, contingencies and choices faced by situated actors, and to see agential moments as the capacity to contextualize interpretations of the past and future projects (Emirbayer & Mische, 1998). Secondly, real-time ethnography can shed light on how contexts of action are interpreted and constructed by situated actors as much as the choices they face. Thirdly, real-time ethnographies can give us a better analytical grip on controversies, tensions and fissures provoked by the existence of alternative choice paths, and the political processes

involved in selecting and discarding options. Taken together, these points suggest a need for reinforcing the notion of innovation processes as messy, uncertain and prone to multiple and often conflicting influences.

Our argument for ethnographic research can also be read more widely. Watson (2011: 204-5) makes a more general point about the need to get close to action and social interactions to any theoretical approach that privileges a notion of "practice". This applies to innovation as much as it does to other phenomena such as strategy or "identity work" in organizations. But, we propose, few organizational processes require such a fine-grained attention to spatial and temporal detail as innovation in-the-making. In this sense, the argument for the use of ethnographies applies more strongly to innovation than the cases cited by Watson (2011).

In sum, theoretical commitments and methodological choices are strongly interrelated. Theoretical commitments influence how we conceptualize phenomena and the appropriate strategies to get close to those phenomena. Methods determine what we see, what kind of data we capture, how we analyze data and "write up" our findings, to revert back to convention. And these are hardly trite points, as we have attempted to show; if we want to get closer to the challenges of innovating as situated actors face them, we need to engage more seriously with methodological strategies that can facilitate this aim.

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