CONSTRUCTING INNOVATION UNITS, ENACTING INNOVATION

AN ETHNOGRAPHIC STUDY

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Constructing Innovation Units, Enacting Innovation: An Ethnographic Study

Abstract:

In the last few years, talk about innovation has increased. Recognising the threat posed by new firms and changing market conditions, companies have started to organise for innovation by establishing innovation units. However, how these innovation units are formed and what goes on in these innovation units is still yet under-researched. Drawing on Actor-Network Theory literature, I use the notions of sociotechnical *agencements* and scripting to understand the construction of an innovation unit and the enactment of innovation. In order to study the micro-processes that occur in these innovation units, I undertook an ethnographic study of an innovation department at a large technology company in the Nordics. I show how the department is constructed through a formalisation *agencement* that brings together actants, both human and nonhuman. Moreover, narratives are crucial to shaping the position of the innovation department in the organisation. To enact innovation, the innovation department used design thinking to construct needs and script users into digital applications. Additionally, I use the example of a certain strategy document to show how the innovation department inscribes others in its *agencements* while visualising how innovation is enacted. In conclusion, innovation units should be understood as being constituted by a plurality of actors at various points in time. Through its deployment of design thinking and use of strategy documents, an innovation unit enacts innovation.

Keywords:

Innovation Units, Design Thinking, Actor-Network Theory, Ethnography

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Contents

1. INTRODUCTION 6

1.1. Society's Innovation Obsession 6

1.2. Forming Innovation Units 7

1.3. Understanding Innovation Practices 8

1.4. Research Gap and Research Question 9

1.5. What Follows Next 10

2. LITERATURE REVIEW 12

2.1. Internal Corporate Venturing 12

2.2. Design Thinking 13

2.3. The Practice Turn in Management Research 14

2.4. Actor-Network Theory 15

2.4.1. Sociotechnical *agencements* 16

2.4.2. Scripting 17

2.5. Synthesis 18

3. METHODOLOGY 19

3.1. Research Philosophy 19

3.2. Research Approach 19

3.3. Methodological Choice and Strategy 19

3.3.1. Research Setting 20

3.4. Techniques and Procedures 20

3.4.1. Pre-study 21

3.4.2. Participant Observation 21

3.4.3. Interviews 21

3.4.4. Data Analysis 22

3.5. Quality of Study 23

4. INNOVATION UNITS AND INNOVATION ACTIVITIES 24

4.1. Formalising an Innovation Department 24

4.2. Narrating a Department 26

4.3. Deploying Design Thinking 28

4.4. Working with Innovation 30

4.4.1. Meetings 32

4.4.2. Developmental Activities 32

4.4.3. Concept Development 33
4.5. The Innovation Voyage 35
4.5.1. Adding the Customer 36
4.5.2. Pricing the Voyage 37
4.6. Reflections on Being in the Field 38
5. DISCUSSION 40
5.1. Formalisation *agencement* 40
5.2. Narratives 41
5.3. Enacting Design Thinking 42
5.4. Inscribing the Department 43
5.5. Inscribing the Organisation 44
5.6. Constructing the Department and Innovation Together 44
6. CONCLUSION 47
6.1. Contribution 47
6.2. Managerial Implications 48
6.3. Limitations and further research 49
7. REFERENCES 50
8. APPENDICES 60
8.1. Interview Guide 60
8.2. Overview of Themes and Quotes 61

1. Introduction

Innovation permeates society in every way. From the proclamation of the iPhone as the most radical innovation in recent years to the supposed acceleration of everyday life, the idea of innovation is everywhere (Pisano, 2015; Wajcman, 2016). As a result, it is no surprise that innovation is the seen as the symbol of the modern era where companies flourish or flounder if they fail to innovate (Dodgson, Gann, & Phillips, 2014; Sax, 2018). Innovation is the key to survival. As innovation has taken an increasingly central role in society, there has been a burgeoning of research on innovation as well as the development of the field of innovation management (Bhupatiraju, Nomaler, Triulzi, & Verspagen, 2012; Dodgson et al., 2014). With this growth in innovation management research, there are also opportunities to draw on concepts from related fields of study to further scholarship in this area.

1.1. Society's Innovation Obsession

What is innovation? What one might call a societal obsession with innovation has led some to argue that the word 'innovation' has suffered from a so-called "construct collapse", indicating that the construct has lost its meaning (Hirsch & Levin, 1999; Jones, 2015). Schumpeter's (1942) seminal work on innovation and creative destruction identified five components of innovation. In modern textbooks, innovation is said to be "both an outcome and a process, a fact and an act" (Dodgson et al., 2014, p. 5). In newspapers, innovation is described as "a continuing process of gradual improvement and assessment" (Sax, 2018). Nevertheless, for the purpose of this study, it is necessary to establish a definition of innovation in order to develop further concepts and build on theories presented in this essay (Suddaby, 2010). In this essay, I adopt the definition of innovation as the "invention, development, and implementation of new ideas" as suggested by Garud et al. (2013, p. 773) in their research into innovation processes.

If innovation is described as such, then what might be the practices involved in realising innovation? In other words, what do firms do in order to invent, develop, and implement new ideas? Since product innovation is one of the main strategies for corporate renewal (Dougherty, 1992), it is imperative that firms organise in order to invent, develop, and implement new ideas.

Current innovation management literature suggests that organisations should be ambidextrous. This means that organisations should be aligned in their existing work while simultaneously being able to adapt to changing market conditions (Gibson & Birkinshaw, 2004). This simultaneous pursuit of objectives has been called the tension between exploitation and exploration (Andriopoulos & Lewis, 2008; Jansen, Van den Bosch, & Volberda, 2005). Exploitation involves exploiting the organisation's capabilities for growth while exploration involves exploring new areas. To balance this

tension, innovation management scholars have suggested that firms should adopt strategies to either work from within, or from the outside, or in venture capital (Stringer, 2000). To work from within firms, these strategies are closely tied to innovation systems where firms need to create the structure and environment for innovation to occur (Pisano, 2015).

1.2. Forming Innovation Units

With the idea that innovation is imperative for an organisation's survival, there has been a managerial imperative to find ways of fostering innovation. Trimble (2010) suggests models for working within the organisation. In their research, they state there are only three models for organising innovation that work: assigning all employees with the responsibility to innovate, making innovation a business process, and forming a separate unit for innovation.

On the final model suggested by Trimble (2010), scholars have suggested that this development of a separate business unit is crucial for managing the trade-off between exploitation and exploration (Gibson & Birkinshaw, 2004; Tushman & O'Reilly III, 2004). Some of these separate business units take the form of innovation units and can be considered as a form of internal corporate venturing (Hill & Birkinshaw, 2008).

While many companies, particularly those in manufacturing industries, have had research and development units, these internal corporate ventures that scholars refer to have the aim of business development rather than pure research (Gibson & Birkinshaw, 2004). This is in line with the view that innovation is crucial for corporate renewal (Dougherty, 1992).

In recent years, companies have started setting up corporate innovation units to foster innovation. While these innovation units have several differences, they share many similarities. These innovation units are often independent units that aim to develop new products and services in the vein of innovation (Fecher, Winding, Hutter, & Füller, 2018). Such units have also been organised as a way to break down barriers and silos within the firm (Meyer & Marion, 2010). One such example of a separate unit for innovation has been innovation laboratories which help to cultivate ideas separately from the parent organisation.

In Sweden, the development of such innovation units has also taken flight. Banks such as Nordea and SEB have developed their own innovation departments (Teigland, Siri, Larsson, Moreno Puertas, & Ingram Bogusz, 2018). Retailer Clas Ohlson has its Lab Store (Clas Ohlson, 2018) while car manufacturer Volvo has several innovation labs (Volvo Group, 2019). With the advent of these innovation units, there is a need to understand how they work and open the black box of innovation practices that occurs within these units.

1.3. Understanding Innovation Practices

Innovation management literature suggests a variety of methods, frameworks, and tools that innovation units can use to produce disruptive and radical innovation. Such methods include design thinking, agile methodology, lean product development, and scrum (Carlgren, Rauth, & Elmquist, 2016; Sidky, Arthur, & Bohner, 2007). In the industry, successful technology firms such as Google have applied these methodologies to much success, resulting in even the creation of further innovation tools such as the Google Sprint (GV, 2019). This demonstrates how these tools for new product development have evolved in recent years and suggests how they might continue to generate further iterations of their own.

Indeed, one of the most prominent ideas in innovation management has been design thinking. Though this term has been discussed frequently in the popular press, researchers argue that it is still difficult to determine what it actually means (Liedtka, 2015; Micheli, Wilner, Bhatti, Mura, & Beverland, 2019). The term itself is a source of controversy amongst designers and supporters (Liedtka, 2015). When translated into management discourse, design thinking has also adopted a different character (Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013). Such is the case that during the writing of this essay I questioned whether it would be appropriate to describe it as an 'idea', 'approach', 'framework', 'methodology', or 'mindset'.

Design thinking has been heralded as the best way to develop innovative concept; there has been literature from both scholars and practitioners outlining the potential benefits of design thinking (Seidel & Fixson, 2013). However, there have also been doubts about its efficacy as well as identification of some challenges in implementing design thinking (Carlgren, Elmquist, & Rauth, 2016). These challenges could possibly be due to design thinking's characteristics. As such, scholars have also argued that there is a need to understand the use of design thinking in practice (Carlgren, Elmquist, et al., 2016).

In innovation management, the adoption of innovation practices has been a point of interest that has drawn on two main bodies of research: institutional theory and practice theory. Institutional theory argues that the adoption of innovation practices is determined by the organisation's technology, culture, strategy, and politics (Phillips, 2014). On the other hand, practice theory emphasizes micro-level processes and argues that the adoption of innovation practices is contingent and dependent on the organisational context (Whittington, 2006). New practices are often adapted through deployment by skilled practitioners. This does not mean that innovation practices are adopted in their original form. Rather, individuals adopt and adapt these practices in their organisation.

Practice theory in organisational studies has seldom investigated the role that technology and artefacts play in the adoption of innovation practices (Orlikowski,

2007). Nevertheless, practice theory is useful in attuning the researcher to the extra-organisational practices, such as design thinking, that can influence the activities between actants.

To attend to both human and nonhuman actors, researchers have used Actor-Network Theory. Actor-Network Theory provides a lens through which relations between actants, whether human or otherwise, can be analysed in order to understand how assemblages are formed (Callon, 2001). Actor-Network Theory offers a way to understand the ways in which innovation practices have been adopted and transformed with a view that actants may also be the very tools that practitioners also use. Furthermore, since innovation has become so intertwined with technology, the latter should also be treated as an object of study.

Understanding how these practices are adopted as well as what happens when practices are adopted can shed light on what happens in innovation units.

1.4. Research Gap and Research Question

Even as the research on innovation management increases every day, there has been a lack of research on understanding the activities of innovation units and their adoption of wider industry-level practices such as design thinking. In practice literature, the mechanism in which practices are adopted is unclear. Thus, there is still a need to investigate the micro-level processes involved in the adoption of innovation practices (Phillips, 2014).

Radical innovative efforts such as these innovation units present an opportunity for researchers to study management issues because problems are most evident in such activities (Burgelman, 1983). Furthermore, Abrahamson (1991, p. 588) argues that such "administrative technologies" could fulfil the purpose of signalling innovativeness but do not actually improve the firm's economic standing. Indeed, the rise of innovation units has not been without scrutiny and criticism. Certainly, the spread of new ways of organising firms in the corporate world is not new and earlier trends have been broadly examined by scholars. However, there is scant literature on what exactly goes on within these innovation units.

As such, the purpose of this research study is to investigate how an innovation unit conducts its activities and how it enacts innovation. To date, there have been very few ethnographic studies on innovation units and their activities.

Consequently, this study and essay will examine the following research question:

How is an innovation unit constructed and how does it enact innovation?

I have used Actor-Network Theory due to its emphasis on treating actants equally and its potential to uncover linkages between humans and nonhumans. This has entailed engaging in fieldwork to study the people, objects, and activities involved in organising. The equal treatment of humans and nonhumans is particularly salient to the study of innovation processes because many innovation activities that take place today involve items such as sticky notes and whiteboards. The study of micro-processes in an innovation unit led me to study an innovation department in a Nordic firm known under the pseudonym Omega.

In particular, this study also aims to identify the actors and activities involved in the organising of innovation. Furthermore, by identifying the activities that occur during the formation of an innovation department, this study will also contribute to research on understanding how early-stage strategy might influence the success of such units (Osorio et al., 2019). Although this study was not long enough to track the success of this particular innovation unit, this study illuminates some early-stage strategic activities that occur in the establishment of an innovation unit.

1.5. What Follows Next

In the first chapter I have shown how innovation units have become a popular method for firms to innovate. In such units, extra-organisational practices and concepts about organising for innovation have permeated down to the innovation unit's activities. However, what goes on in such units is unclear. As such, I have formulated a research question regarding the activities of an innovation unit.

In the second chapter, I draw on literature concerning internal corporate venturing to situate the innovation unit within its larger organisational context. In addition, I outline the existing literature on Actor-Network Theory which is vital to my study of innovation activities.

Chapter 3 illustrates my research philosophy and methodology concerning the study of this innovation unit. Because Actor-Network Theory necessitates a different ontology, I demonstrate how ethnographic methods such as fieldwork and interviewing are appropriate for this study.

In Chapter 4, I describe the formation of the innovation unit. I show how design thinking takes on a multiplicity of meanings. I also illustrate how innovation is done in practice with attention paid to actants ranging from the sticky note to the main organisation. Finally, I show how the construction of the innovation department is intertwined with ideas of innovation in a document named the Innovation Voyage.

In Chapter 5, I discuss my findings from the previous chapter. I develop the concept of the formalisation *agencement* to explain the formation of the innovation unit. In

addition, I explore how innovation tools are enacted in the chosen innovation unit of study and how different assemblages are formed at various stages.

In the final chapter, I begin with a reiteration of my discussions to answer the research question. In addition, I provide a reflexive note on the writing of this thesis. I point out some managerial implications of my discussions and conclude with the limitations and related avenues for future research in this field.

2. Literature Review

In order to answer the research question, I reviewed the extant literature on fields relating to innovation units. An innovation unit can be said to be an internal corporate venture. Since design thinking is often a part of innovation processes, I draw on literature relating to the practice turn in management research. Since In addition to practice research, I review the literature on Actor-Network Theory. In particular, I highlight the concept of sociotechnical *agencements* and scripts. These two concepts are essential for my argument concerning the innovation unit's activities.

2.1. Internal Corporate Venturing

In ambidexterity literature, entrepreneurial units such as innovation units must not only be protected but also made legitimate by higher level management (Stringer, 2000). These entrepreneurial units should also be separate from the rest of the firm in terms of physical location, culture and structure (Tushman & O'Reilly III, 2004). By doing so, organisations can foster innovation. This is in line with Trimble's (2010) third model for organising innovation which states that firms must form a dedicated group for innovation. This idea of a separate business unit emphasizes the need to develop certain organisational structures or processes to ensure that innovation projects that focus on radical ideas do not get killed off early (O'Connor & Ayers, 2005; Stringer, 2000; Tushman & O'Reilly III, 2004).

The literature on internal corporate venturing describes four forms of corporate venture units depending on their orientation and strategic focus (Hill & Birkinshaw, 2008). Orientation can be internal or external and strategic focus can be either exploration or exploitation. Going by Hill and Birkinshaw's (2008) classification of corporate venture units, innovation departments are most closely related to internal explorer units. Such units invest in prospective growth sources in the main organisation and develop those opportunities. In some organisations, such units may be project-based.

Present day internal corporate venturing units often go by the names such as innovation lab, innovation hub, innovation department or living labs. There are slight differences in the activities of each unit depending on what the main organisation does. Innovation labs and innovation hubs can be cross-departmental units that bear a physical space for employees to work on innovation-related projects. The most well-known type of innovation laboratory has been at 3M where product innovation has continuously been generated (Stringer, 2000). An innovation department is likely to be a department that has full-time employees that work on innovation-related projects which are later transferred to the main organisation (Sundbo, 1996). Living labs, on the other hand, are spaces that engage the consumer and organisation to encourage co-creation (Kviselius & Andersson, 2009).

Research has suggested that these innovation units are also beneficial for organisations in that they demonstrate the organisation's commitment to innovation by providing a physical area for identifying opportunities, neutralising threats, and for learning (Lewis & Moultrie, 2005; Tushman & O'Reilly III, 2004). This innovation unit could also be the place for individuals who help to realise radical innovation, such as idea generators and corporate entrepreneurs (Leifer, O'Connor, & Rice, 2001).

Simultaneously, internal corporate venturing units have also faced problems. A problem that many internal corporate venturing units have is that they are often viewed as being too exploratory in their activities, too difficult to be integrated into the main organisation, or too impossible to achieve (Burgelman, 1983; Hill & Birkinshaw, 2014). The result is that corporate venturing units, including innovation units, often struggle for survival. There has been some discussion on whether the use of design thinking has been a contributing factor to these difficulties (Carlgren, Elmquist, et al., 2016).

2.2. Design Thinking

What is design thinking? Design thinking, in its current use, can be described as a thought process (Liedtka, 2015). This nomenclature can be traced to the innovation consulting firm IDEO which has advocated for a particular version of design thinking which has been adopted by scholars and practitioners alike (Liedtka, 2015; Meyer & Marion, 2010).

Key to design work in general is its departure from scientific hypotheses; instead, designers adopt a process of abduction (Liedtka, 2015). In general, design thinking includes phases of discovering needs, generating ideas, and then testing. Carlgren, Rauth and Elmquist (2016, p. 38) have identified core themes in design thinking as "user focus, problem framing, visualisation, experimentation and diversity".

As scholars note, design thinking is a very ambiguous and fluid term (Carlgren, Elmquist, et al., 2016; Johansson-Sköldberg et al., 2013; Liedtka, 2015). Similar to innovation, design thinking is at the risk of construct collapse whereupon design thinking loses all its meaning by virtue of meaning anything to everyone (Hirsch & Levin, 1999). Because design thinking is such a fluid concept and is used differently amongst academics and practitioners, researching its practice can be challenging (Carlgren, Rauth, et al., 2016).

Nevertheless, scholars have studied design thinking through two main approaches. The first approach has been to use a definition of design thinking as stated by one of its main advocates (Carlgren, Rauth, et al., 2016). The combination of phases in design thinking suggests that design thinking can be treated as a practice that includes processes, tools, and techniques (Liedtka, 2015). The second approach entails juxtaposing design theory and design thinking (Carlgren, Rauth, et al., 2016).

In order to study design thinking, Carlgren, Rauth, and Elmquist (2016) propose framing the concept as an idea and enactment in any discussion about design thinking. This framing recognises the perception and understanding of design thinking by practitioners as well as their use by practitioners.

Even as companies increasingly adopt design thinking, there is scant research on the effectiveness of design thinking (Carlgren, Elmquist, et al., 2016). Liedtka (2015) notes that the link between design thinking and innovation outcomes has not been examined thoroughly by researchers and as such argues that design thinking improves innovation outcomes by reducing individual level cognitive biases. In other research, scholars argue that design thinking as a practice may also be difficult to use because of its uncertain tendencies (Carlgren, Elmquist, et al., 2016). Since many organisations adopt a linear approach to problem-solving, the iterative and non-linear approach of design thinking may meet resistance from organisational structures and processes (Carlgren, Elmquist, et al., 2016).

Although research surrounding design thinking has largely focused on its definition by practitioners, there is also an acknowledgement that creative processes such as design thinking are also sociomaterial (Tanggaard, 2013). There needs to be an awareness of how the physical environment and associated artefacts are necessary for creativity such as in the construction of new objects. Indeed, some anthropologists argue that a design framework can give equal attention to people, objects, materiality, and other things (Murphy, 2016).

2.3. The Practice Turn in Management Research

Existing management literature has often described what managers should do. Likewise, there has been much research into organisational structures that encourage innovation (Drucker, 1985; Gibson & Birkinshaw, 2004; Tushman & O'Reilly III, 2004) as well as methods to foster innovativeness and creativity (Kim, Myers, & Allen, 2017; Liedtka, 2015; Meyer & Marion, 2010; Seidel & Fixson, 2013). However, because there is a difference between what organisations should do and what they actually do, studying organisational practices might offer insight into why and how this occurs (Whittington, 1996).

The practice turn in management literature has offered suggestions by arguing that strategy and other related management concepts should not be seen as being planned, but is instead elucidated by the people, actions, and practices that make things happen. Scholars in this field have examined what people actually do and focused on how people engage with the social and physical that give rise to practice (Jarzabkowski, 2004).

Whittington (2006) has proposed a framework to situate practices, praxis and practitioners in which these three concepts can be used to understand the workings of an organisation. He defines practices as the common routines, norms, and traditions for behaving, praxis as what actually happens, and practitioners as being those who communicate these practices and engage in praxis (2006). By seeing the interactions between the concepts of practices, praxis, and practitioners, scholars have been able to elucidate what goes on in organisations (Aggerholm, Asmuß, & Thomsen, 2012; Jarzabkowski, Balogun, & Seidl, 2007; Kearney, Harrington, & Kelliher, 2019).

Practices, such as procedures and norms, may be derived from within the organisation or from outside, particularly from the fields or industries that the organisation is in (Whittington, 2006). The link between internal and extra-organisational practices is essential for understanding the ways in which extra-organisational practices have impact on organisational behaviour. Practitioners draw on practices from the organisation they belong to or from extra-organisational institutions to produce their everyday work of praxis (Vaara & Whittington, 2012). These practices, whether internal or otherwise, are not always exactly replicated in practice.

Despite the practice turn in management research, there is a relatively small body of literature that applies such an approach to the study of innovation management. One example of this is in Dougherty's (1992) practice-centred examination of how firms can deliver product innovations. Key to the success is the knowledge of how the product fits with the organisation as it allows for the commitment of resources to the innovation activity with a view for the long-term.

The practice approach is valuable in understanding the innovation management because the approach shows that the practitioners may draw on extra-organisational practices and bodies of knowledge in their work (Vaara & Whittington, 2012). Within this work exists activities such as meetings, discussions, contracts, and forms that help to push for the development of the innovation (Whittington, 1996).

2.4. Actor-Network Theory

Actor-Network Theory (ANT), as known as the sociology of translation, is an ontology and tool for understanding how society is constructed. ANT emphasises that 'society' is constantly being constructed and negotiated and that science and technology are part of this construction (Callon, 2001). No concepts are defined *a priori* in ANT.

ANT has its roots in the sociology of scientific knowledge. An early work in ANT was a laboratory study by Woolgar and Latour on the construction of a scientific fact (Latour & Woolgar, 1986). In their work, Woolgar and Latour argued that an explanation of scientific facts that is predicated on a distinction between nature and society fails to explain why and how these facts are constructed. Instead, artefacts in the laboratory are

key to translating and inscribing scientific observations. This principle of symmetry between humans and nonhumans is central to ANT (Latour, 2007). In ANT, these humans and nonhumans are termed as actants which indicates anything that acts in that situation (Akrich & Latour, 1992). Inscription is an important element of ANT, which was further elaborated on by Akrich (1992) in a study of technical objects. Using an ANT lens involves tracing the production of such inscriptions which direct actions through words and objects.

In some way, ANT is related to performativity in that it links statements about the world and the world that the statements refer to (Callon, 2001). However, ANT also moves away from this classical epistemological division by arguing that statements and referents are mutually constituted through inscriptions that also provide a programme of action (Akrich & Latour, 1992). These referents include both human and nonhuman entities. In linking these actants together, inscriptions can not only be seen as a network but also as an actant that can mobilise other actants, including those that have not yet been inscribed (Callon, 1984). In ANT, every actor is a network and every network is an actor.

Although ANT grew out of science and technology studies, its use is not limited to the study of technical objects. In a study of technical objects, Akrich (1992) used the notion of scripts to understand how creators of technical objects inscribe users and other actants into the object. The object is a sociotechnical assemblage that comprises humans and nonhumans that are necessary for its functioning (Callon, 2001). In later research, ANT has branched out to investigate how some innovations are successful (Akrich, Callon, & Latour, 2002). How these assemblages, both in the sense of the technical object and in the successful innovation, are constructed is through the process of translation in which actants are enrolled and mobilised. In successful inscription, the object does as it is intended. Such an assemblage and its configurations are dynamic and changing.

2.4.1. Sociotechnical *agencements*

The notion of the actor-network has been further expanded upon into the notion of sociotechnical *agencements* by Callon (2008) in his commentary about the performativity of economic theory. *Agencement* has no equivalent in English because the often-used English translation of assemblage does not convey the sense of agency that is associated with the French term (Callon, 2008). *Agencement* instead of assemblage will be used in the rest of this essay.

Sociotechnical *agencements* refer to arrangements that are enacted by a variety of actors such as humans, nonhumans, theories, tools, frameworks, narratives, and so on. Sociotechnical *agencements* link together ideas about the world, such as theories, and

rest of the world. In the construction of a sociotechnical *agencement*, statements that are essential for its enactment are part of the *agencement* (Callon, 2008).

An *agencement* as set out by Callon is between an organisation and a network (Cochoy, 2014). More importantly, an *agencement* is a non-passive arrangement that can act; it has agency. Here we see that *agencement* functions as a verb and a noun: it is the action of arranging actants and also an arrangement that can act (Cochoy, 2014; Cochoy, Trompette, & Araujo, 2016).

In the study of markets, *agencement* offers a way to consider the actants that are so central to the marketing theories such as price tags and shopping carts (Cochoy et al., 2016). Market agencements can illustrate how various actants are involved in economic calculations and the shaping of behaviour (Cochoy et al., 2016). Actors can be constituted by *agencements* such as in the study of a hedge fund as an economic actor (Hardie & MacKenzie, 2007). In terms of innovation management, the notion of sociotechnical *agencements* can be used to understand how innovation units might be conceived as being made up of these sociotechnical *agencements*.

2.4.2. Scripting

Inscription has been an important part of ANT from its beginnings in the study of science and technology. Akrich (1992) has described the process of scripting and de-scripting of technical objects in which the inventors and designers have inscribed intentions and actions into their creations. Scripting thus involves humans and nonhumans and suggests programmes of action for them (Akrich & Latour, 1992). While the idea of a script might suggest a physical form, ANT argues that it does not always have to be physical. Actions can be inscribed into objects by limiting what their users can do.

The word script and its associated word forms have opened a world of vocabulary to describe actants and networks. Drawing on Akrich and Latour's (1992, p. 261) ANT vocabulary, we may understand the derivations of scripts as such: A device may *prescribe* actants by allowing an action or *proscribe* by denying actions. *Subscription* is what happens when an actant is prescribed something.

Within management and organising, the notion of scripts could show how organisational structures and behaviour are constructed. In an investigation of Swedish innovation programmes, Lavén (2008) examines how innovation theories are scripted into the systems and networks such that these scripts must be performed in a particular order to attain results. Likewise, the vocabulary of scripts has been employed to conceptualise the configuration of actants through a case study of an e-procurement system (Andersson, Aspenberg, & Kjellberg, 2008).

2.5. Synthesis

Based on the review of literature, I have identified several research gaps. Firstly, while there has been significant research on the development and design of innovation units, there has yet to be any micro-level research into the practices of innovation units (Osorio et al., 2019). These practices often draw on extra-organisational knowledge.

Secondly, there is a need to understand design thinking in practice through an ethnographic study that examines how design thinking is being used. Existing literature has focused on what people and organisations think design thinking is but not how design thinking is put into practice (Carlgren, Rauth, et al., 2016).

Consequently, this study seeks to cover these research gaps by using actor-network theory. In particular, I use the notions of sociotechnical *agencements* and scripting. This has been done through an ethnography of an innovation unit at a Nordic firm.

3. Methodology

In this section, I outline my research approach by using the research onion as a guide (Saunders, Lewis, & Thornhill, 2019). To begin, researcher should consider their research philosophy before deciding on their research approach and data collection method.

To reiterate, my research question is

How is an innovation unit constructed and how does it enact innovation?

3.1. Research Philosophy

Embarking on research entails making ontological, epistemological and axiological assumptions (Saunders et al., 2019). Since this study utilises an actor-network approach, its ontology is relativist. In other words, reality is emergent, enacted, and continuously reshaped (Latour, 2007). Therefore the ontological basis of this study demands that such distinctions between ontology and epistemology and axiology must emerge from this study's empirical findings (Heywood, 2017). By understanding what the world is, we can determine if these distinctions ought to have a place and how they are made. Knowledge, in a relativist ontology, is co-produced (Ingold, 2014).

3.2. Research Approach

Based on this relativist ontology, an abductive approach to the research would be appropriate. Using an abductive approach has meant that I continuously combined empirical observations and data with theoretical considerations (Dubois & Gadde, 2002). I began my research by framing the unit of study as the innovation unit of a Nordic firm and then by observing and studying the activities of the unit. Simultaneously while identifying themes in my observations, I examined concepts in management literature such as strategy-as-practice and in ANT literature such as sociotechnical *agencements* and scripting.

3.3. Methodological Choice and Strategy

The combination of a relativist ontology and abductive approach suggests that the appropriate research strategy for this kind of exploratory research would be to use an ethnographic strategy (Saunders et al., 2019). This has meant immersing myself in the innovation unit in order to understand the ongoing practices in the research setting. By observing behaviour, asking questions, and engaging in fieldwork, I have sought to

understand the phenomena at hand. Ethnography involves more just description by invoking intellectual discussion in its description (Nader, 2011).

3.3.1. Research Setting

This study presents an ethnography based on participant observation of an innovation department at a large technology firm in the Nordics. In order to protect my informants, I have given the pseudonym Omega to the main organisation and given Swedish pseudonyms to all interviewees. I opted for pseudonyms over numbered titles as the latter would have disrupted the flow of the ethnography.

As a practitioner-researcher, I managed to overcome the problem of research access. Having been a participant in the department's internship programme, I was hired by the unit afterwards and granted access and consent to pursue a study of the department. The department is relatively new and had only been formed less than a year prior to me joining it. It has employees in both Norway and Sweden.

A commonly stated disadvantage of knowing one's research site well is that the researcher must be very aware of their assumptions so as not to cloud their analysis (Bell, Bryman, & Harley, 2019; Saunders et al., 2019). I recognise the significance of this disadvantage but also suggest that this concern stems from an epistemological viewpoint that posits a version of truth that can be uncovered beyond the researcher's assumptions. However, starting from a relativist ontology that posits that knowledge is co-produced, I contend that this issue is rooted in a different ontology.

3.4. Techniques and Procedures

As a practitioner-researcher, I conducted work activities alongside my researcher role. Though challenging, this position has allowed me to understand the workings of the department whilst building up rapport with my informants (Balogun, Huff, & Johnson, 2003). Throughout my engagement with the department, I utilised an iterative process of recording data, analysing data, and developing my interview questions to probe more deeply on certain topics. This process allowed me to become more attuned to the workings of the department.

In addition, I utilised the concept of an episode to illustrate moments of controversy. Episodes are useful because they have a distinct start and end (Hendry & Seidl, 2003). Through such episodes, the relationship between various actants can be understood. Therefore, I identified two distinct episodes: the creation of the department and the construction of a strategy document. The creation of the so-called 'Innovation Voyage' should be considered as an episode because it was intended as a way for the rest of Omega to understand what the department did through the creation of a document.

3.4.1. Pre-study

Initially I had intended for my research to focus on the deployment of emerging technologies in the department by using ideas in sociomateriality literature. This was prompted by the department manager's assigning of technologies such as augmented reality (AR), artificial intelligence (AI), and cloud computing to various individuals in the department. The goal was for them to be experts in the assigned technology.

However, I conducted more literature research on innovation management and engaged in conversations with my informants, I observed that there was questioning and frustration over the department's role and future in Omega. At the same time, I was assigned to work on the development of the 'Innovation Voyage' document in which the department's offerings would be presented to the rest of Omega and customers. This was done in collaboration with other members of the department. At the same time, I observed that other members of the department were also tasked with formulating strategy for the department. This combination of the events led me to focus on the activities of the innovation department for its construction.

3.4.2. Participant Observation

Through my immersion in the department, I was able to observe the activities that constituted the department. Having begun the research with a focus on technology and sociomateriality, I was initially focused on the ways in which materiality formed such an essential part of the department and took fieldnotes on interactions between members of the department and material objects. This allowed me to avoid the problems of generating copious fieldnotes due to a broad research question (Bell et al., 2019).

When I was assigned to work on the strategy document with the other members of the department, I took notes about the document which I subsequently referred to. Though I had not identified this document as a vital episode of the department's organising at the time of its creation, I quickly wrote down everything that occurred once I had identified it as such. I also subsequently interviewed the other members of the department that had been involved in the creation of the document.

3.4.3. Interviews

Alongside participant observation, I conducted 14 semi-structured interviews with 13 informants. Table 1 shows the list of interviews that I conducted. A list of the questions that I prepared for the interview can be found in the appendix. All informants gave their consent for the interview to be recorded and the department manager consented to the use of the department as a case study. No managerial incentives were involved in this study.

Since the department was spread between two countries, interviews with informants were conducted via Skype as well as in person. The interviews lasted between 25 and 100 minutes. Since I had framed the research setting to be the innovation department, all 13 members of the department were interviewed. I had a further discussion with one informant regarding the formation of the 'Innovation Voyage'.

Table 1. List of interviewees, date of interview, and format of interview

Name	Date of Interview	Interview format
Mikael	04 March 2019	Skype
Caroline	11 March 2019	Skype
Hilda	12 March 2019	Skype
Christer	19 March 2019	Skype
Kurt	20 March 2019	In-person
Nicolina	21 March 2019	Skype
Joakim	01 April 2019	Skype
Hilda (second interview)	01 April 2019	Skype
Hans	04 April 2019	Skype
Anton	04 April 2019	Skype
Elisabeth	05 April 2019	Skype
Jan	15 April 2019	In-person
Emelie	15 April 2019	Skype
Nathalie	16 April 2019	In-person

The interviews were semi-structured in which I had prepared initial questions for discussion. I informed the informants that their identity and Omega would be kept confidential. This allowed informants to speak freely and express their opinion. The interviews were conducted in English although informants could express themselves in their native Nordic language if they were unable to formulate their thoughts. Since I had known some informants prior to joining the department, the interviews were a way for the informants to open up about common experiences and their interpretation of them.

The interview questions were reformulated and iterated as interesting insights emerged through data analysis. Through participant observation, I also identified the recurrent theme of design thinking. As a result, I pursued this further through interviews. This follows the advice of Edmondson and McManus (2007) in addressing novel research questions.

3.4.4. Data Analysis

I transcribed the interviews using the online speech recognition software at temi.com. Although the website managed to transcribe most of the speech accurately, I listened to

each interview again to correct the errors in the transcription. This ensured that there were no mistakes in the transcription.

After the interviews were transcribed and corrected for errors, I coded the interviews using the Atlas.ti Cloud software. The codes that were used were based on the empirical data. Many codes such as ‘department integration with organisation’ and ‘gatekeeping’ were generated through this process. After the interviews and observations were coded, I identified several themes in my observations. I reviewed practice literature and attempted to form a conceptual understanding that linked concepts together to produce an understanding of the phenomena (Jabareen, 2009). However, upon discussion with my interlocutors, I returned to the notion of scripts and examined the notion of sociotechnical *agencement* in generating a conceptual understanding.

3.5. Quality of Study

Reliability and validity are vital criteria in assessing the quality of business research. What is appropriate for qualitative research are the criteria of trustworthiness and authenticity (Bell et al., 2019). Within trustworthiness, there are the further criteria of credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

The ethnographic fieldwork that I conducted demonstrates credibility and by presenting an embedded engagement with the field of study. I have also illustrated this extended engagement in the form of thick description of the department’s activities, which will allow others to transfer the findings to draw their own conclusions about the workings of innovation departments.

In terms of dependability, I have shown in earlier sections that all interviews were recorded and transcribed accurately. Finally, throughout this study, I have sought to show how I have come to conclusions based on my ANT approach, which is the basis of my research.

However, it is also important to recognise that these predominant measures are predicated on a realist ontology that establishes a single truth (Law & Urry, 2004), which contrasts with the ANT approach of this study.

4. Innovation Units and Innovation Activities

In this section, I present an ethnography of the innovation department at Omega. I start by describing how the department was formed, and then by describing what goes on at the department, followed by showing how sociotechnical *agencements* and scripting come together in the form of a document. Finally, I conclude with a reflection on my position as a practitioner-researcher in this study.

In order to understand what follows in my description of the innovation department, it is necessary to know the background of Omega, the parent company to which the innovation department belongs. Omega is an international technology company that provides technology and advisory services to its clients. Omega is located primarily in the Nordics. Though Omega says that it can trace its formation to the 1960s, that statement is debateable as it has gone through many transformations, mergers, and acquisitions. Nonetheless, Omega today has between 8,000 and 10,000 employees mostly working in the Nordics.

4.1. Formalising an Innovation Department

Omega has not always had an innovation department. However, it had for some time an internship programme that was focused on innovation within a department of a division in one of Omega's three business areas. The internship programme still exists today, as I shall show. As part of the internship programme, participants were often asked to develop digital products and services.

The formation of the department took place in 2017 to 2018 under the department's current manager, Caroline. In my interview with her, she explained how she was given the responsibility of running the internship programme after she was hired at Omega. Since Caroline's manager was away on maternity leave, Caroline had the opportunity to focus on the internship programme instead of on her other responsibilities beyond the internship.

> I was hired in as a consultant and I was going to be responsible for the internship. The way I managed to get in is that I applied for a position and at the moment I was working for a customer of [Omega]… I was already in the [industry]. And then when I came into [Omega], I started working here and was responsible for five interns that started the same day as me. I had the responsibility for five interns and my manager at that moment, she was on maternity leave. She was away for about like almost for 10 months or something. I was a little bit on my own and then I just started focusing more and more on the interns as I saw potential and I didn't even work as a consultant. – Caroline

By identifying the key people in the organisation, Caroline was able to obtain more projects and increase the number of participants in the internship programme. Although the internship programme started a small initiative in Omega, Caroline developed it

further such that it was many times bigger than it originally was when she was hired to be responsible for it.

> I managed to manoeuvre my way through to figure out the decision makers in [Omega], and then I built a relationship with them and tried to get to know them and understand the way they were working, and one thing led to another… I just built it like rock by rock and managed to get approvals for more and more interns as the projects were good. Yeah, [the internship was then] a very, very small initiative. So, it wasn't an own section or department or very formalized, and it wasn't something that a lot of people knew about. It was a small initiative in a department or in a section in [business area], in [business group]. So, it already existed. I just saw a bigger potential than what it already was. Over one year, we went from having just a few interns to have up to 80 a year and having like 30 people at the same time. – Caroline

The internship programme cohort had increased substantially under Caroline's leadership. Caroline described that she wanted the internship programme to generate income and turn the ideas that had been developed in the internship programme into digital products. Caroline assembled a strategy and formed an alliance with a business group manager in order to assemble a department. This had to be approved by the management team at Omega and formalised as a department that had a name.

> It came to a point where I also wanted [us] to earn money and I wanted us to show value in not just like being an initiative and by the project and concept. I also want to be able to realise a lot of the things that we came up with. I started working on a strategy on how we could do that. And I managed to get like contact with [business group manager]. He saw the same potential and then we started working on a strategy on how we can form it as a department and also get full-time employees. [You spend] two, three months to make a strategy and a goal and then you formalise it [and] present it to the management to get it approved. So, then we presented it after a few months and then it was approved and then you just, yeah, sort of like set it up. Then it was about finding the right people and hiring them in and sort of like… actually put the strategy into action. – Caroline

But what constitutes a department? As Caroline mentioned, the next step after getting approval from the management team was to hire people into the department.

One of the first employees in the department was Mikael, who previously had contact with Caroline through his mentoring of several participants in the internship programme. Mikael had not been part of the internship programme as a participant.

> I had been the mentor for a couple of interns. I think it was for the first two rounds, the one in summer 2017 and fall 2017. And that was when the [previous internship name], which was what it was previously called, got a huge traction inside the organisation and… since I got to know [Caroline] quite well, she asked me if I wanted to join her and establish the department with her and I said yes, I really want to do that. – Mikael

Although a department had been assembled, it still retained the internship programme as one of its activities. Elisabeth, a former participant in the internship programme, was

hired to run the programme. Between her tenure as an internship programme participant to her position as its manager, Elisabeth had been working in another department in Omega when Caroline suggested to her to apply to take over her role.

As for other members in the department, they were mostly hired into the department after their participation in the internship programme. These members had vastly different backgrounds that sometimes corresponded with their role in the department.

4.2. Narrating a Department

Although the department had now been given a name and several people had been hired into the department, there was still much assembling taking place. Together these people enacted the department through their vision of what the innovation department should be.

One key aspect of this assembling was developing the position of the department in Omega. Informants believed that the department played a key role in Omega's future. The orientation towards the future was a key part of the department's role as it was implied several times by several informants.

Alongside this orientation towards the future, informants stated that the department was necessary for Omega to remain relevant to Omega's market. In doing so, informants positioned the department at the forefront of Omega's development.

> [The department's purpose is] to modernise the organisation and the business offerings within [the business area the department is located] ... to stay relevant in the market and to continue to have the same connection with customers. I think it's necessary to move product offerings and service offerings to follow market trends and what the competitors are doing and what the customers want from us. – Kurt

> I think our main purpose is for [Omega] to not lose its relevance and not lose out on potential markets that falls right around the core business. Yes, we need to keep [Omega] relevant. – Joakim

The department was viewed as being essential to keep Omega in existence. Informants implied that the market was always changing and that failure to change along with the market would have a negative impact on Omega. Thus, the innovation department was essential to observe the market and suggest changes in Omega.

> Personally, I feel like the purpose [of the innovation department] is to help drive the company forward. A lot of the stuff we're delivering today is something we have delivered for a very long time and I don't think we will go out of business anytime soon because we're delivering something that's very important. I think that in order to grow we need to look at other opportunities in order to stay relevant... So, I think it's about keeping the company in existence and we need to adapt. We need to be able to change with the market. And I think one of the ways to do that is to have someone

> who's dedicated to looking at where the market is changing and can initiate the necessary changes at an appropriate time. – Elisabeth

By emphasising the department's importance in Omega's future, informants also brought the department into dialogue with other departments in Omega. One informant stated that the department had a two-fold purpose. The first was to advise other departments on making existing products and services more innovative. What constituted 'innovativeness' in this context was unclear. The second purpose was more performative in that the department signalled that Omega was new and different by virtue of having an innovation department.

> [I think] the purpose is to help departments internally to look on that if they have a task or a customer that wants them to deliver something and so on. If we can be there to sort of give them another point of view or look at it in a different way to, to try to deliver something more innovative or to add value, let's say on its existing deliveries and so on. So that's one thing. Then I see, I might be wrong but one thing that I think is that it's good for [Omega] to have [an innovation department] when they go into sales processes and so on that they can say, okay, we have our [innovation department] and they do this and that to sort of show that we are more than just a regular old business. And then that's how I understand it. – Jan

Working together with other departments was essential because informants perceived that the other departments did not have an imperative to deliver anything different from what they were used to. On the other hand, informants also viewed the innovation department as an entity that could use its connections with other departments to anticipate changes in the future.

> I feel like the purpose is just helping the whole company being innovative and also because we're such a big company and it's really easy that every department is kind of looking to take care of themselves and the products that they're delivering. But by having an [innovation department] that's kind of working at all the different things we do in [business area] and looking at where all of these things are changing. – Elisabeth

Even though the innovation department bore the word 'innovation' in its name, some people disagreed that it meant that the innovation department were the only innovators in Omega. Emelie viewed the department's role as being a facilitator of innovation whereby other departments were also innovators.

> I feel like we still are figuring out our role in the organisation, but I think… it's wrong to just say we are the innovators in [Omega]. No, we should be the ones driving innovation and facilitating innovation and allowing innovation to happen, even though we're not… the only ones innovating basically, which we can, we should be the ones making sure that people are able to innovate. We shouldn't be the only ones innovating. We should be the ones opening the door and welcoming others in order to innovate. You need to be able to look at all those different things to piece the

> puzzle together. I think we still need to kind of work on our definition or our place in the organisation because we know what it should be. Well, we don't really know how. – Emelie

This was echoed by Nicolina who expressed her frustration at the discourse in the department that constantly referred to disruption. To her, it was not clear what the innovation did beyond the ideas that were communicated. In contrast to what others in the department had said, Nicolina stated that she felt that the department was working separately from the rest of Omega.

> Are we bringing in money? We are not. Are we helping other [business units]? We are not. So, we are just completely on our own. When we are separate, we are running these presentations, hackathons and so and so forth. But the separate [business units] and project areas do not see our contribution. And the only thing that we say, okay we're going to disrupt. And what if I was working, I don't know, as a product manager somewhere and someone from [the innovation department] comes to me and says, we are going to disrupt you. I would be very worried… [I would] at least feel a little bit disrespected because I've been working with this for several years. and they work very hard. It's not like people are lazy here. People are very smart, very hardworking, but they happen to work in their own [business units] and product areas. But just because they don't have innovation in front of their [department name], doesn't mean that they are not innovative. – Nicolina

> It's just we are talking about innovation and disruption, but it's almost sickening sometimes because what are we disrupting or like what are we? We can't really say that we are disrupting without having done anything. We're not disrupting anything. We're just trying to figure out what to disrupt. – Nicolina

In order to deliver these innovative products and services, the innovation department used a variety of tools and methods in their work. One of these was design thinking.

4.3. Deploying Design Thinking

Design thinking was frequently mentioned by members of the innovation department and as such, took on a variety of meanings in the department. As part of the recruitment process for the internship programme, potential participants were asked to explain what they thought design thinking was. Likewise, this emphasis on design thinking was also manifested in a mandatory workshop that was held for internship participants where the participants were taught the elements of design thinking.

In the workshop, participants were taught by members of the innovation department about design thinking which had the stages empathy, define, ideate, prototype and test. These stages most closely correspond to Stanford Design School's definition of design thinking (Carlgren, Rauth, et al., 2016). Empathy involved conducting interviews or surveys to find the needs of users. The define phase was about defining the problem to solve. Ideate was about developing ideas to solve the problem. Prototyping involved

reifying the ideas in the form of a physical or digital product while the testing phase involved getting potential users to test the prototype and give feedback.

When asked about what design thinking was, informants had a range of definitions. Informants described it as a method, a framework, a mindset, a methodology, a process, and a checklist. Design thinking centred around problem that human users faced. This would help the innovation department to develop solutions to those problems.

> It’s a method or a framework where you are diverging, converging like brainstorming and user research and prototyping. It’s a method of a concept development. It's a tool for developing concepts. – Nathalie

> I think design thinking is a mindset for solving real problems that people have. It’s all about understanding humans even better than they understand themselves… I use design thinking as a kind of a checklist more than I use it as a methodology, so I have ‘empathise’ and all those steps. I think [by] having them in the back of your mind... you would [be surer] that you have covered everything around a problem. – Christer

> It’s a methodology that puts the customer at the centre of the way you think about products and services… You need to empathize with the users. You think about the users of your potential products and services and you need to prototype and test and go back to your prototype and test again and do that until you reach a satisfactory level… for the user, the sector. – Joakim

> According to me, design thinking is [an overall] process that contains a lot of different tools or mindsets that you can use separately or together as a kind of a package. Design thinking has a lot of different meanings for a lot of different people and there's not like a single definition, according to me, at least… For each book you read or each article you read [about design thinking], there's always some difference. It's not a fixed model or process that you can just apply. It's more like a new way of working or small tools you can take from the big fluffy design thinking area and apply it to your daily work. – Kurt

By using design thinking at the innovation department, the department was able to discover what people wanted and could therefore benefit from what the department had produced.

> One of the main reasons for using this way of thinking is to make sure that we're really developing something that people actually have a need for and actually want to use, if it's a service, for example. – Elisabeth

There were also other reasons why the department was using design thinking. Informants stated that design thinking was said to have produced results. Since design thinking had also been formalised, informants said that it was also easy to find information about it for their work. For some informants, using design thinking also meant that the innovation department was different from the other departments at Omega.

> I think it's well-documented, but I also think design thinking isn't something new and revolutionizing. I think people have worked that way before, but I think it's formalized and it's easy to find resources when you were working with it. – Christer

> We can't invent ourselves a set of processes. We need to look outside of what is being done and what is showing results. And I think design thinking is exactly within that. If it is recognized, it has shown results. It is relevant for innovation, especially in [Omega], because this is something that is not being done by the other departments. – Joakim

> I think design thinking was part of the [Omega] strategy here. I don't know where it came from and I think it's mainly just something that's been hyped up everywhere recently. Every company is using design thinking or not using it but saying that they're using it. But we are actually using it and we kind of see the value of it. – Hans

However, some informants were also critical of what the term implied. It suggested that design thinking was restricted to what designers did instead of being a thought process that everyone could use.

> I read an article that was very critical of it. It was basically saying that it's like, it's so silly to say that design thinking is something only designers do… Design thinking, I don't really like the term. I know the term has been kind of slaughtered by some people, but I would say that design thinking overall is making sure you're solving the right problem the right way. – Emelie

For one informant, the philosophy of design thinking to give the user what they wanted was obvious and therefore did not need to be the focus.

> … the way I understand it, it should be a given… You want to give the customer, the user, what they want. And that's basically the philosophy of design thinking. I think it's actually a given, and it shouldn't be the focus [of the department] in a way. – Anton

Although design thinking was a way that showed informants how to identify user needs and develop new ideas, informants were involved in other activities outside the design thinking process.

4.4. Working with Innovation

To give direction for the activities at the department, Caroline had also set up some goals for the department to attain for the year. One of these goals was to sell a ‘concept’, which was implied to be a digital app, to a customer. Activities were structured around helping the department reach that goal.

Informants were engaged in activities depending on the roles that each informant had. As the manager of the department, Caroline had allocated everyone into broad separate categories known as software developers, designers, and business analysts. These

categories were further mapped onto a Venn diagram that expressed how interdisciplinary the department was, as shown in Figure 1.

Feasibility referred to the software developers, desirability referred to the designers, and viability referred to some of the business analysts including Caroline. The other business analysts were in the middle of the diagram in the intersection between the three areas.

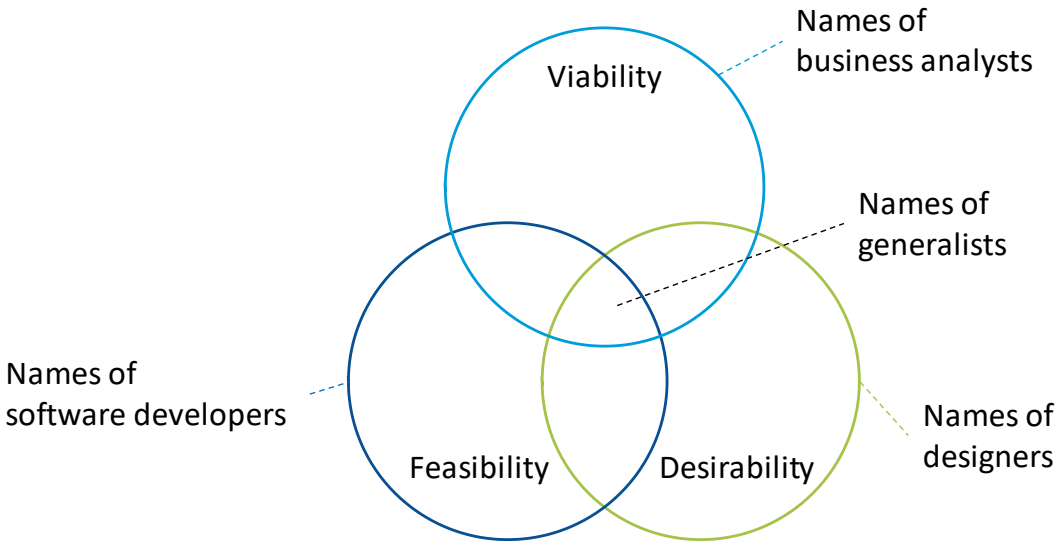

Figure 1. Venn diagram showing the allocation of employees according to their skills

As the leader of the internship programme, Elisabeth was not included in the diagram since her activities did not involve much interaction with the rest of the department. However, because the internship programme was a pipeline for further projects in the innovation department, a large part of her time was dedicated towards talking to individuals in other departments to create internship projects as well as coordinating the internship projects. Projects within the internship programme were often conducted in conjunction with another department. She was also involved in recruitment of future internship participants.

> In [the department], I am the leader of our internship programme, which is representing the exploration phase of the department. A huge part of my job is to identify different projects that are relevant to explore further and that could be helpful and beneficial for the departments to continue working on in order to deliver new kinds of services and products to the markets we already serve. – Elisabeth

The other members of the innovation department were involved in a variety of activities. Through my analysis of interviews and interactions at the department, I identified three main activities at the department: meetings, developmental activities, and concept development. Meetings refer to activities where a group of people gather

together for a discussion. Developmental activities are the activities aimed at helping the department reach its intended state, as shown in the section on narratives. Concept development refers to the process of developing an idea for a future product or service. These activities are not mutually exclusive; meetings may be part of concept development and developmental activities.

4.4.1. Meetings

A common activity that everyone engaged in were meetings. These could be meetings with other members of the department, or meetings with people outside of the department, both within Omega and outside Omega.

Nathalie's meetings revolved around a potential project that would be done as a collaboration between the innovation department and a customer external to Omega. Some of these meetings involved individuals from other departments in Omega that were responsible for contacting and liaising with the customer. These meetings involved discussing the terms of the collaboration with the customer. Nathalie was also in meetings with the customer about the collaboration.

> Well, a couple of things that have been characteristic has been the different meetings I've been to together with a customer or a potential customer at that I am trying to land this other project with. What is really significant is having to sort of like go to those meetings and with them, the discussions regarding [the customer] and with [the customer]. – Nathalie

On the other hand, Joakim's meetings were either with other members of the innovation department or with other Omega employees outside of the innovation department. Since Joakim had already been staffed onto the Alpha project, he was involved in many meetings concerning the project.

> Well, yeah, typical day at the [the department] in [Omega headquarters]. I would arrive at like maybe eight in the morning and then have a half an hour, an hour when I can do some quiet work on the diverse tasks that I have. [Whenever] that might be around 9, that's the time where we have meetings, status meeting or department meetings or planning meetings, all that sort of stuff. For instance, in the [Alpha project], we would do a Monday morning weekly planning meeting at 9:00 AM, and we would have on Friday or Wednesday status a recap of the week, at 9:00 AM as well. I have not been involved too much not all with customers so I can't really describe what it's to like go to customers and have a meeting with them unfortunately. So, for me the rest of the day… it's a chat with the other members of the [the department], and then discussing with the interns. – Joakim

Meetings were often mentioned by informants as activities that they had to partake in.

4.4.2. Developmental Activities

Developing a strategy for the department was also a task for some members of the department although it was not something that the informants said that they spent all

their time on. Strategy entailed developing a plan for how the department should act in the future and what it should do to reach a desired state.

> I do research on market trends, etc, within the [redacted] industry. Hmm. I haven't really started my project yet, but I'm working on internal strategy too. I do tasks that is being given to me, but I am continuing, I am going to do more internal research... – Nathalie

> … Part of my day-to-day tasks [is] to figure out how we can grow [the department] and how we can improve the [department] and how we can continue to develop [the department's] mission and vision… But then I also have meetings with the customer… because we have an initiative there. – Jan

Because meetings frequently involved presenting information through PowerPoint presentations, anything that was not written down on the computer had to be recorded digitally. As one informant explained, this additional action of transferring notes from paper to computer allowed her to think about the ideas again.

> I use Post-Its and the whiteboard. I didn't use it that often before, but now… I feel it's faster to draw something on the board or put something on the Post-It and I'm able to switch the idea if it might fit somewhere else. I used to do everything on the computer to make sure everything is there. Now I think sometimes it's also a lot faster to do [it physically], [to] go back to the old way, to use your hand. Before you try to transfer the data from the whiteboard to computer, [you get another chance] to think about it again. Sometimes nowadays everything is too fast, and you do it before really thinking about it. – Hilda

Before she was put on a project outside of the innovation department, Nicolina was involved in presentations about the department at Omega's headquarters and to Omega's clients. Although Nicolina did not view these activities as being directly connected to the department's work, these presentations helped to spread awareness of the department. On the contrary, Nicolina believed that her involvement with the innovation department was very limited. Part of Nicolina's work also involved transforming past internship projects into a PowerPoint presentation that was intended to market the department.

> I did the presentation rounds around [Omega] at [Omega's headquarters], and then at the clients. And this is as far as my experience went. And other than that, it was the administrative things like the recruitment process that we set up for the internship program and the other stuff like working on the marketing material of all the ideas that we've had which I found a little bit not to be harsh, but useless. – Nicolina

4.4.3. Concept Development

As a designer in the department, Emelie was involved in developing an idea, known as 'concept development', that the department had chosen to focus on. This entailed

interviewing potential users of the future product or service or going online to gather information on the idea. To communicate her findings, Emelie had to create PowerPoint presentations which would later be presented in meetings with people in and outside the department.

> Well meetings obviously... Every day is different, but I would say it's concept development, gathering insight through interviewing people, usability testing, maybe going out in the streets if that's possible, but also, just obviously desk research where you're making presentations and kind of summarizing results or concepts or insight. – Emelie

Software developers in the department were involved in writing code that would enable the creation of digital applications. However, they were also involved in meetings both within Omega and outside of Omega. Hans specifically pointed out that access to data and certain application programming interfaces (APIs) was crucial and dependent on others in and outside of Omega.

> [My typical day] depends on whether I'm working on a project like writing code or not. But let's say if I'm being put on a project, I'm supposed to develop something. It's usually that I arrive at the office. I start on, yeah, just start coding it right away or go to a meeting if I have a meeting. It’s a balance between meetings and just working on like realizing the concept we have and actually like developing it and then there's often a lot of like waiting for actually getting access and stuff because when it's such a big company, it's difficult to just to be able to sit down and work on whatever you want when it comes to the live programming and code. I could get access to certain things from certain people, which might be internal or external. Yeah, it's usually just waiting for something, or some access, working on code and just having any meetings in between. – Hans

In order to work with innovation, members of the innovation department had to use a variety of objects and tools to engage in their work. Everyone had a computer which was used, among other things, to create visualisations of potential digital applications, write code, and create PowerPoint presentations. Those involved in designing the applications often used the software Sketch. Computers were very essential to the work of the department, particularly for designers and software developers who constructed things on the computer.

Sticky notes were also used frequently. They helped informants to record their thoughts. Since the sticky notes could be moved around, thoughts could be juxtaposed against each other. As such, informants could think of new ideas or structure their thoughts.

> It’s easy to just jot down small words on to small sticky posters because you want to collect several ideas quickly and then it's a good way. Also, it’s much easier to, after you have written down several thoughts, ideas, or problems, or insights, cluster them according to themes. The Post-It makes it very flexible or easy to place them in different setting or different ways. – Nathalie

Although concept development was not a part of Elisabeth’s work, she was also connected to it through the internship programme. The internship programme projects

were often about developing ideas which would subsequently be developed further by the other members of the department.

> We start with a broad problem statement that the interns get to work on. After they have completed the program, which lasts two to four months, we do an evaluation of the different ideas and creations that came out of it. The ones that we see the most potential in will be continued to be worked on by the rest of the department. The other ideas go into our portfolio of ideas. Sometimes we keep working on them and see if we can do some iterations on them. Sometimes we think, okay, this didn't turn out to have quite the potential we hoped, but we can try it for a new group of interns and maybe they can use their skills and take it in a different and more exciting direction. – Elisabeth

At the time of writing, the innovation department had only managed to develop a couple of ideas further while the rest of the ideas were in the portfolio and had yet to be developed. These activities at the innovation department were aimed to reaching the goals set out by Caroline, one of which included the sale of a 'concept'. However, there needed to be a clearer understanding of the process involved in the sale and development of the concept to a customer. As such, the 'Innovation Voyage' (name changed for confidentiality reasons) was created.

4.5. The Innovation Voyage

As part of my practitioner-researcher role, I took on tasks that were assigned by the department manager. One of these tasks was to refine a strategic document, the Innovation Voyage, that had been presented at a kick-off meeting. Two other members of the department, Hilda and Nathalie, were also assigned to work on the Innovation Voyage. The document was presented in the form of a PowerPoint slide that contained five columns for the different phases of a project at the innovation department, as shown in Figure 2 (information redacted for confidentiality reasons).

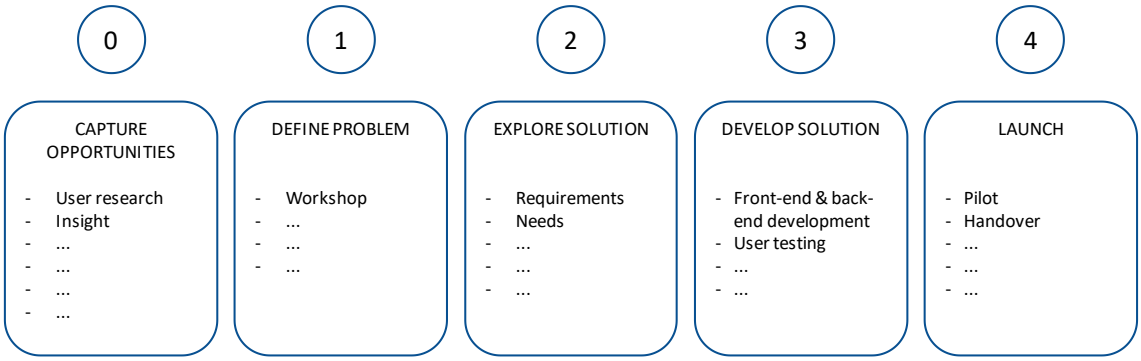

Figure 2. Reproduction of how the Innovation Voyage looked like

Hilda had been involved in the initial creation of the document. She described that the document had been the result of a meeting where ideas about the activities of the department were fitted into the design thinking double diamond framework.

> We just threw words out there. [We were] trying to use the design thinking like a double diamond, [where] we had one facilitator writing everything down on the board. We started from, okay, we can create, we have this and what can we sell? And then [it became] bigger and then [it became smaller] again. After we finished putting things down in [that] double diamond, [we divided] it into five steps. Then we started to name it. We kind of [saw] a group of the first [part] was more like before we start working with the customer. [It's] something that we can deliver in the beginning… that's why we have education, workshops, and our initial meeting [with the customer] or insight work. [Then] we moved on to the other stuff because our department believes that we want to sell concepts. So, we work with ideas and then we put [them into] production and launch it. So that's how it was created in the beginning. – Hilda

As mentioned, Innovation Voyage had five columns of text outlining the stages for developing a product with a customer. Note that 'customers' here refer to institutional customers and not users of the service. Caroline said that this process needed further refinement and that it needed to be improved. As such, together with Hilda and Nathalie, I was assigned to work on the document. Specifically, Caroline stated that we needed to package the Innovation Voyage and price each stage.

At the start of the assignment, Nathalie and I examined every item in each column of the Innovation Voyage PowerPoint slide. Based on our discussions on a whiteboard, several items were either moved to a different column or removed from the Innovation Voyage entirely. Nathalie reasoned that items such as workshops did not fit into the process and I agreed with her. The content of the Innovation Voyage was kept largely intact and decision gates were added after each stage. I recorded the notes on the whiteboard in a note-taking software on my computer.

Although Nathalie and I had estimated that this assignment would not take more than three days, it took far longer than our estimations. Our collaboration with Hilda was also made more challenging as Hilda did not work in the same office as us. Despite the possibilities of Skype and screen sharing functionalities, I found it difficult to communicate my thoughts to Hilda via my computer as the Innovation Voyage was a visual strategic document. This was also expressed by Nathalie. As such, Hilda was granted permission to travel to the office where Nathalie and I worked so that we could work together on the Innovation Voyage.

4.5.1. Adding the Customer

In order to include the customer in the process, Hilda suggested using ideas from other departments, specifically the Zeta department that had engaged in similar activities as the innovation department. A representative from Zeta had previously presented their

process for collaborating and interacting with potential customers. This was presented during the innovation department's kick-off meeting. Zeta department's process was then adapted to the Innovation Voyage. Upon discussion with the same representative from Zeta, Hilda stated that the potential customer in the Innovation Voyage did not know what the innovation department did or what it could do. As such, Hilda suggested creating a knowledge bank for an initial discussion with the customer to help the customer understand what the innovation department could do.

After Hilda arrived, Nathalie started to modify the stages of each step of the Innovation Voyage by drawing on her knowledge of product development. She created a process that outlined the activities and expected output of each stage of the Innovation Voyage, as shown in Figure 3 (information redacted for confidentiality reasons). After this new version of the Innovation Voyage was created, Nathalie presented the various steps on a whiteboard to Hilda and me.

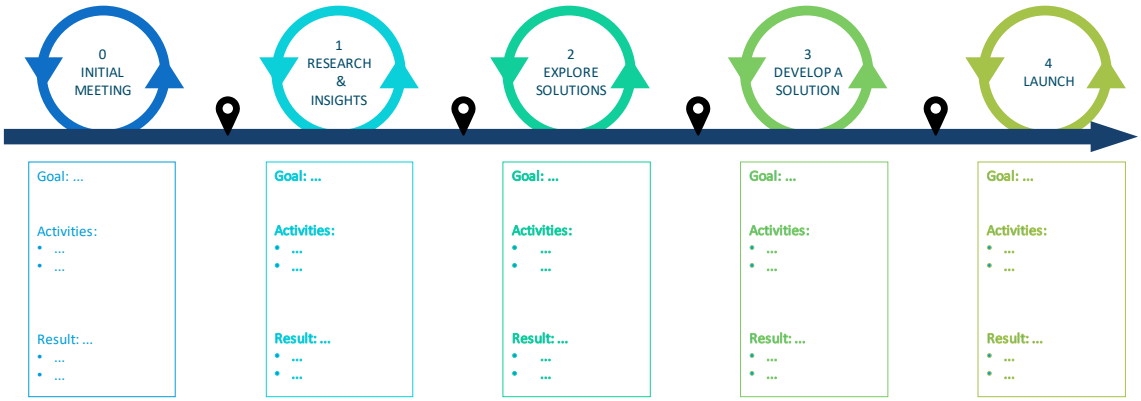

Figure 3. Reproduction of the new 'Innovation Voyage'

In this new process, every stage had a goal for its activities, which were intended to lead to the result. The result was a more tangible description of the goal or an extension of that goal. In addition, stage zero was completely changed to focus on an initial meeting with the customer. Having filtered out many activities from the original Innovation Voyage, the three of us organised the activities into standalone offerings that the department could sell.

4.5.2. Pricing the Voyage

Based on this new version of the Innovation Voyage, Hilda and I discussed which roles were needed for each stage and how much time they were to spend on each stage. We reasoned that this was necessary for an estimation of a price for the whole process. To decide on the allocation of individuals at the innovation department, we made estimations based on our experiences with each stage of the process. We also made estimations of how long each stage would take. Every person allocated, or in Omega's parlance, 'resource', was further divided into percentages to show how much time was

required from them. The percentages were in multiples of 20 to simulate the five-day work week.

Calculating the price for the whole Innovation Voyage was challenging because we did not know how pricing could be done. As such, Hilda and I developed three measures to estimate how much the whole process would cost a customer. Based on our salary slips, we calculated how much one employee at the innovation department would cost per hour. This was the lowest amount that the department could charge the client. Next, based on knowledge of the pricing of an employee from Omega's consulting division and discussions with our manager, we calculated cost-plus pricing per hour. Finally, based on Hilda's earlier conversation with the representative from Zeta, we developed value-based pricing per hour. In relation to pricing, the Zeta representative stated that their department could not always get the price that they wanted. Value-based pricing referred to the willingness of the customer to pay for the service. As such, the value-based pricing that Hilda and I estimated was half of the cost-plus pricing. Based on this estimation of the per hour pricing, we multiplied the time needed for each stage by the number of employees for that stage and by their involvement level. Nonetheless, it was difficult to estimate the final 'launch' phase of the Innovation Voyage because it appeared to differ depending on each project.

When the Innovation Voyage was presented to Caroline, she was very pleased and satisfied with what we had produced. As such, this slide with the Innovation Voyage was added to the standard template that individuals in the innovation department could use when presenting the department to others. Although I did not realise it at that time, the Innovation Voyage was a good episode in illustrating the linkages between the ongoing assembly of the department and the scripting that takes place in organisational settings.

4.6. Reflections on Being in the Field

The previous section on the Innovation Voyage is an example of how a practitioner-researcher is involved in the construction of departmental documents. The dual role of being a practitioner and a researcher has been challenging in that I have had the ability to change the direction of the very setting that I am studying. Having studied anthropology previously, I saw my involvement in the innovation department as a fantastic opportunity undertake participant observation, a practice that has been so central to the development of anthropology as an academic discipline. I needed to be close yet distant. Certainly, my lack of work experience and particularly within innovation has been an advantage. Though I was a participant in the department's internship programme, I was not involved in concept development or developmental activities.

Although my involvement might be frowned upon by those seeking to follow a positivist paradigm, I would argue that the invisible observer does not exist. In every moment, a practitioner manages to change a bit of the setting that they are in. Another concern has been that I might have been biased in my understanding of the phenomena. To this I reiterate one of the aspects of Actor-Network Theory—that knowledge is co-produced by various actants and actors. Understanding the process of that production can be interesting and insightful. To go further, I would say that understanding how anything is constructed will be interesting.

5. Discussion

By observing the activities of an innovation department, as I have shown in the section on findings, I have demonstrated how a department might get constructed and what takes place when a unit says that it innovates. Building on my findings, I present a discussion of these activities with a view on sociotechnical *agencements* and scripting.

5.1. Formalisation *agencement*

Sociotechnical *agencements* are constructed by a variety of actants such as humans, nonhumans, and statements (Callon, 2008). As an actor, the innovation department was made up of several sociotechnical *agencements*. In the process of its construction, the department was part of what I call the formalisation *agencement*.

To form the department, the internship needed to be imagined as something that was more than what it was. This was possible through Caroline who deployed the use of strategy to frame a future department. Strategy here is not in the form of a plan, as Whittington (2006) suggests, but in the form of the documents and meetings that helped to envision a possible future of an innovation department. This would have drawn on existing theories about the need for innovation and the role of the corporate venturing unit (Hill & Birkinshaw, 2008).

The strategic documents became the script for an imagined future. These artefacts involved in the construction of the department not only described the department but helped to bring it into existence. Similar arguments have been made about the performativity of business models in that they do not just represent a future state but also create it (Perkmann & Spicer, 2010).

The strategic documents were integral to the prescribing of an innovation department to Omega. As they prescribed one state of the future of Omega, the actants involved subscribed to it. These were not just members of the management team but also the internal IT systems that allowed for the creation of the department as a group of people under a certain business area. It also allowed for a further sub-unit in the form of the internship programme. The approval of the creation of a department meant these actants had subscribed, perhaps temporarily, to a configuration of people and an idea of innovation. This prescription and subscription would not have been possible if not for PowerPoint presentations and IT systems. Formalisation meant that the department would now appear in the Omega's organisational chart and in Omega's internal internet system.

The formalisation *agencement* also had the capacity to act in that the formation of the department enabled new relationships with other departments and the recruitment of

people into the department. This *agencement* was also affected by the narratives that new members of the department produced.

5.2. Narratives

Narratives are powerful ways of *agencing* a market through effects of temporality and iteration (Geiger & Finch, 2016). Likewise, narratives about an innovation department helped to construct an *agencement* that linked together the present and the future. With the enrolment of people into the department, these individuals became spokespersons and networks for the future that Caroline had proposed for the department.

This future was one that could be said to be precarious and uncertain. In this construction of the future, informants positioned Omega as an entity could be left behind. This implied that Omega would not have the capacity to act in the market. By deploying this line of argument, the individuals positioned the department as the group that, despite belonging to Omega, possessed the ability to act in the market through its ability to be aware of the prescriptions and subscriptions of users by other actants. Markets, however, are constructed by a variety of actors (Andersson et al., 2008; Cochoy et al., 2016) and this includes Omega.

Although markets are sociotechnical *agencements*, their constituent actants are part of and construct other sociotechnical *agencements*. The failure to change along with the market for Omega could be a refusal to subscribe to the prescription done by other actors in the markets. Failure to subscribe meant that Omega's sociotechnical *agencements* would also fail. Even as this line of temporality was one that was far into the future, informants linked that to the present by using the notion of relevance.

Relevance, as stated by several informants, could be seen the successful scripting of other actors in the market and construction of sociotechnical *agencements* that linked together technological artefacts such as mobile phones and human actants such as consumers. Relevance, in addition, has a temporal aspect that lends itself well to the temporal character of sociotechnical *agencements* that are constantly in negotiation. That Omega could be relevant to the market was a sign that actors had been successfully scripted into *agencements* for that moment.

As the innovation department sought to prescribe Omega's position, the department simultaneously juxtaposed and aligned itself in a few ways. Helping other departments to innovate was to help the other departments to engage in prescription and subscription of actors that they were not used to. This meant that the innovation department had to contrast themselves with the rest of Omega. Thus, when those other departments engaged in actors outside of Omega, their interaction and consequent subscription by the innovation department meant that these departments could engage in a different

method of prescription. The products and services would be transformed, thus creating new prescriptions and possible subscriptions.

Another role that the innovation department prescribed itself was as the linkage between various departments. However, as some other individuals stated, not everyone else subscribed to that idea. The result was that other business units did not want to interact or engage with the innovation department. This failure to subscribe has been an issue with internal corporate venturing units (Hill & Birkinshaw, 2014).

5.3. Enacting Design Thinking

Just as economic theory is said to be performative (Callon, 2008), design thinking also took on performative elements at the innovation department. Because the department had decided to institutionalise design thinking in its internship programme and hackathon activities, design thinking constructed sociotechnical *agencements*. In my study of design thinking, I extend the suggestions by Carlgren, Rauth and Elmquist (2016) on studying design thinking by taking a critical view of the process itself.

Going by the realist ontology of ANT, I would argue that design thinking is performative because it constructs the reality that it describes. By arguing that design thinking is a way to find the needs of people, members of the innovation department find those needs because design thinking prescribes needs to consumers. In using design thinking, these individuals construct the reality where needs are found. Using scripting logic, I would argue that design thinking involves the construction of a sociotechnical *agencement*.

In the empathise phase, the users of a potential product are identified as entities who can be scripted into future services. In the moment of finding needs, the interviewer and user are engaged in a process of negotiation to find a configuration of the sociotechnical *agencement* that both are willing to subscribe to. However, the negotiation is not done when the interviewer finishes interacting with the user. Instead, the sociotechnical *agencement* expands with the configuration and rearrangement of the user's identified needs, usually by using sticky notes and a whiteboard.

The sociotechnical *agencement* involving the user and the interviewer is short-lived as objects are scripted into the negotiation process. The user has long departed from the conversation. They can only act through the recorded notes of their interview which appear in the form of sticky notes. As the product becomes reified in physical forms, other users are involved in the process of prescription and subscription. Will these users subscribe to the position that these innovators have prescribed them? Can they speak on behalf of the other users? This brings to mind Callon's translations of scallops (1984) in that the interviewed users' needs are translated into various inscriptions before being translated further into a digital product. At the department, they stated that speaking to a

wide range of people was essential for creating a successful product. Indeed, sociotechnical *agencements* and innovations could be made successful by the scripting of more actants, humans and otherwise (Akrich et al., 2002).

In contrast to the supposed interpretive aspects of design thinking, such a thought process instead posits a positivist view of the world where needs can be found, and solutions can be made to meet these needs. I would argue that instead of naming *needfinding* as the first part of design thinking (Liedtka, 2015), it should be described as 'needs-in-the-making'. This view is also shared by Tanggaard (2013) on creativity; design thinking, like creativity, is a phenomenon that makes the world. The 'real' problems that design thinking purports to solve are real in that they are constructions of reality rather than an uncovering of something that is hidden. Thus, taking the radical constructivist approach of ANT shows that the described 'user focus' of design thinking may ignore the importance of other actants in constructing the problems that will be solved in the process.

Although design thinking could be one of the practices that Whittington (2006) identifies in his framework, I have shown how practices, praxis, and practitioners cannot be separated in any analysis. While the framework has been useful in drawing attention to the extra-organisational practices in an organisation, it posits a separation between its constituent categories. This is problematic in understanding the mutual constitution of humans and nonhumans in design thinking.

5.4. Inscribing the Department

The Venn diagram developed by Caroline, as shown in Figure 1, helped to organise the department by framing the aspects that the department was supposed to focus on. These aspects said to have originated from IDEO, one of the firms that has also suggested a model of design thinking (IDEO, 2019). From an ANT perspective, the aspects of feasibility, viability, and desirability were words to describe the relations between those inscribed to that category and the actants they primarily worked with. Through the visualisation of these three categories as shown in Figure 1, the innovation department also had a framework to understand what they were working with. This triple category framework could also be used to affect future discussions with people outside of the department by delimiting the scope of an evaluation. Indeed, individuals have been said to use strategy tools to influence strategic discussions (Jarzabkowski & Kaplan, 2015).

Sociotechnical *agencements* are always in flux and subject to reformulation. This was particularly evident in the developmental activities that were essential for shaping the future of the department. The ability of a sticky note to provide temporary adherence to another surface was crucial to strategy planning sessions. They enabled those at the innovation department to imagine different possibilities through the moving of ideas on paper. Furthermore, to represent an offer to subscribe to the innovation department's

vision of the future, PowerPoint presentations were necessary in order to visualise this vision. The need for these developmental activities to inscribe the innovation department's position in Omega is reminiscent of the difficulties associated with the survival of corporate venturing units (Hill & Birkinshaw, 2014).

Just as what Caroline did in the formation of the department, the strategic work that some people were involved in should be viewed as activities aimed at shaping a different relationship to Omega. The strategic PowerPoint presentations envisioned a future state of the department. Indeed, PowerPoint presentations can control strategy (Kaplan, 2010; Knight, Paroutis, & Heracleous, 2018). All these entities, human or nonhuman, were involved in the adjustment and alignment of the innovation department's sociotechnical *agencements*.

5.5. Inscribing the Organisation

An application of design thinking was through concept development. In contrast to the notion of concepts in academia (Jabareen, 2009), concept development referred to the inscription of identified user needs into a physical or digital product. Concepts referred to the reification of an idea. Yet before we draw a clear distinction between a concept in the academic world and the concept in the innovation department, I would also argue that both are representations about the world that have the capacity to act. In both, actants and actors are scripted into roles that seek to guide their behaviour.

The process of concept development could be said to be almost synonymous with the design thinking process. The result of the process was often a digital product such as a mobile phone application. In the creation of these digital solutions, entities such as data, code and mobile phones were scripted into the sociotechnical *agencement* by members of the innovation department. In doing so, these entities brought in other actants such as the databases they belonged to. As implied by an informant, prescription of the code's role in a mobile phone application was limited because the code had already subscribed to other databases. Specifically, the affordances of data and of code prescribed what software developers had to do. In doing so, the code brought the innovation department into conversation with the rest of Omega. Without access, the code could not be transformed. It resisted subscription because together with an individual, it was in a relationship where it could not be accessed unless that individual permitted so. Thus, those in the innovation department who wanted to obtain access to data had to contact those in Omega who could allow access.

5.6. Constructing the Department and Innovation Together

The construction of an innovation department and its enactment of innovation are brought together in the Innovation Voyage. As the document was intended to show

what the innovation department offered to customers, it also defined what the innovation department was and what innovation meant. Through its creation, the Innovation Voyage also became part of the department's *agencements*.

As a whole, I would argue that the Innovation Voyage was an attempt at the stabilisation of the innovation department's *agencements*. By defining how and when customers, Omega, members of the department, users, and tools were expected to act, the Innovation Voyage set out a script, albeit in a PowerPoint slide, for their participation. The Innovation Voyage was influenced heavily by the design thinking process, similar to how innovation theories were scripted into the national innovation systems studied by Lavén (2008). In addition, if we take the innovation to mean the successful scripting of other entities (Akrich et al., 2002), the Innovation Voyage could also be a guide for the innovation department to understand the possible ways that other actants could subscribe to its *agencements.*

By its name, the Innovation Voyage also defined the meaning of innovation in that it was to be produced through these various steps. As I have shown previously with design thinking and concept development, the view that problems and needs are discovered is problematic from an ANT perspective. Furthermore, the document suggests that innovations can be produced through this multi-stage process. Thus, innovation is the result of the process, even if the department or members of the department may define it as something else.

In addition, the Innovation Voyage as an attempt at stabilisation relates to the literature on controlling innovation and its processes. In the literature, Van de Ven (2017) states that innovation processes are difficult to control and actors are more likely to manoeuvre the process than to control it. As to whether the innovation department has been successful at controlling innovation through this document, it is a matter of time. At the time of writing, no entity had gone through the Innovation Voyage.

Additionally, stabilisation also takes place in reference to the innovation department's position in Omega. The document visualises the innovation department as the link between a customer and the rest of Omega. This link involves the inscription of the customer into Omega's sociotechnical *agencements* by the way of the Innovation Voyage. The customer would agree to its prescription in the Innovation Voyage by paying for its subscription. By setting out when and how the department was going to interact with the customer, the Innovation Voyage attempted to stabilise their relations. Moreover, the Innovation Voyage prescribed the position of the rest of Omega at the end of the process and nowhere earlier. The distancing of Omega from the Innovation Voyage is similar to the innovation departments described by Sundbo (1996) and may face the integration problems raised by Burgelman (1983).

Whether or not the innovation department succeeds at getting the other actors and actants to subscribe to their prescription has yet to be seen. Nonetheless, through this

detailed account of the construction of the Innovation Voyage, we can understand how an innovation department constructs itself together with innovation.

6. Conclusion

How is an innovation unit constructed and how is innovation enacted? Through ethnographic research I have sought to answer these questions by opening up the black box of innovation units and their activities.

As I have shown, innovation units are constructed by a multitude of actants and actors. While it might seem that one person was responsible for the creation of the innovation unit at Omega, there were many entities that had to subscribe in order for the department to be formalised. In its construction, the innovation department has generated further sociotechnical *agencements*.

An innovation department invokes notions of temporality that engage others in making the world (Law & Urry, 2004). These moments, that take place in the form of a PowerPoint presentation, a meeting, or a mock-up of an app, show "open-ended gatherings" that establish new *agencements* (Tsing, 2015, p. 22).

The methods that an innovation unit uses defines how it enacts innovation. As something that has taken on a wide range of meanings, design thinking links together the unknown user with objects that will be transformed into innovations. In using design thinking, members of the innovation department are involved in constructing more than just solutions. They are also involved in constructing needs and problems.

Constructions of innovation units and enactments of innovation are linked together by documents that define activities to be done and ways of producing innovations. Documents such as the Innovation Voyage serve as ways of scripting other actors and as representations of the development of innovation.

On a reflexive note, I have also recognised that this action of scripting a thesis on an innovation units and innovation practices has created a sociotechnical *agencement* involving the innovation department, Omega, scholars, and more.

6.1. Contribution

Through my research, I have sought to fill the gap in innovation management research in several ways. Firstly, my ethnography of an innovation unit provides an understanding of the workings of an innovation unit in its early stages. Within the management research field, scholars have begun to recognise the potential that ethnographies can play in developing management theory (Watson, 2011). Indeed, such ethnographies of innovation-in-the-making are valuable and bear much potential for the innovation management field (Hoholm & Araujo, 2011). The notion of a formalisation *agencement* shows which actors and activities could be involved in the construction of an innovation unit.

Secondly, I have presented a critique of the popular design thinking thought process that goes beyond current scholarship on design thinking. Whilst extant literature has focused on defining design thinking and understanding how design thinking has been implemented in organisations (Carlgren, Elmquist, et al., 2016; Johansson-Sköldberg et al., 2013; Seidel & Fixson, 2013), my research has examined how this thought process is a way of constructing needs and solutions through the *agencement* of actants such as the hypothetical user, the interviewer, and the various objects at the scene. This construction of needs and solutions is also a performative aspect of design thinking that I have demonstrated in my research.

Thirdly, I have shown how various actants in innovation projects seek to prescribe each other and whether they agree by subscribing. In doing so, I further Akrich et. al's (2002) work on innovation processes by providing an ethnography of an innovation unit.

6.2. Managerial Implications

Ethnographies are not intended to be prescriptive. However, they illustrate possibilities for action by showing lived experiences. In this study, I have shown how innovation units come into being and the activities that follow. Consequently, this may be of use to managers who wish to develop an innovation unit and comprehend what individuals in the unit might do.

As highlighted by this ethnography, managers should recognise that employees in innovation units may not spend all their time developing concepts. Much of their work might entail contacting others, arranging meetings, and promoting their unit through PowerPoint slides. Some of these activities could be reduced by giving full support and access to the innovation unit in the organisation, thereby reducing their need to navigate the corporate labyrinth.

This study has also highlighted the use of design thinking and what it means to use design thinking. In a world where design thinking is at the risk of construct collapse, this ethnography may be useful for managers to understand the diverse meanings that design thinking has taken on. It may also be useful for those who are currently using design thinking and want to understand how problems and needs are constructed through this process.

Finally, I have shown how documents such as the Innovation Voyage are crucial to defining the position of others. Such documents present a vision of the future and may help to make it come true. Managers may find it useful to understand how powerful these documents are.

6.3. Limitations and further research

Since my research took place over four months, I have not been able to provide a complete picture of the workings of the innovation department. A longer ethnography that is able to trace the development of an idea to a physical or digital product in the hands of users would contribute much to the field of innovation management. Furthermore, a longitudinal study would be able to trace the success and capabilities of an innovation unit.

While this study has taken an ANT lens, research on innovation units would also benefit from Foucauldian power-knowledge perspective. As demonstrated in this study, various knowledges are brought into conversation in the development of a concept. As such, how is power being exercised? Does it exclude individuals and elevate others? In what way might innovators produce versions of reality in their creations? Questions like these are just a starting point for further research in this area.

Another aspect that I have not been able to investigate has been notions of value in innovation. Value is a highly contested concept in academic literature (Robbins & Sommerschuh, 2016). The innovation management field would benefit from a deeper understanding of how value is constructed in various situations. How do innovators inscribe value? When do notions of value come into play during an innovation process? What forms of value exist in innovations? These are some of the questions that can be explored, particularly from a perspective that does not take value as a given.

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8. Appendices

8.1. Interview Guide

Questions from this list were used to guide interviews.

Introduction

- As a start, please describe what you do at the [innovation department].
- Describe your day at the [innovation department].
- How did you come to work in the [innovation department]?
- What have been the most important events during your time at the [innovation department]?
- What do you think is the purpose of the [innovation department]?
- What is the innovation strategy?

On Innovation

- What does 'innovation' mean to you?
- How do you decide if something is 'innovative'?
- How does innovation come about?
- How do you innovate?
- What do you use to innovate?
- How did the [Innovation Voyage] come about?

On Design Thinking

- Describe design thinking.
- Why did you decide to use design thinking at the [innovation department]?
- Do you know some alternatives to DT?
- What is a Google Sprint?

On Technology

- What is your view on technology and innovation?
- What is technology?
- Minimum viable product
- Proof of Concept
- Prototype

End

- Thank you for your time. Is there anything else you would like to add?

8.2. Overview of Themes and Quotes

I have included a selection of themes and their associated quotes in this section.

Design Thinking

> Uh, sort of like a Google sprint. You have an idea. Your goal is to create a minimal viable product. You iterate on it. A couple of people, like let's say the four of us here in [office], you have probably different roles. You come up with ideas to discuss and you try to iterate on this and go out and validate it customer or target audience and then you go back, can you, okay, we got this feedback. You try to create something based on what the user would like. So, you do research on what the user, yeah, trends… So if I'm going to define it somehow… [it's] some process on how to work to create user centric products or applications. – Jan

> I don't know if lean and stuff like that is considered alternatives to design thinking or not. But I think that's a completely different way of working. So yeah. I'm not sure. – Hans

> I guess it's just like those phases where you're exploring problems that people have and try to solve those problems. It's all about like a need or a problem and trying to figure out how we can help people like solve that problem. The short version of what design thinking is. – Hans

> Not that I don't like it, but I think it's because I read an article that was very critical of it. It was basically saying that it's so silly to say that design thinking is something only designers do, right? Cause it's really just if you go to a hospital and you ask a nurse that will know. They won't be able to give the same answers that I would be able to give you. They'll be able to get better, better answers than if I were to go in and use design thinking to talk to users and uncovering their needs for example. Because they know the user. So it's more of that that it's like design thinking is just thinking I think was one article that said, but I think the reason we have this thing called design thinking is because not everyone is actively doing it or aware that they should be doing it. So, I don't dislike it. I think it's super important. But I think the whole thing that with this article was that the writer was saying they didn't, they didn't like the term design thinking and then it's kind of like was like a quick fix. Like, oh, we'll just come in and do some design thinking and fix all your problems. Like basically I think to fix the problems was talk to people. I think it was more just like the whole fluffiness surrounding the term. It wasn't the process behind it. It was the fact that there's something called design thinking that people are selling and making tons of money on. I would say it's a mindset. – Emelie

> I don't believe in the fact to just take a model and apply it 100% more than you combine and maybe you take a benchmarking tool that you think [fits] for the special situation, then you use that in combination with other benchmarking tools or processes. So, it's not that you apply, like use the business model canvas for example, 100%. Because I don't, like, it depends on what phase in the process you are. But I don't use the process or business model canvas for example. I never use all of it. And then I just take some parts of it because it depends on where you are in the, in the process and how your customer is working because you need to adapt to their processes when it comes to

product or service development. So, what I want to say is that you what you learn in school is not applicable in real life at that much. – Kurt

I think design thinking is a mindset for solving a real problem that people have. And it's all about understanding the understanding humans even better than they understand themselves. So, it could be emotional, physical problems they have. And I think the design thinking mindset is a really good tool to ensure that you cover all aspects of a human problem. And what's really important, I think for people working with design thinking is to, to stop going to the solution right away. But [instead] think about think about, the user as if you don't know anything about them. So, having that beginner's mind when you approach a problem. – Christer

Well design thinking is a five-step process now and it's often represented as a five-step process and not one that necessarily has to be done linearly. But you start with the empathising where you start to get to know who is the target group, who is like, which users are you actually trying to design something for? And you want to really get to know them and get to know what they need and what kind of issues they currently have, what needs are not being met. And then you, want to the next stage which is 'define' where you use the knowledge you gained in the empathise phase to kind of really scope down and define, okay, so, but what is the actual problem here? – Elisabeth

Department activities

And obviously still learning a lot of these things because I've got a pretty cross-functional role within the [innovation department]. So, I'm trying to juggle concepts here and there that I was not familiar with for too long before starting here. – Joakim

[Getting access to APIs] doesn't make a lot of like, or it does take a lot of time while I'm just waiting. Well the actual process of getting access isn't that long, but it's like the waiting that's quite long, if you understand. I don't spend much time on like preparing the important meetings and then sending out emails. Like I send out like specific email. Okay, this is what I want to do, this is what we are developing. Or I have a half hour meeting where I explain it and then the rest is like somewhere else in the organisation. I think that's, that's the part that takes a lot of time. But in the meantime, I can just work on whatever I'm just, I'm able to work on. … It can be monotonous, but usually it hasn't been that much of a problem because I can just always work on something else on that project instead. I have had like the case where it's like critical to have access to, for example, one API that lets me log in so I can get the data. And then it was like around Christmas, so people who weren't checking their emails. This was for [inaudible]. I was trying to get access from an external company… And then I could be like end up waiting like one week to actually get that access to actually to try to test whenever I'm working on. So, in some rare cases of that you are hindered but not usually. – Hans

I think isn't that big of a problem when you're working on like one of the business units because then you have your own domain that you're working in and you want to have access to everything. As for working in [innovation department], we don't really have access to anyone else's environment. So, we always have to figure out, okay, who do we talk to? Who has the rights and if

not, who has the ability to actually give you access? And then once we figured that out, we have to contact them. If we gave a meeting explaining what you want to do or send an email and then wait for a response and then they probably have to send someone else that information to the person who is actually technical and can actually gave us the access. So just getting access through like so for example, one API can take up to one week of just emailing back and forth having meetings. – Hans

It varies based on the process, but I'd say like with the concepts that are being completed now, my typical day would be to find out how can we validate and see that this is what people, you know, that it provides a good experience, that it's usable, it has good usability. But we're not always working on concepts, right? No. So it's very varied but I don't know. I'm doing a lot of, like, making things too in a way. Like with [another person], I did the hackathon planning this year and put together presentations about things we've done, and you know, research connected to that. – Emelie

My main day, I would say it goes in different phases depending on, for example, recruitment processes because it's three internships a year. So that means that every time when a new internship starts, I have to, while I'm making sure that they're having a good time and having good progress on their projects and doing the follow up of them, I am already thinking about the next round because I mean, just start recruiting for that round. I need to find projects for that round. During some of the stages where I'm more heavily involved with the recruiting, a lot of the time during my day goes to interviews, of course, and screening for candidates. The way I usually structure those days is that from 10 to 3, I usually have interviews. And from 8 to 10 and 3 to 5, I can try to do the tasks that I have to in addition, like keeping up with the current interns and also the different managerial stuff I have to do and other obligations. And then, of course, it's making sure that the interns are receiving the resources they need, get in touch with the people that they need to get in touch with for progress in their in their projects. Also, everyone works in teams and sometimes that can lead to conflicts within the team if they're disagreeing. Some periods that can consist of a lot of conflict resolution, having to sit down with teams to figure out how can we solve this. We'll see original problem and so on. It's also a, just really talking to different departments within the company to try to identify opportunities for projects. Yeah, I would say I don't think I really have any days that are very much alike. – Elisabeth

Integration with Omega

And the thing that worries me a little bit is that as a whole, as a department, we do not really understand our organisation. that well and working separately from all of our BUs and from our product areas is not the way to go. – Nicolina

Are we working closely with our, or helping our organisation from within or are creating something towards the end client like right away? And then we help ask our organisation to help us get to scale the product that we've created. – Nicolina

I think that we have the fact that we have so much legacy systems that causes a lot of limitations on what we can actually do. It makes it difficult for us to innovate or not do anything yet. I see. It also feels like [Omega] is afraid of trying to come up with new solutions instead of apps and they don't

want to compete with what they already brought to the [customers]. I think if we were able to just, let's say [the innovation department] creates something like this is... this is something that we think is a good project or product that we want to deliver but it's competing against, what we already provide to the [customers], they're just kind of, we prioritise the already existing products because that's a revenue stream that they kind of already have and it's like working for us. I think we are like really limited by what we currently... or [Omega] currently offers to the [customer] already, based on the legacy systems that we have and the products we have. – Hans

I mean, for example, that we talked about in the workshop, there was [creative project area] for example. People could come and have help with their ideas, but like I think we should do is… obviously it was my idea… like [a board showing the innovative projects we're working on]. Just involving people in creating transparency and also having those insight analysis sessions, which that was based on a talk that I saw it at [inaudible] where someone had been talking about how they do live working where they invite others into analyse insight for example. That's what I mean. We're facilitating or we're opening up the floor and welcoming people in and kind of, uh, [inaudible]. What's that in English, I guess kind of setting, paving the way, right? Like opening it up and allowing others to be involved. We can't just be sitting on what we think is a golden egg and it's like, wow, we're so innovative. This is our innovative idea. That instead, we should be like, oh, [other department's project], you know, they have this idea that's really cool. What if we did like this or that can be combined with this. That way we should invite them into a meeting to see what the possibilities are. That's what I mean when I say facilitate innovation that we should be involving others and accepting help from others, and giving people an outlet because I think a lot of people have good ideas and things they've been working on for a long time that they just haven't been able to either explore or get through or test or whatever and that we should be better at helping that happen and allowing those things to be explored. I mean to say facilitate innovation, facilitate creativity. It's just like opening up the discussion. – Emelie

I think the most important events, has been that we have always been aligned with the different leader, management boards in the organisation. So, for example, all of the different business units, they have their own management team. I've been aligned with them all the time. Before anything was approved that yes, we can form [innovation department] as a department, I was presenting my idea and strategy in all of the management meetings to all of the different levels… Not only like the top management but also like down in the line organisation. And I think that was very important. So that they felt that they had an ownership to us. They didn't see us as a threat. So I think the most important part when you build something so radical that as [the innovation department], like, in a big organisation is also to bring the different senior people into actually forming it and come giving them the allowance to have an opinion, if something should be different or if there's something they don't like, to give them the chance to actually say so before something it is just like set in stone and approved and this is the way we're going to do it. I brought them into the process. I just didn't, I didn't just give them a result. I have brought them into the process, and I think that was crucial for us to be where we are today. – Caroline