Exploring the Communicative Dimensions of Knowledge-Intensive Innovation

An Ethnographic Insight into the Innovation Culture Initiative of Novo Nordisk
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Chapter 1

Introduction
1.1. Catalyzing phenomenon

This project takes its cue from Novo Nordisk’s decision to establish the Innovation Culture Initiative in 2009 which aimed to develop and operationalize a type of innovation explicitly focused on creating new knowledge and utilizing that knowledge to add value to the company. Based on the assumption that knowledge is among the most critical dimensions of innovation success, the innovation initiative was launched to explore ways in which select project teams could work explicitly with knowledge-intensive innovation processes like exploration, conceptualization, and transmission. The purpose of this research project is to develop a conceptual framework of knowledge communication theories and use it to explore and critically discuss how this new type of innovation was developed and operationalized by analyzing the knowledge-intensive practices of the Innovation Culture Initiative.

Novo Nordisk was not, however, among the first to make such an explicit link between knowledge and innovation. Since the early 1990s, researchers have been exploring how the two concepts achieved a significant synergy in different organizational contexts leading to a wealth of theoretical reflections (Brown & Duguid, 1991; Grant, 1996; Kogut & Zander, 1992; Nonaka, 1991). Particularly worthy of mention is the knowledge-based view of the firm which situates companies as knowledge-intensive entities oriented towards acquiring and utilizing difficult-to-imitate knowledge assets in order to gain long-term competitive advantages within fast-moving, turbulent markets (Teece & Abdulrahman, 2011; Teece, 2007).

Perspectives such as the knowledge-based view of the firm brought the concept of knowledge out of its conventional domains of psychology and philosophy and into a more strategic, management-oriented one. Knowledge was approached as an accessible resource by companies, and managers were required to work directly with that resource. The emerging managerial discourse became particularly salient within the fields of economics and knowledge management oriented towards reducing the complexity of knowledge to a point where it could be approached as an explicit and universal product (e.g. Weber, 2007). This would enable companies to utilize their already existing capabilities and proven management toolsets to approach what had previously been regarded as an abstract concept too difficult to understand and too inconsequential to matter.

This emerging discourse of empowering simplicity does, however, seem to provoke a critical reaction and one which has grown stronger particularly during recent years (Duguid, 2013; Kastberg, 2014; Tsoukas, 2011). Such critical perspectives focus on a certain paradox at the core of most such managerial approaches to knowledge-intensive work: if the inherent value of knowledge comes from its unique, difficult-to-imitate, and context-specific complexities (argued by e.g. Nonaka, Ichijo, & von Krogh, 2000; Takeuchi, 2006; Teece, 2009), and if those complexities are reduced as much as possible by discourses of empowering simplicity, knowledge will never be able to retain its inherent
value. It therefore seems that while the management-oriented discourse facilitates operationalization, its simplification reduces value. Thus, despite the strong and established connection between knowledge and innovation, the current and dominant managerial discourse of empowering simplicity remains subject to strong criticism.

It is within this context of new and challenging approaches to explicitly working with innovation as a knowledge-intensive process that Novo Nordisk established the Innovation Culture Initiative. What makes it stand out, however, is that the perspective on knowledge and innovation which determines the most fundamental elements of the innovation design of the initiative is not one of reduction or simplification. Instead, the Innovation Culture Initiative was established based on the idea that the most valuable and impactful innovation often comes from the nuances and complexities of creating and utilizing new knowledge. The project teams associated with the initiative were therefore to follow a newly developed and in itself highly innovative project model, which emphasized double-loop learning, co-creation, continuous iteration, multi-modality, repeated fact-finding processes, transaction-based communication, and retaining the complexity of knowledge (document #3).

The initiative is thus very much aligned with contemporary theoretical perspectives on knowledge and knowledge communication, which certainly makes the Innovation Culture Initiative particularly interesting. However, it took a sudden and unexpected turn of events to make it unique. In late 2012, the initiative was terminated by the very same Novo Nordisk Innovation Steering Committee who had established it only three years earlier. An externally commissioned assessment tasked with examining the design, operationalization, and impact of the experiment argued that a ‘significant misalignment between the innovation initiative and the core business’ had proven to be too significant for the initiative to continue (document #36). As such, it was concluded that the Innovation Culture Initiative had provided numerous learning opportunities for the company, but that it failed to reach a sufficient level of impact and thereby value.

This research project was given rare and unlimited access to the Innovation Culture Initiative in early 2012 and the chance to perform an extensive ethnographic study of its knowledge-intensive innovation practices. I was fortunate enough to experience firsthand how these practices were developed by a centrally placed and coordinating Innovation Strategy Office, how they were initially operationalized by six different project teams, and how they were subject to significant negotiation and change throughout the lifetime of the department. The turbulent organizational context

1 Explicit references to data will contain information directing readers to the list of all empirical material of the project (appendix 4).
catalyzed by unexpected and radical events frames these practices in a remarkable way making the case unique.

1.2. Research questions
The research objective of experiencing the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative is focused and made manifest by the following research questions:

1. How can relevant theoretical concepts within the discipline of knowledge communication be used analytically to understand the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative?
2. How can an empirical study of the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative inform relevant theoretical concepts within the discipline of knowledge communication?

These two research questions are based on the specific assumption that a conceptual framework synthesized from relevant theoretical discussions and trajectories within the discipline of knowledge communication can exist in a mutually informing relationship with an empirical study of the knowledge-intensive practices of Novo Nordisk’s Innovation Culture Initiative.

1.3. Knowledge communication research
The project is situated within the still emerging discipline of knowledge communication. This emerging discipline comprises research typically oriented towards examining connections between knowledge and communication from different analytical perspectives within different empirical domains (Kastberg, 2007). With its roots in linguistic research (e.g. semiotics, semantics, and pragmatics), it is a discipline placing great emphasis on the communicative dimension of knowledge-intensive processes and practices focusing primarily on interpersonal dimensions (e.g. how experts communicate specialized knowledge to non-experts).

The discipline has been catalyzed into existence through both theoretical discussions and trajectories within other related disciplines, such as the theory of constitutive communication within organizational communication (K. Ashcraft, Kuhn, & Cooren, 2009) or the discussion of epistemological taxonomies within knowledge management (Brown & Duguid, 2000; Crane, 2013). Because of this ‘patchwork’ of theories all revolving around the communication of knowledge, the discipline is characterized by divergence, dichotomy, and eclecticism rather than by sanction, structure, and paradigmatic order (Kastberg, 2011a).
Whereas the ambition of this project is to develop a conceptual framework of knowledge communication theories and use it to look analytically at innovation practices within the organizational context of Novo Nordisk’s Innovation Culture Initiative would be fairly unproblematic within more established research disciplines, the eclectic state of knowledge communication research makes it more challenging. In order to end up with a fully developed, coherent, and robust conceptual framework informed by relevant knowledge communication theory, it is necessary to address several research gaps:

1. A conceptual literature review of salient theoretical discussions within the field with the objective of approximating a state of the art of what knowledge communication is and what it is not.
2. A discussion of how to apply a knowledge communication perspective within a significant and constitutive organizational context rather than limit that perspective to the interpersonal.
3. A conceptual synthesis of how knowledge communication theory approaches the process of communicating knowledge in order to be able to apply such a synthesis analytically.

The non-paradigmatic state of knowledge communication as a scientific discipline as well as the fact that it is particularly characterized by interdisciplinary studies mean that there are no sanctioned methods for constructing data or for organizing data. Methodological choices range from ethnography (Jacobsen, 2012) to single case studies (Eppler, 2007) to mixed methods (Lueg, 2014), while analytical approaches range from discourse analysis (Fage-Butler, 2011b) to metaphor analysis (Svejvig & Nielsen, 2014) to semiotic analysis (Engberg, 2009). Such differently oriented research designs illustrate a certain pragmatic understanding of interdisciplinarity that allows for less rigid approaches to the combination of theories, methods, and analytical structures in the pursuit of robust and relevant research designs. What remains as a central guiding principle for each of these approaches is the perspective on knowledge communication research as an inherently problem-driven discipline. This means that the discipline could be viewed as highly pragmatist in its alignment within the philosophies of science.

1.4. A pragmatist research design

This type of problem-driven research common to the discipline of knowledge communication seems highly aligned with some of the central ideals and principles of pragmatism. Regardless of whether such an alignment is born out of necessity or is a strategically informed decision, it does seem to situate pragmatism as a common denominator. As I wanted to design an overall approach to this project which would enable me to answer the research questions while simultaneously synthesizing
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an eclectic and non-paradigmatic research discipline into a relevant and robust conceptual framework, pragmatism seemed to offer many of the tools to do so.

The key objective of pragmatism is to use research to address a problem (Biesta, 2010). As such, it does not encourage researchers to focus exclusively on contributing to a particular research tradition or discipline, but rather to direct their focus towards a particular problem or phenomenon:

“We defined pragmatism elsewhere as a deconstructive paradigm that debunks concepts such as ‘truth’ and ‘reality’ and focuses instead on ‘what works’ as the truth regarding the research questions under investigation. Pragmatism rejects the either/or choices associated with the paradigm wars, advocates for the use of mixed methods in research, and acknowledges that the values of the researcher play a large role in interpretation of results.” (Teddlie & Tashakkori, 2003: 713)

Adopting a pragmatist research design would therefore enable me to use theories both within and adjacent to the discipline of knowledge communication as disciplinary boundaries are not particularly significant in problem-driven research (Biesta, 2010). Incidentally, such an approach would be loyal to most research conducted within the discipline of knowledge communication, because of the blurry, permeated boundaries of that discipline and could as such be considered sanctioned. It would be a matter of synthesizing theoretical, methodological, and analytical discussions and trajectories into a coherent design that would ultimately allow me to provide warranted assertions with which to answer the research questions:

"We agree that pragmatism is a well-developed and attractive philosophy for integrating perspectives and approaches. Pragmatism offers an epistemological justification (i.e., via pragmatic epistemic values or standards) and logic (i.e., use the combination of methods and ideas that helps one best frame, address, and provide tentative answers to one’s research question(s)) for mixing approaches and methods. A pragmatist would reject an incompatibility thesis and would claim that research paradigms can remain separate, but they can also be mixed into another research paradigm. He or she also likely would be content with making what Dewey called warranted assertions.” (Johnson, Onwuegbuzie, & Turner, 2007: 125)

It is important to emphasize that while pragmatism has provided several guiding principles throughout the project, the application of those principles has been limited to the practice and structure of conducting research. As such, pragmatism has not played a distinct role in the epistemological or ontological dimensions of the project, which have otherwise been the key elements of the theoretical discussions in chapters three and six. In the context of this project, it follows that pragmatism is used as a research design and not as a philosophy of science otherwise key to earliest pragmatists (e.g. Peirce, James, and Dewey). The research design therefore adopts the practices for conducting research of pragmatism and not its philosophy of science.
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With the guiding principles of pragmatism in place, the choice of how to approach the empirical field of Novo Nordisk’s Innovation Culture Initiative was next. Such approaches are given significant and constitutive roles within pragmatism and must as such be selected with great consideration for the object of study:

“This view leads to the conclusion that research methodology should not be something we apply or select so much as something we design out of particular situations and then argue for in our studies.” (Sullivan & Porter, 1993: 221)

Seeing that there is no single, sanctioned method in knowledge communication research, there was no default choice. The choice needed to be problem-driven to emphasize a strong focus on practice, and to enable me as a researcher to appreciate and experience the nuances and complexities inherent to knowledge-intensive processes on multiple analytical levels (Ayer, 1968). The inherently pragmatist-oriented approach of organizational ethnography met those criteria and was therefore chosen as the empirical framework of the project.

With organizational ethnography comprising the empirical framework, the research design could remain loyal to the interdependent and mutually informing relationship between theoretical perspective and empirical approach embedded in the research questions. The research process was therefore not to follow a strictly conventional linear sequence, but rather an explorative and iterative one. It meant that while the theoretical perspective determined how the field could be approached, impressions and experiences from that field in turn helped to shape the theoretical perspective. Such a double-loop learning process (Boell & Cecez-Kecmanovic, 2014) inherent to the relationship between theoretical perspective and empirical approach meant that this dynamic was retained throughout the entire project.

Despite such a significant degree of iteration, this thesis adheres to a more linear argumentation in order to present an accurate, robust, and more easily approachable discussion of theories, methods, and data before ultimately arriving at a series of warranted assertions with which to provide answers to the research questions.

Summing up, the research design of this project is aligned with the practices for conducting research introduced by pragmatism. More specifically, it is comprised by the guiding principles of 1) double-loop learning, 2) a recognition of a mutually informing relationship between theoretical perspective and empirical field, 3) non-paradigmatic approaches to theoretical discussion, and 4) situating method as constitutive of the entire project.
1.5. Thesis structure

The structure of the thesis follows a linear argumentation chosen to introduce, contextualize, examine, reflect, and discuss the empirical field of the project as well as the theoretical perspective with which it is approached. Thus, chapter two introduces what is simultaneously the catalyzing phenomenon at the core of the project as well as its larger empirical context: Novo Nordisk and its Innovation Culture Initiative. Chapter three seeks to develop the theoretical perspective through which to analyze that phenomenon by undertaking a critical review and discussion of the disciplinarity of knowledge communication as well as of its salient theoretical discussions — the result of which will be a coherent conceptual synthesis. Before applying that synthesis analytically, chapter four investigates how the project approached the field empirically by introducing organizational ethnography as a multi-dimensional methodological framework consisting of methods for constructing data and methods for organizing these data. Chapter five contains the result of the data organization in a critical walkthrough of each phase of the innovation process using the conceptual synthesis developed in chapter three. Chapter six frames a reflection of the most salient findings from the analysis as well as a critical discussion of those findings in order to approximate nuanced answers to the complex research questions. The conclusion will focus on providing a condensed reading of the project, perspectives for future research, and the most salient contributions of this project.

With this thesis structure, I thus aim to provide nuanced and complex insights into the knowledge-intensive innovation practice of Novo Nordisk’s Innovation Culture Initiative from the theoretical perspective of knowledge communication.
The first day of field work at the Innovation Culture Initiative began with a walk of 20 minutes or so from the train station at Bagsværd to the Novo Nordisk main entrance. After only a few minutes, however, Novo Nordisk buildings began appearing everywhere. I had been to the main entrance a few times before, but always arriving with taxi, so I already felt somewhat lost on foot. Seeing a man in a suit with a briefcase walking purposefully in the same direction I was, I decided to ask him where Novo Nordisk was. He smiled and said “as you can see it’s pretty much everywhere”.

Walking through ‘Novo city’ in Bagsværd was certainly an experience. Two things immediately made an impression: the many large, modern buildings protected by tight security (fences, card-swiping checkpoints, cameras, security guards) and the construction site were the new, spectacular Novo Nordisk headquarter was being put together. It gave the impression of success and achievement, but also of entrepreneurship and expansion.

I was supposed to meet Alice, my initial point of contact and member of the Innovation Culture Initiative, in the main reception located on Novo Allé 1. Surrounded by expensive furniture, large sheets of glass, polished surfaces, and sophisticated coffee machines, the reception was definitely meant to impress and to signal professionalism to visitors. Alice initially took me through the office space of the Global Stakeholder Engagement department before going to the space of the innovation office, as she had to pick up her laptop on the way. Once again, I was immediately impressed by my surroundings – the décor of the work spaces and of the break rooms. Fresh fruit and nuts, double shot cappuccinos, expensive IT equipment, and more corporate identity material than I had ever seen before. Everywhere were posters, pamphlets, pull-ups, award plaques, and marketing material – I was surrounded by the artefacts of a unified corporate vision. A vision focused on messages like “changing diabetes”, “social responsibility”, “expanding leadership in diabetes care”, “our focus is our strength”, and so on. While giving a feel of direction and drive, it also introduced a sense of a strong and highly articulated corporate culture – a streamlined and explicit ‘way of doing things around here’.

Having picked up her laptop, Alice finally brought me through the fancy office space, out of a back door and down some industrial looking stairs. The Innovation Culture Initiative was located in another building, so we left the impressive head quarter of Novo Nordisk and began walking across parking spaces and back roads. Apparently, there was some distance to walk. We finally arrived at a rather small, warehouse-type building. This was the Innovation Culture Initiative – some of it was anyway. As I walked in to what was a large, open office space, I noticed that there were only seven desks for the 21 people associated with the Innovation Culture Initiative – Alice quickly told me that the project teams often felt more comfortable to sit and work in their own departments instead of here. In fact, Paul, a project manager, was the only other person in the room when we arrived. This made the feel of the Innovation Culture Initiative office completely different than the other parts of Novo Nordisk that we had just gone through. Apart from the lack of busy people in suits buzzing around, there were almost no testimonials to the corporate vision so highly visible before – no sophisticated coffee machines and no marketing material. Instead, the room was filled with books on innovation, white boards full of mind maps, and post-it notes everywhere. It gave me the immediate impression of experimenting and playing around with ideas. Instead of the strong articulation of the ‘way we do things around here’, there was a sense of people trying to challenge or disrupt that ‘way of doing things around here’.

Ethnographic narrative: immediate impressions from arriving on day 1

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Chapter 2

The Innovation Culture Initiative of Novo Nordisk as empirical setting
It is important to recognize that even though the focus of this project is fixed firmly on the innovation processes of the Innovation Culture Initiative, these practices do not exist in a vacuum. Instead they are a part of a larger and more complex empirical context which simultaneously frames and situates them while giving them meaning (Eisenhardt, 1989). In short, it is the context of Novo Nordisk; a large and successful company enjoying the position as leader of the global diabetes care market as well as the position of the most valuable company in Scandinavia. It is within this particular context that the Innovation Culture Initiative was established in 2009 as an experiment designed to develop and operationalize a new approach to a new type of innovation within the company. This experiment resulted in the creation of a new department, six new innovation projects, a new project management methodology, and a completely new way of understanding innovation as a process consisting of the construction, conceptualization, communication, and transfer of knowledge. Whereas this new and unique way of approaching innovation remains a pivotal dimension within the analytical perspective of this project, its organizational context is key to understanding it appropriately (Lave, 1991). In other words, in order to fully appreciate the complexities of the new knowledge-intensive innovation practices, it is important to understand the complexities of the context in which they are situated.

This second chapter therefore has the purpose of situating and framing the innovation process in its larger empirical context. To realize this purpose, the chapter begins by outlining the importance of innovation to Novo Nordisk as a pharmaceutical company as well as the company's already existing innovation practices. From there it introduces the Innovation Culture Initiative, the historical context from which it emerged, and its organizational structure. Finally, the chapter includes a walkthrough of each of the six projects making up the portfolio of the department as well as of the Innovation Project Model designed to enable each project team to realize their strategic rationale and value potential. The reason for this structure is fundamentally to provide a critically important insight into the context surrounding the innovation process as well as the project teams working directly with it by approaching the process through a series of steps from the most macro to the most micro.

2.1. Novo Nordisk as a successfully innovative company

It almost seems counterintuitive that a company like Novo Nordisk with a strong and proven record for creating valuable and impactful innovations should create a department tasked with developing a different kind of experimental and untested innovation. In order to understand why, this section takes a closer look at the company as well as the catalyst for the experiment. Outlined briefly, Novo Nordisk is a global pharmaceutical company specializing in the research, development, manufacturing, and marketing of products and services of diabetes care (NovoNordisk, 2014).
Established in 1923, it now employs more than 40,000 people in 75 countries while marketing its products in more than 180 countries. Novo Nordisk is a global player in the pharmaceutical industry, and its $16.2 billion in sales combined with $6.2 billion in net profit in 2014 alone makes it the most valuable publicly traded company in Scandinavia as well as 64th on Forbes’ ranking of the most valuable companies in the world (Ritzau, 2015). Together with its main competitors, such as Sanofi and Eli Lily, Novo Nordisk accounted for 88.7% of the global insulin market share in 2012 (MarketResearchTransparency, 2012). By capturing approximately 46% of those global sales, the company currently leads the diabetes care market by a significant margin. Furthermore, since the diabetes care market is growing, Novo Nordisk has the potential of continued success simply by retaining this market lead. According to several healthcare business intelligence agencies (MarketResearchTransparency, 2012) as well as Novo Nordisk’s own projections (document #39), this market will be continuing its already significant growth rate reaching a global worth of $32 billion by 2018 — almost triple of its 2011 level (ThePharmaLetter, 2012). This increase is caused by the assumption that the number of people suffering from diabetes will rise from 5.1 percent (366 million) in 2011 to 6.4 percent (522 million) by 2030. Such a rapid market expansion provides Novo Nordisk with a significant potential for continued and even exponential economic success if they should maintain their market share. In other words, the company is not under any pressure to actively expand its market or change its market access strategy in order to grow — it simply has to continue along its current trajectory and sustain its market share in order to achieve significant success.

Until the second quarter of 2014, the company had experienced double-digit growth rates for 47 consecutive quarters strongly supporting the observation that it has already been very successful in matching the potential (document #101). The prediction of continued market growth is therefore viewed by Novo Nordisk almost directly as a prediction, and consequently an expectation, of matching revenue growth (NovoNordisk, 2014). It is important to note that although radical, the growth is considered stable and predictable (ThePharmaLetter, 2012). In fact, it is rare to see the diabetes care market being described as fast-moving or particularly volatile when compared to, for instance, the telecommunications or semiconductor markets. R&D pipelines typically aim for at least the next ten to twenty years and with publically known patent grants ensuring a somewhat transparent industry, companies like Novo Nordisk feel comfortable predicting market dynamics with a significant accuracy well into the future (#5 Alice, member of the Innovation Strategy Office).

The size and market position of Novo Nordisk offer important contextualizing information regarding its innovation initiatives. It means that successful innovation projects — a specific new drug or a new device — almost always become incredibly impactful. Because of the size of the company and the market, these innovation projects simply need to be very impactful to have any
measurable effect. Recent examples of such impactful projects could be a product like NovoSeven: a bleeding drug which generated approximately $3.6 billion worth of sales in 2002 alone, or Victoza: a non-insulin drug which generated approximately $1 billion worth of sales in that same year. Impacts are, however, not always positive as the relatively recent case of Tresiba demonstrated. Tresiba is a new insulin for type 1 and type 2 diabetes, which was meant to make its entrance to the American market in 2012. When mere speculation on the approval or rejection by the Food and Drug Administration (FDA) went public, the value of Novo Nordisk dropped with more than $4 billion in a matter of only five minutes (document #33). Even though the company bounced back in the following months, it continues to be one of the most present examples of the significant risks involved in such innovation projects. These cases help to exemplify the fact that pharmaceutical companies like Novo Nordisk experience innovations in a unique way. They become the lifeblood of the companies — incredibly impactful, but also incredibly risky. Innovations, like the above mentioned products are few and far in between, but they are almost always radical in their impact. When a new drug or a new device hits the market, it is meant to radically affect the market as well as the company itself. These innovation ‘leaps’, as they are sometimes referred to, represent one of the three primary types of innovation conventionally attributed to not only pharmaceutical companies or the diabetes care market, but to many other companies and markets in general (Beckman & Barry, 2007): 1) radical innovation, 2) incremental innovation, and 3) disruptive innovation (Christianson, 1997; Sledzik, 2013a; Sweezy, 1943). Since Novo Nordisk work with each of these, a closer look seems warranted.

Whereas radical innovation projects have significant impacts on both market and company, they are specifically a matter of improving or renewing products or business models to such a degree that the company in question outperforms the rest of the market by virtue of that improvement. Different researchers specify the ‘radical’ in radical innovation differently, but most agree that such innovations must demonstrate a radical impact on the market position of the company in question (Delgado-Verde, Navas-López, Cruz-González, & Amores-Salvadó, 2011; O’Connor & DeMartino, 2006). The above mentioned innovations of NovoSeven, Victoza, and Tresiba would all qualify as radical. The second type of innovation — incremental innovation — represents a similar, but less radical dynamic: that of continuous improvements occurring throughout the company with the object of optimizing every process and every product regardless of how insignificant improvements might be. Examples of such innovations could range from the almost unnoticeable, such as limiting the physical distance between any employee and whichever tool he or she needs in their everyday work (e.g. copiers, whiteboards, coffee machines, cantinas, etc.), to the more noticeable, such as eliminating unnecessary steps in a production line in order to maximize production cost and speed. Incremental innovations are inherently ways of making sure that companies continuously strive to do better in order to keep up with their surrounding market. The third and final type is disruptive
innovation—a term coined by the economist and one of the founding fathers of modern innovation theory, Schumpeter. He argued that markets inherently exist in a stable state and that they only change that state through the destructive force of disruptive innovations (Sweezy, 1943). In terms of the diabetes care market, such a fixed state would in fact include both radical and incremental innovations seeing as these types of improvements do not disrupt the state of market despite potentially having significant impact. Only through very rare disruptive innovations can companies redefine their markets or create entirely new ones. Strong examples of disruptive innovations within Novo Nordisk include the initial large scale manufacture of insulin in 1923, which helped to create the entire diabetes care market, and the development of the injection pen in 1985, which redefined the market entirely.

Model 1: The dynamics of different innovation types compared to a growing market

The model above illustrates the dynamic of the three different innovation types in connection to gradual market growth. It shows that companies like Novo Nordisk must make sure to continually improve its performance to sustain its market share, and that this can be achieved through the use of one or more of these innovation types. Whereas incremental innovation only makes sure that the company performance follows a stable market growth, radical innovations offer performance leaps through greater impact thereby effectively increasing the market share of the company. Disruptive innovations finally disrupts the stability of the market dynamic. This concept of market stability
proposed by Schumpeter has later been criticized for its oversimplifying argumentation (Sledzik, 2013b), but the innovation history of Novo Nordisk and the diabetes care market none the less seems to follow its dynamic (Madsen, 2012).

While addressing innovation on such an overall strategic level certainly helps to contextualize the types of innovation commonly show cased in the context of Novo Nordisk (e.g. Madsen 2012; Riis 2014), it remains important to question how the company organizes its work with these innovations. In this way, it becomes a matter of addressing the specific practices responsible for ensuring the radical innovation leaps mentioned above as well as any other of the dominant innovation practices within the company. Such a contextualization exercise is particularly important in order to situate the new innovation practice envisioned for the Innovation Culture Initiative.

2.2. Dominant innovation practices within Novo Nordisk

During my time spent with Novo Nordisk, it became increasingly clear to me that innovation — on both levels of strategy and practice — was considered by most of its employees to be at the core of the its identity. From even a hurried overview of the many online resources focusing on Novo Nordisk, such as the corporate website, various industry reports, newspaper articles, etc., it becomes clear that the company explicitly regards innovation as a very strong and central concept to its corporate identity (Madsen, 2012). The very first caption on its website certainly supports this impression: “our passion for proteins, searching for the next scientific breakthrough, patient stories, the people of Novo Nordisk” (NovoNordisk 2014, emphasis added). Furthermore, among the ten essentials that make up The Novo Nordisk Way, the formal expression of management principles created and published in 2010 and considered by the executive management team to be at the heart of the company, number four states: “We provide innovation to the benefit of our stakeholders” (document #75, emphasis added). Finally, a simple search of the intranet of Novo Nordisk performed in 2012, using the word ‘innovation’ resulted no fewer than 10,752 unique hits (documents #88 and #89). All of these observations support that innovation not only occupies a central position with Novo Nordisk, but also that it is widely adapted within the company. The fact that Forbes placed Novo Nordisk as the 70th most innovative global company in 2013 is further testament that innovation is a particularly central and salient concept to Novo Nordisk’s corporate identity.

When an internal compilation of salient Novo Nordisk innovation projects throughout the company’s history were commissioned in 2005, 16 projects all with significant impact on the business of the company made the list (document #76). 14 of the 16 projects could be characterized as radical

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2 The Novo Nordisk Way replaced The Novo Nordisk Way of Management
innovation projects — i.e. as having radically improved existing business models or products — whereas only 2 could be characterized as disruptive — i.e. as having resulted in entirely new business models or products thereby making previous business models or products obsolete. Despite taking up only 2 places among these 16 ‘all-time greats’, these disruptive innovation projects were by far the most famous and publically known: the mass production of insulin and the NovoPen. Whereas both of these innovation projects completely changed the diabetes care market and launched Novo Nordisk into its current position as market leader, the other 14 projects tell a different story — one of doing better rather than doing different. An example of these 14 radical innovation projects is the Triple Bottom Line (Madsen, 2012). After a critical campaign against Novo Nordisk by a US consumer movement in the 1970’s, Novo Nordisk lost half its turnover and was consequently forced to significantly downscale its operations. Similar events took place over the next 30 years severely challenging the growth and success of the company. In 2001, Novo Nordisk’s response was to create the Triple Bottom Line, a principle for doing business in a responsible and sustainable manner (NovoNordisk, 2014). Pledging to focus on balancing economic, social, and environmental responsibilities, the Triple Bottom Line innovation project was an effective and impactful change to the image and management principles of Novo Nordisk and should certainly be considered a radical innovation. It did not, however, disrupt the business model or the product portfolio of the company like it did not disrupt its surrounding market. Such radical innovation projects are strong examples of effective single-loop improvement: of what can be done with a fixed set of criteria, priorities, and opportunities already known to the innovators at the outset. It is a question of doing better rather than of doing different. None of the 14 radical innovation projects challenged the fundamental business model or the product portfolio of Novo Nordisk even though they had a significant effect of them.

The characteristics of these particularly salient innovation projects highlighted by Novo Nordisk itself tell a story of radically effective and impactful, but not disruptive innovation. It is a story about a very successful company which has established its success on two fundamentally disruptive innovations, the drug in 1923 and the device in 1985, and of a company which has continued to advance this success through a series of radical innovations and a constant focus on incremental innovations. Within Novo Nordisk, these two seemingly dominant innovation practices are explicitly championed by 1) the R&D-division and 2) the operational principle of lean.

2.2.1. Research and development

As is conventional for members of the pharmaceutical industry, Novo Nordisk has chosen to invest heavily into research and development in order to not only keep up with its competitors, but also to maintain its position as market leader through the improvement of its product portfolio. Whereas many pharmaceutical companies aim to develop affordable, generic pharmaceuticals based on the
expired patents of their competitors, almost all of the largest and most successful focus on developing the own patented brands in order to secure a larger market share for a longer period of time. By employing more than 7,000 people within research and development alone (18% of its 40,000 employees in total — a conventional sized R&D for the same type of pharmaceutical companies (#Fieldnotes November)), the company is focused on developing both new drugs to its markets as well as the devices with which to administer them. The R&D division consists of a diabetes research unit, a biopharmaceuticals research unit, a device R&D unit, a global development unit, a CMC supply unit (chemistry, manufacturing, and control), and finally a regulatory affairs unit. These units are focused almost exclusively on the improvement and invention of new products for Novo Nordisk to manufacture, market, and sell. I use the term ‘invention’ rather the ‘innovation’ deliberately to make the different streams and trends of innovation within Novo Nordisk as clear as possible — in this context, ‘invention’ is used exclusively to signify a product-related focus (drugs and devices). Other conventional ways of distinguishing this type of innovation from other types would be to refer to it as ‘technological innovation’ or simply ‘product-oriented innovation’ (Hoffmann, 2011).

The enormous value potential of inventions exemplified in section 2.1. makes them the pivotal point of focus for the entire company. When R&D develops a single successful drug, the commercial success is so massive that the company as a whole succeeds. Because of this potential and because of governmental regulation, the process during which they are discovered and developed is rigidly structured. It is often a matter of clinical trials, in vitro testing, applications, in vivo testing, and further clinical trials (#2 John, project manager). By adhering to an almost militaristic discipline (#12 Matthew, vice president), the departments within R&D strive to continually improve their abilities to effectively produce new drugs and new devices with as little risk as possible and with as few failures as possible. The previously mentioned financial disaster for Novo Nordisk when the drug Tresiba was not immediately approved by the Food and Drug Administration (FDA) is but one recent example of the significant risks associated with these projects. Having more than 7,000 employees continuously dedicated to the very extensive and therefore very costly processes of R&D and having almost the entire remaining organization dedicated to the marketing, manufacturing, and selling of the products coming out of R&D mean that there is a significant pressure to succeed and to do so as quickly as possible. While this makes R&D efficient, it also makes it inherently risk-averse. When failure has the potential of impacting the business to the same extent as success, it becomes even more significant than would have otherwise been the case. It certainly supports the focus on doing better rather than suffering the risk associated with doing different.

\[1\] The names of people referenced in this thesis have been made anonymous. For a complete overview of interviewees (pseudonyms) see appendix 4.
R&D is regarded by Novo Nordisk itself as the core and life blood of the company (#6, Henry, member of the Innovation Strategy Office). It was an R&D breakthrough which founded the company in 1923 and consequent R&D projects which launched the company into its position as market leader. The sheer size and scope of such projects make their impact on the company radical. NovoSeven demonstrated the positive impact a successful project, while Tresiba demonstrated the negative impact of a problematic one. Because of this balance between risk and reward, Novo Nordisk has become incredibly efficient at structuring and managing such projects. Through a highly disciplined, controlled, and regulated process, projects undergo rigorous tests and trials strictly adhering to fixed project management models. This is meant to minimize the number and impact of failed projects, while maximizing the number and impact of successful ones. Since this approach to structuring and managing R&D projects has shown itself to be successful, and since R&D projects play such a crucial role within the company, the approach has come to define the broader Novo Nordisk way of doing things — its cultural identity and its conventional innovation practice. It is about maximizing control while minimizing risk in order to ensure stability and success. Such a way of doing things is certainly characterized by the militaristic structure seen in R&D, but is motivated by an aversity towards failure, risk, and uncertainty (#Fieldnotes November, #14 Alice, member of the Innovation Strategy Office, #11 Emily, vice president, #12 Matthew, vice president).

2.2.2. Lean and kaizen
The impact of the R&D approach to innovation is perhaps manifested most clearly in the second dominating innovation practice of the company — its principles of lean operational management. To Novo Nordisk, the lean philosophy mirrors the principles of streamlining, standardizing, and structuring in its strong focus on maximizing core competences, reducing operational variation, improving operations incrementally, and adhering to single-loop improvements. In this way, it is harmonious with the zero tolerance of failure and risk-aversity seen in R&D. Novo Nordisk formally launched its lean initiative in 2009 (Mette B. Jensen, 2009; Rostgaard, 2009) and quickly integrated its principles into what the company regarded as its core competencies making them inseparable from its corporate identity.

Lean was coined as a management term by Womack, Jones, and Roos in 1990 after having investigated the operational success of Toyota compared to American car manufacturers during the period from the 1950s. They discovered a set of principles for optimizing production, structure, and management and consequently named these principles ‘lean’ in order to connote the philosophy of doing more with less (Womack, Jones, & Roos, 1990). Whereas Womack et al. did not coin the term until 1990, western management scholars had explored the Japanese production philosophy which so quickly made Toyota into a financial success despite its limited resources compared the American manufacturers it ultimately outpaced. Drucker is noted in particular as one of the first scholars to
investigate the different principles making up this philosophy (Drucker, 1971). Lean is ultimately about doing more with less. It rests on a set of guiding principles aimed at establishing a certain perspective on operational dynamics with the objective of getting those dynamics to function optimally (Stone, 2012). The most basic principle is one of workflow. If companies view their operations as a way of getting products through their production lines and to their customers in order to match the pull, or demand, of those customers, it becomes the most fundamental objective of the companies to make that workflow as short as possible, as uninterrupted as possible, and operating with as few mistakes as possible. In order to achieve this, lean emphasizes a strong involvement by the employees of the company to ensure the optimizing of this workflow. By informing employees about the value of their products and about the structure of the workflow, they themselves become empowered to add value to the workflow and thereby to the customer experience. This type of optimization always occur incrementally and is always oriented towards reducing unwanted variation (i.e. waste), reducing the number of mistakes, and trimming production to a bare minimum (Womack & Jones, 2003). In the context of the lean philosophy, such incremental innovations are referred to as ‘kaizen’ (Japanese for ‘kai: change’ and ‘zen: good’).

Lean can be considered to be a philosophy focused incremental improvement (Stone, 2012). It is about optimizing operational dynamics in order to maximize output with as little input as possible. As such, it contains an inherent aversion towards unwanted variation, waste, and mistakes ensuring that risks are, if possible, never taken. When employees and managers alike always focus on reducing deviation from efficient processes, these processes will inevitably become more efficient. Lean was, however, not adapted by Novo Nordisk only because of these operational benefits. It was primarily adapted because of its focus on kaizen — the fundamental perspective on incremental innovation which provided a fully developed terminology to match that perspective which had already been developed from the R&D projects and principles: that the company sustains its market shares through incremental innovation of its operational dynamics, and that increases its market shares through radical innovations generated by the highly controlled processes of R&D (#12 Matthew, vice president). The introduction of lean was on one hand a strategic acknowledgement of those principles and on the other hand a wide rollout of such principles to the other divisions of the company (#4 Paul, project manager).

With R&D and lean as its two dominant innovation practices, Novo Nordisk has an explicitly strong culture of innovation at the core of its corporate identity. Even though they target two different types of innovation, incremental and radical, they are both founded on the same Schumpeterian perspective on innovation. They also share the approach to innovation as something potentially impactful, but also as potentially risky prompting a strong focus on structure and control, while building strong aversions towards risk, failure, and uncertainty. Because of this risk-aversity, R&D
and lean are both oriented towards doing better rather than doing different. The long history of innovation successes within Novo Nordisk coupled with its position as market leader mean that the company considers this approach to and perspective on innovation as tried and tested. It works. Positive expectations for diabetes care market growth and soundly demonstrated performance growth underlines the need for and potential of continued innovation success. Curiously enough, it is without any burning platform and within this context of innovation success and performance growth that Novo Nordisk created the Innovation Culture Initiative in 2009. In order to understand why and thereby complete the contextualization of the experiment, it is necessary to critically examine the strategic motivation for doing so.

2.3. Creating the Innovation Culture Initiative

Novo Nordisk created the Innovation Culture Initiative in 2009 as a response to an externally commissioned review of the innovation capabilities of the company. The review concluded that Novo Nordisk had the potential of improving these capabilities significantly by investing in a different kind of innovation than previously (document #63). There was a recognition that “core competencies had become core rigidities” (#Fieldnotes November, Alice, member of the Innovation Strategy Office) and that the company needed stronger exploratory capabilities if it was to maintain and expand its position as market leader. The company recognized that it needed to develop a more ambidextrous approach to its innovation strategy seeing as neither the kaizen incrementality inherent to the lean philosophy nor the radical innovation projects of the R&D division were truly exploratory enough to ensure such an approach (March, 1991; O’Reilly & Tushman, 2008). This recognition was based on an innovation theory proposed by March that companies need to innovate in two differently oriented, but complementary directions: exploitation and exploration. Exploitation represents a company’s goal of maximizing gain from its current market position by improving its capability to profit on existing products and services while developing them continually. Exploration, on the other hand, represents a company’s goal of expanding its market position or of creating entirely new markets by learning to do new things. In other words, exploration is about creating new knowledge and about applying that knowledge to create new, impactful, and potentially disruptive innovations (March, 1991). Even though the conventional innovation practices of Novo Nordisk continued to enjoy great success, the Innovation Culture Initiative was created from a potential of succeeding even more with only a limited investment at risk. It was fundamentally an experiment designed to test whether or not the company could develop and operationalize an entirely new approach to innovation — one which had something as abstract as learning at its core. In their innovation leadership strategy the executive management team emphasized this new ambidextrous focus by stating the following:
“It is a balance between building a future business and running the current business effectively. We need to have focus and management systems in place to address both aspects in order to ensure the long-term viability and success of the company” (document #68).

As such, the Innovation Culture Initiative could be seen as a challenge to the dominant practices of innovation – to develop the capabilities needed for Novo Nordisk to move beyond this ‘comfort zone’ of kaizen incrementality and non-disruptive, product-oriented innovation. It was to work with a new approach to innovation aimed at the more intangible dimensions of the company, such as business models or stakeholder engagement strategies (Teece, Pisano, & Shuen, 1997). Specific projects within this new approach could be characterized according to the previously used taxonomy of incremental, radical, and disruptive, but they were focused on something entirely new within the company. As such, the Innovation Culture Initiative was designed to be a distinct department or community tasked with developing and operationalizing a new innovation practice – a practice oriented towards learning. It was to leverage the potential value of creating unique and difficult-to-imitate knowledge which would enable Novo Nordisk to gain a competitive advantage with a different approach than it had previously been using (Barney, 1991; Grant, 1996).

By addressing three specific areas aimed at building innovation capabilities outlined by the externally commissioned review in 2009, the Innovation Culture Initiative has its mission brief:

1. The engagement of the senior leadership was to be strengthened by establishing a centrally placed Innovation Steering Committee made up of members of the executive management team, by letting that committee strategically select a number of innovation themes to frame and guide the new seed projects, and finally by funding the entire Innovation Culture Initiative directly from that committee.
2. Cross-unit seed projects were to be launched catalyzing new ways of working across structural divides and emphasizing the importance of synergies to the creative process of innovation.
3. The insights and experiences from the Innovation Culture Initiative were to be used to build innovation discipline by developing and evolving an innovation project management methodology, by ensuring that this new ambidextrous approach to innovation became integrated into the leadership development of the company, and finally by reshaping of the innovation parameter in the ongoing organizational audit process. (document #34)

At this point it is important to emphasize the potentially disruptive nature of the Innovation Culture Initiative to the otherwise dominating innovation practices within the company. The new initiative was created on the executive level from a fundamental recognition that the two practices of incremental innovation of operational dynamics (kaizen) and radical innovation within the product
portfolio (drugs and devices) were on their own insufficient to build the necessary innovation capabilities outlined by March’s theory on exploitation and exploration (March, 1991). Despite of this, these two dominant practices had for a long time had a profound effect on the cultural identity of Novo Nordisk shaping an approach to innovation which was risk-averse, which focused on single-loop problem-solving, which had a low tolerance for failures and unwanted variation, and — perhaps most important of all — a company, which had already experienced significant success using these approaches to innovation. As such, there was no immediately detectable burning platform (Christianson, 1997). And despite of this, the Innovation Culture Initiative was given a mandate to disrupt the status quo and to change the innovation strategy of the company. It was fundamentally a matter of saying that the company needed to redefine its perspective on and approach to innovation even though it was this perspective and this approach which had brought them success.

2.3.1. The historical context of the Innovation Culture Initiative

The first event than can be associated directly to the creation of the Innovation Culture Initiative comes as early as 2002, when consultants performed an external assessment of the innovation capabilities of Novo Nordisk (document #35). Such assessments are by no means extraordinary for large companies to commission, but to Novo Nordisk it was the first time that such an external assessment had focused on innovation — regarded as an otherwise key capability of the company. Producing a report to Novo Nordisk’s executive management team in 2003 (an Innovation Culture Review), the review found the company to be characterized by corporate focus, strong management, and entrepreneurial drives towards doing better (document #35). There was a strong sense of consistency, quality, and performance, but also of conservatism, slow pace, and bureaucracy. There was little drive towards doing different — trying new and risky strategies. The report showed a company divided on the issue of innovation: some were eager to challenge the existing organizational framework of innovation, while others were cautious of disrupting commercial growth and expertise by introducing radical new agendas. These findings and the following recommendations for developing new types of explorative innovation were not received well by the executive management team, who instead chose to focus on the continuous and incremental strengthening of the company’s core competencies: drug and drug device research, development, and manufacturing. The findings and the consequent decision to reject the recommendations are clear testaments to the risk aversity and the missing motivation for change that characterized the Novo Nordisk corporate identity and culture.

From 2003 and until 2008, Novo Nordisk therefore continued to operate with this conventional appreciation of innovation — doing better rather than doing different. Apart from the R&D division, innovation was only institutionalized in a very small and almost invisible department called Future Health and Social Innovation embedded in the Corporate Relations division. This department
consisted only of a few people and was generally only focused on a few emerging, ad hoc, early stage projects different places in the company. One of these was the Scenarios project which aimed at exploring emerging trends within the public health discourse as well as the diabetes care industry in order to provide Novo Nordisk with the tools to better navigate in the sensing and seizing of the business opportunities inherent in such trends (Teece et al., 1997). Inspired by this project in particular, the Future Health and Social Innovation department began to look for new ways of understanding how Novo Nordisk as a company should work with innovation in order to sense and seize, detect and capture, explore and select the possibilities presented by the findings of the Scenarios project (document #49). To them, incremental product-oriented innovation aimed at doing better did not seem sufficient to capture the important opportunities of non-product-oriented innovation — they wanted to explore dimensions of innovation that were somehow different from those inherent to the inventions that took place in the R&D department (document #12). When the Doblin consultancy published their report on the Ten Types of Innovation (Keeley, Pikkel, Quinn, & Walters, 2013), the department found a terminology to match their argumentation — a conceptual framework that allowed and even encouraged companies to talk about innovation in other ways than inventing new products (#Fieldnotes November, Alice, member of the Innovation Strategy Office). They argued that innovation was inherently about the way in which companies benefitted from exploring their immediate environments (e.g. industry, market, stakeholder) and learning about the opportunities emerging from those environments (Keeley et al., 2013). This much more abstract and broad sense of innovation was one of the most important catalyzing factors for the second innovation culture review of Novo Nordisk initiated by the Future Health and Social Innovation department in 2008/2009. If innovation was no longer a term reserved for R&D, the possibility for doing different suddenly seemed to appear.

A second Innovation Culture Review was performed and this time by the consultant company Doblin as they were strong advocates for this broadening of innovation as a concept. Since both method and sampling approach were highly comparable to the first review from 2002 (i.e. surveys and interviews with key stakeholders), and since the formal conceptualization of innovation in Novo Nordisk had not significantly changed since then, it does not seem surprising that the findings almost exactly matched those from six years earlier. Novo Nordisk was characterized as a highly successful company with continuous revenue growth and market expansion. It was described as a remarkably focused organization with strong management structures and a highly effective R&D division. It was, also once again, described as a conservative company without a sense of urgency, without many internal collaboration initiatives, and with a very fixed way of understanding and working with innovation. The doing better-strategy still remained strong. In their reports presented to the executive management team of Novo Nordisk in 2009, Doblin repeated the recommendation of a broadening of innovation initiatives, cross-functional collaboration, senior management buy-in, and
the launch of seed projects to explore and develop a new way of working with innovation. Even though these findings and recommendations matched those ignored by the executive management team only six years earlier, the 2008/2009 recommendations were accepted. This event was effectively the start of the Innovation Culture Initiative.

Before issuing the call for the seed projects which were to comprise the portfolio of this new initiative, the executive management team strategically selected five innovation themes that would guide the direction of those projects towards areas already estimated to have significant opportunities. The five themes were 1) Future Sales Model, 2) Access to Treatment for Low-Income Markets, 3) New Diabetes Care Model, 4) Preventing Diabetes, and 5) Strategic Drug Discovery (document #63). Executive management invited suggestions from employees for seed projects which had great potential, but which also contained great uncertainty — an uncertainty that would certainly have clashed with the lean philosophy in the normal lines of business and would as such prevent them from simply being one of the many conventional projects in Novo Nordisk. There were no precise or explicit conditions or parameters for the project proposals, so many were handed in. 21 projects made it through the first selection process overseen by a group of senior vice presidents and executive vice presidents who would later constitute themselves formally as the Innovation Steering Committee in early 2011. 9 projects made it through the second selection process, and finally the Innovation Steering Committee settled on five (with a sixth being added on later). The five original projects were 1) Future Field Force, 2) Base of the Pyramid, 3) Changing Diabetes at King’s Health Partners, 4) Early Origins of Health, and 5) Googling the Beta Cell with 6) Future Workplace as the only project with no alignment to the strategically selected innovation themes.

In the period of 2010 to 2013, these six projects were all active. Apart from the project teams that managed each of the six, the Innovation Culture Initiative consisted of the previously mentioned Innovation Steering Committee and the Innovation Strategy Office. The Innovation Strategy Office was created from the older Future Health and Social Innovation department in order to oversee and coordinate all of the new innovation initiatives as well as to focus on somehow capturing the insights and experiences derived from them. It was the pivotal point of the Innovation Culture Initiative and supported each of the six projects in whatever way was necessary — from personal coaching and training to assisting the project managers with their innovation methodologies. It was also the Innovation Strategy Office which designed and developed the Innovation Project Model in 2010.

At the end of 2012, the executive management team decided to once again assess the innovation culture of Novo Nordisk. It was assumed that the Innovation Culture Initiative would have made a significant impact on the capabilities of the company to pursue a different kind of innovation that that spearheaded by R&D and lean. Favoring consistency of method and approach, they hired the Doblin consultancy for the second time to do a review of the company’s innovation culture. They
began their review early in 2013 and presented their report to the executive management team a few months later. Once again, Doblin adhered to its previously used methods and sampling approaches and, once again, they produced the same findings as was the case in 2003 and in 2009 (document #36). With this assessment, however, there were several unique and critical observations connected to the Innovation Culture Initiative:

“Alignment
Though the ICI engaged senior leaders with pilot projects, there was not enough alignment with the broader organization on more fundamental issues: what types of innovation are needed, how urgently, and what value they bring to the company.

Coordination
Running pilot projects outside of the line of business gave teams the ‘space’ to explore issues and in some cases, come up with solutions, but it also created challenges in securing resources, reviewing project progress and individual performance, and reintegrating teams and their innovations back into the line.

Discipline
While the ICI gave projects the freedom to explore and learn about issues, the rest of the organization did not see enough discipline or the delivery of clear outcomes. There was skepticism of how rigorously the ICI was executed: it was disputed how projects were selected, their objectives were set, outcomes were measured, and metrics were used to guide their development.” (document #36)

The highlighting of these challenges in particular demonstrated that Doblin had a somewhat critical perspective on the impact of the Innovation Culture Initiative on the innovation capabilities of Novo Nordisk. While it was recognized that the Innovation Strategy Office had successfully developed a new project management methodology and that the innovation projects had attempted to operationalize it, only few of these activities had been carried out in a consistent manner. The most pivotal point of criticism mentioned by the assessment was a misalignment between the Innovation Culture Initiative and the core business (document #36). It emphasized the observation that while most project teams had begun their innovation processes with the ideals and principles developed and articulated by the Innovation Strategy Office, they had almost all abandoned them by the conclusion of the projects. Terminologies had been changed, communicative structures had been modified, measurement tools had been replaced, and all of these changes seemed to have been realized out in a different way for each project. It was clear from the assessment that the misalignment between the Innovation Culture Initiative and the core business was identified as the cause of the critically limited impact. Doblin’s findings were interpreted by the Innovation Steering Committee as an overall failure of the Innovation Culture Initiative and as such, it was terminated in late 2013.
With the termination of the Innovation Culture Initiative in 2013, the experiment launched in 2009 had only been given four years in which to materialize a completely new innovation practice within Novo Nordisk and furthermore develop and operationalize a corresponding range of principles and tools with which to demonstrate a significant impact. During the four years, six innovation projects had been created with their own distinct thematic alignments, organizational contexts, rationales, and value propositions. Each project had adhered to a newly developed project management model oriented towards learning within a specific innovation domain and towards the application of this new knowledge in the creation of innovative, valuable, and impactful business concepts.

2.3.2. Agility and adjacency in the organizational structure
The organizational structure of the Innovation Culture Initiative was simple and consisted only of two levels – the Innovation Steering Committee, made up of members from the executive management team and from the senior vice-president level, and each of the six project teams. This structure was chosen to ensure that it remained as agile as possible.
Chapter 2: The Innovation Culture Initiative of Novo Nordisk as empirical setting

Model 3: The organizational structure of the Innovation Culture Initiative

As the ‘odd one out’, the Innovation Strategy Office had the objective of assisting each of the project teams and developing the structures and tools necessary for the entire initiative to progress and learn. It was the Innovation Strategy Office who was tasked with overseeing the development of the innovation capabilities that were the overall objective of the entire initiative. It functioned as support staff, as coordinating unit, and as driving force. As such, its members created the guidelines for each of the projects in terms of how they should explore the fundamental and catalyzing challenges at the core of their projects, how they should work with the conceptualization of the insights from that process, how they should communicate to both internal and external stakeholders, how they should structure their conceptualizations into creating pilot projects, and finally how they should hand over their insights, already established structures, and ideas to the appropriate line of business tasked with continuing them.

Apart from this internal organizational structure, it is especially worthy of note that the Innovation Culture Initiative were situated outside of, but adjacent to what is considered the core business of Novo Nordisk: R&D, finance, operations, and corporate stakeholder relations. This made sure that the Innovation Steering Committee bypassed normal chains of command and answered only to the executive management team. It also ensured that each of the six project teams were free of the conventional restraints associated with mono-divisional work such a somewhat rigid project management models, specific terminologies, or simply orthodox ways of understanding what innovation is all about. As such, the Innovation Culture Initiative enjoyed a level of attention and investment from senior management which were in fact highly disproportionate to its size and furthermore unprecedented within the company (#5 Alice, member of the Innovation Strategy...
Office). While simultaneously placing it front and center, it created a distance to the core business of Novo Nordisk. One typical way of illustrating this relationship between the Innovation Culture Initiative and the core business of Novo Nordisk used by several members of the different innovation project teams indicates a physical, structural, and perhaps even a mental dislocation between the two.

Model 4: Alice’s drawing of the organizational positioning of the Innovation Culture Initiative

The straightforward and simple organizational structure of the Innovation Culture Initiative outlined above only describes the formal structure of each innovation project team in part. Whereas the two models above are meant to illustrate a more strategic organization, each project team was organized according to a more operational organization. They were structurally connected to what was regarded as their most critical, internal stakeholders in order to emphasize the importance of stakeholder communication — a formal organizational structure which seemed to compromise the simplicity and agility of the overall organizational structure of the department.

2.3.3. Contextualizing the innovation projects

Every innovation project within the innovation portfolio had a highly comparable formal organizational setup. Driving each project was an innovation project manager. This project manager had been relieved of his or her normal operational responsibilities in order to be fully dedicated to the project. Five out of the six innovation project managers had a project team of varying size associated. These teams ranged from a few associates to more than twenty. This depended on the
project brief, scope, and the Innovation Steering Committee who oversaw the budgets. As such, the changes for the project managers and their teams were significant. Not only were they relieved of their day-to-day tasks, but they were also invited to sit in the physical office space of the Innovation Culture Initiative. They had separate budgets for every project, they became associated with the Innovation Strategy Office as their new coordinating department, they reported to the centrally placed Innovation Steering Committee as much as they did to their own Project Steering Committee, and they began to work with something completely new to Novo Nordisk and to the line of business from which they came. For many of the project managers, working with innovation within the Innovation Culture Initiative was like working for a new company.

Apart from the centrally placed Innovation Steering Committee and the coordinating and supporting Innovation Strategy Office, each project was associated with a unique project steering committee. The project steering committees were made up of different levels of vice presidents from the project manager’s own line of business, from the line of business who were to ultimately take over the project, as well as from other relevant departments with the company. It had the function of providing strong insights into the subject matter as well as the organizational authority to make important decisions and recommendations autonomously. As such, the project steering committee was the most immediate unit with whom the project teams could present and discuss their ideas and
findings. It was meant to function as a partner simultaneously empowering and motivating the project teams. Meetings between project teams and their project steering committees were meant to be frequent and informal — a simple, transparent, and honest ‘touching base’ in order to retain momentum. This meant that some project teams initiated meetings once every couple of weeks, while others did so once a month. Finally, each project was affiliated with the line of business designated to take the project from the hand over phase of the Innovation Project Model and realize its full value potential by scaling and implementing. The specific structure and character of this connection between the projects and their lines of business were unique to each project and further developed as the project went through the different iterations inherent to the Innovation Project Model. As the project teams learned about the opportunities of their innovation theme and attempted to conceptualize different approaches to realizing those opportunities, the relationship to the line of business naturally adjusted continuously.

The Innovation Culture Initiative was fundamentally structured according to two principles: agility and adjacency. It was meant to be a small, agile department without any of the conventional reporting structures slowing down the innovation process. With only a single coordinating and deciding steering committee, each project was meant to be almost autonomous and able to make decisions based on their own unique contexts and agenda rather than those of a larger division. The department was furthermore situated structurally outside of, but adjacent to the core business of the company. As such, it was allowed to develop and operationalize unique understandings of innovation, corresponding terminologies, and new approaches to project management, which would otherwise have never seen the day of light within a highly leaned core business where it would quickly have been characterized as unwanted variation, deviation, or noise (#5 Alice, member of the Innovation Strategy Office). Agility and adjacency fundamentally allowed the innovation project teams to approach with their projects as innovation rather than as standardized projects (#Fieldnotes November).

2.4. Rationale and value proposition of the innovation projects

One of the fundamental premises of the Innovation Culture Initiative was to operationalize the newly developed approach to a new type of innovation within Novo Nordisk. This process of operationalizing — of testing the new ideas, concepts, perspectives, terminologies, and structures in a real-world setting — became the task of the six innovation project teams. Each of the six had been chosen by the Innovation Steering Committee to realize their projects within this new context of innovation and was as such allowed to work in a fundamentally different way than they were used to. This meant that they were not only allowed, but in fact encouraged to present alternative project pitches — pitches which were focused on learning as their fundamental value proposition. The
purpose of this section is to introduce these six projects in order to demonstrate this alternative focus and in order to make the empirical context of this project as substantial and actual as possible. Without being able to go into great detail with the dynamics and structure of each project for reasons of confidentiality, each project will be addressed in terms of their thematic and organizational alignment, the strategic rationale behind them, and finally the fundamental value proposition to the company. This structure matches that used within the Innovation Culture Initiative to present their project portfolio (document #66) and furthermore seems appropriate in order to provide a structured and substantial insight without the risk of getting lost in the complexities of each project.

2.4.1. Addressing the Base of the Pyramid

Thematic alignment
Access to treatment for low-income markets

Organizational context
International Operations, Marketing, and Device & Supply Chain Management

Strategic rationale
Often labeled as the BoP, the project took its cue from the conventional economic term with the same name referring to the largest, but poorest socio-economic group of any society (e.g. Prahalad & Hart 2002). Conventionally, the base of the pyramid are defined as people having less than $2.5 to spend each day, but this number is not fixed and varies depending on perspective and context. Common to all such segmentations of the base of the pyramid are, however, both poverty and limited access to care. The strategic rationale of the project was to learn how to capture the potential market value of this socio-economic group by exploring how to build profitable, sustainable, and scalable solutions of doing so. Bearing in mind that the products of Novo Nordisk are relatively costly and that marketing initiatives are almost exclusively focused the 20 most revenue generating countries (#4 Paul, project manager), the company did not have a particularly strong attention towards this segment. In fact, it seems worth noticing that it was in fact not the objective of the project to sustain or increase an already existing market share, but rather to explore ways in which the company might access an entirely new market by transforming the segment into a market. The goal of the GoP project ultimately became to establish a nuanced understanding while developing of a comprehensive market approach and business model for successfully addressing the BoP segment.

Value proposition
The project focused specifically on the three countries of Kenya, India, and Nigeria for their exploratory initiatives and for their consequent pilot testing. These three countries represented a
significant value potential due to a relatively large poor population compared to a relatively functional infrastructure. If the Innovation Culture Initiative could develop a pilot project that would leverage this new market segment in those countries, it could be transformed into a replicable and scalable model for other countries or regions. Due to the size of the project as well as the differences between the targeted countries, the project opted for two project managers with their own associated project teams operating under a single project director. Other than this coordinating director and sharing both objective and strategic rationale, the two project managers and their teams approached their tasks as independently as if they had been completely separate.

2.4.2. Changing Diabetes in King’s Health Partnership

Thematic alignment
New diabetes care model

Organizational context
Novo Nordisk UK

Strategic rationale
The objective of the King’s Health Partners project was to help to create a comprehensive, global model for diabetes care, research, and education in order to increase the number of properly diagnosed diabetics as well as improve their access to proper diabetes case in the form of trained medical personnel and products from Novo Nordisk. It took the ‘rule of halves’ as its starting point — the argument that only half of the world’s diabetics are ever diagnosed, that only half of those diagnosed receive the proper treatment, that only half of those treated achieve their treatment targets, and that only half of those achieve the desired outcomes (NovoNordisk, 2014). The fundamental rationale behind the King’s Health Partners project was to help build a set of structure to break the rule of halves and ultimately to provide better healthcare. Collaborating with King’s Health Partners, a British academic healthcare center, the project was tasked with learning how to develop such a model by approaching the collaboration with King’s Health Partners as an opportunity for the engagement of external stakeholders in simply trying to make it work.

The UK setting of the project meant that the project had a significant amount of data on the current models of diabetes care at its disposal. Aiming at first exploring the business value opportunities inherent in the scope of the project and later developing an optimal care model, the level of ambition for the project was very high.

Value proposition
The value proposition for Novo Nordisk was clear: if the project could ultimately create a comprehensive diabetes care model involving public and private organizations that would be
applicable outside of its UK setting, then Novo Nordisk would increase its consumer base significantly, simply because more diabetics would be diagnosed, and more of those diagnosed diabetics would be given access to Novo Nordisk’s products. As such, the project was focused on parameters like patient-doctor interaction, patient compliance, as well as the capabilities of the organizations tasked with providing care. It was a unique opportunity for the company to invest in an area showing great potential for both financial sustainability and social responsibility — something which aligned perfectly with Novo Nordisk’s unique Triple Bottom Line management principle.

2.4.3. Early Origins of Health

Thematic alignment
Preventing Diabetes

Organizational context
Stakeholder Engagement, International Operations

Strategic rationale
Also referred to as the ‘preventing diabetes project’, the Early Origins of Health explored ways in which Novo Nordisk could mobilize its core competences and resources to engage key external stakeholders, like the World Diabetes Foundation, the Steno Diabetes Centre, the Novo Nordisk Foundation, as well as several large NGOs, in an effort to move closer to entirely being able to prevent diabetes. This very ambitious objective had a very strong strategic rationale, aligning perfectly with the overall mission statement of Novo Nordisk: that it would not only focus on treating diabetes, but also on preventing it. The focus of the project was fixed on the first 1,000 days of life, including looking at embryos, fetuses, and infants, based on the notion that these earliest days greatly affect the likelihood of developing lifestyle diseases, such as some forms of diabetes, later in life: “If mothers are undernourished — or overnourished — during pregnancy, their children are more susceptible to these diseases, and they also risk passing them on to future generations” (document #12). The project was to engage parents in dialogue in order to inform them how to minimize the risk of their children developing lifestyle diseases.

“By investing in activities that impact maternal and newborn health, we can develop a new market for our products and services, enhance government and community relationships, gain experience setting up community healthcare services and improve our reputation – both locally and on a global scale” (document #12).

On the operational level, the project aimed to create an ecosystem of external stakeholders in order to leverage the resources of other organization to pursue this goal of diabetes prevention.
**Value proposition**

Despite such a strong alignment between the rationale of the project and the essentials of the Novo Nordisk Way, the project did have little in the way of immediate and tangible value proposition. Even though Novo Nordisk considered itself a frontrunner in the search for ways in which the pharmaceutical industry can help prevent diabetes, there was no specific attempt to address the obvious conflict with the fundamental Novo Nordisk business model which rested on diabetes care and not prevention. In other words, the ultimate objective of the Early Origins of Health project had the potential of being ultimately disruptive to the Novo Nordisk business model, even though this objective was estimated to be ambitious at best. Whereas such a disruptive value proposition certainly had the potential of creating an entirely new branch of the diabetes care market, its scope was highly ambitious. This ambition seemed to translate directly into an inherent challenge: is the purpose of the project to disrupt the fundamental business model of Novo Nordisk, and if not, how can a prevention focus strengthen the business model instead of disrupting it?

### 2.4.4. Future Field Force

**Thematic alignment**

Future Sales Model

**Organizational alignment**

Marketing, IT

**Strategic rationale**

The Future Field Force project was a specific sales-related innovation project. It focused on the less than fully efficient sales force of Novo Nordisk and argued that the considerable sales effort of the company could be made significantly more efficient by rethinking the most fundamental element of the sales process: the meeting between a sales representative and a doctor (document #66). By arguing that the conventional methods deployed by Novo Nordisk salesmen were tried and tested, the project team suggested that they should look to less conventional methods in order to increase efficiency. By examining the use of digital channels, they discovered that while the company had a strong presence on the more traditional digital channels, such as websites, newsletters, and HCP portals (healthcare partners), the focus on less traditional channels, such as social media or semi-personal selling (video), had been less utilized (document #50). This review of digital sales channels in Novo Nordisk also showed a strong potential for expanding such methods into these less traditional channels ultimately creating a strong rationale for the project: to fully explore the potential to increase the efficiency and impact of the Novo Nordisk sales force by developing and implementing a new digital channel of communication between the sales representatives and the doctors.
The project took the US at its focal point partly because of its status as the premier revenue generating country and partly because of the significant size of the Novo Nordisk sales force there.

**Value proposition**

The Future Sales Force project had a very clear proposition from its outset as revenue would be directly affected by its potential success. It was fundamentally based on the assumption that by developing the appropriate methods and tools for the sales force to increase their access to doctors as well as the amount of time spent between, the amount of sales to that doctor would increase significantly. It was about creating value for both sales representatives and doctors while securing the highest business impact (#50). As such, this value proposition was less holistic and abstract than most of the others projects, favoring a tangible and measurable outcome instead.

### 2.4.5. Future Workplace

**Thematic alignment**

No thematic alignment

**Organizational alignment**

Corporate People & Organization

**Strategic rationale**

Focused on developing a systematic and ongoing exploration and review of changes to the workplace, the project sought to establish a number of connections to new external stakeholders as well as improve the ability to leverage the current Novo Nordisk ecosystem in order to stay one step ahead of significant trends and shifts to the HR operations of the company. Future Workplace was fundamentally about advancing the trendspotting capabilities of the company so as to make it an increasingly desirable place to work. Since Novo Nordisk had continued to grow over a long period of time — not only its revenue, but also the number of its employees — the company needed to be able actively address workplace related challenges, such as an aging workforce, greater geographical distance between colleagues, cultural asymmetries, etc.. The Future Workplace project was therefore focused on developing methods for exploring ways in which to address such current and future challenges.

When the project entered the portfolio of the Innovation Culture Initiative, it was because its project team had chosen to focus specifically on a single of the emerging trends of the workplace discussions within the established ecosystem: that of the virtual workplace. The rationale behind this specific project was the changing nature of the workplace in an increasingly global company — from easily delimited, local sites to dispersed, global sites where most of the communication between colleagues takes place online (document #13). By developing new ways to expand the possibilities of such an
increasingly virtual workplace, like for instance the accessibility of necessary software, the multi-modality of online communication, and the trust in digital media, the Future Workplace project aimed at developing that specific capability of Novo Nordisk.

The Future Workplace project was the one project that was structurally different from the other five projects and for two specific reasons. First, the project was ongoing and had, as such, been underway for a period of time before its entry into the ICI project portfolio. Second, it was the only project not associated with one of the strategically selection innovation themes. Because its own structure revolved around unique innovation themes with clear beginnings and endings, however, it was decided to transform it from a conventional project in the Corporate People & Organization department into an innovation project of the ICI.

**Value proposition**

The value proposition of the Future Workplace framework was completely aligned with its fundamental rationale in the simplest way – by improving the trendspotting capabilities of Novo Nordisk within the domain of HR-related activities, the company would be able to build better workplaces, which in turn would attract and retain better employees. The specific project aimed at exploring the virtual workplace of the future aimed at empowering the employees of the company so that they may better communicate through a richer online medium and thereby improve a communicative channel between global employees.

### 2.4.6. Googling the Beta Cell

**Thematic alignment**

Strategic Drug Discovery

**Organizational alignment**

Diabetes R&D

**Strategic rationale**

As the only project within the portfolio of the Innovation Culture Initiative that closely resembles a conventional R&D project, Googling the Beta Cell was spearheaded by scientists otherwise dedicated to R&D. They began the project outside of this normal organizational alignment, because of its unusual scope and the uncertainties involved. The rationale behind it was rather complex: to examine each of the more than 10,000 different strings of protein within the pancreatic beta cell responsible for creating insulin in order to create a precise database of information about this type of cell, most critical for people suffering from different types of diabetes (§14). In other words: advancing and systematizing early target discovery through the development of bioinformatics. The conventional approach behind drug development projects within R&D are often based on chance
and require the hard work of many scientists for many years. Such projects fail just as often as they succeed, because of the many uncertainties inherent to its process, but it is very difficult to know in advance why they fail, and when they fail. This means that R&D find themselves spending significant resources pursuing projects which oftentimes end up failing. Googling the Beta Cell aimed at addressing this — at establishing a more structured and more detailed foundation of information about the complex proteins of the beta cell in order to enable R&D projects to choose and pursue leads and ideas more strategically and more systematically. By doing so, the number of projects in the R&D pipeline as well as the quality of these projects were to increase significantly.

**Value proposition**

By creating this system of bioinformatics, the entire R&D division focused on drug discovery and development would benefit dramatically. The value proposition of the project was thus as clear as it could be: the most significant and most valuable of all Novo Nordisk areas of business, R&D, would be able to increase the number of projects in their pipeline, to reduce the risk of failure, to increase the speed of such projects and thereby reducing the cost involved, and finally to open up an entirely new source of information about diabetes.

With the Googling the Beta Cell project as the final of the six, the overview and walkthrough of the portfolio of the Innovation Culture Initiative is complete.

<table>
<thead>
<tr>
<th>Project title</th>
<th>Innovation theme</th>
<th>Organizational alignment</th>
<th>Strategic rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addressing the base of the pyramid</td>
<td>Access to treatment for low-income markets</td>
<td>International Operations, Marketing, and Device &amp; Supply Chain Management</td>
<td>Exploring the business opportunities of the BoP segment with the goal of expanding the diabetes care market</td>
</tr>
<tr>
<td>Changing diabetes in King's Health Partnership</td>
<td>New diabetes care model</td>
<td>Novo Nordisk UK</td>
<td>Exploring public diabetes care in order to develop a new model for advancing public-private partnerships focusing on care, research, and education</td>
</tr>
<tr>
<td>Early origins of health</td>
<td>Preventing diabetes</td>
<td>Stakeholder Engagement, International Operations</td>
<td>Exploring the utilization of external partnerships to advance the initiatives preventing diabetes in the next generation</td>
</tr>
<tr>
<td>Future field force</td>
<td>Future sales model</td>
<td>Marketing, IT</td>
<td>Exploring ways in which sales reps may increase efficiency and impact through new sales technologies</td>
</tr>
</tbody>
</table>
The six innovation projects comprising the portfolio of the Innovation Culture Initiative were, then, very different with regards to their organizational context, strategic rationale, and value proposition. What is more important, however, is the fact that they were pitched without any tangible range of KPIs or any promise of specific deliverables. Instead, most of the projects were oriented towards exploration and learning – conventionally regarded as too abstract for projects within Novo Nordisk (#4 Paul, project manager). While this orientation was a perfect match with the strategic purpose of the Innovation Culture Initiative, it remained significantly different than what R&D and lean had previously defined as innovation. As such, the innovation project teams were faced with the operationalization of a new approach to a new type of innovation within a larger organizational context used to defining innovation in a significantly different way.

2.5. The Innovation Project Model

One of the most fundamental reasons for creating the Innovation Culture Initiative was the potential for developing new approaches to a different kind of innovation than that of represented by the product-focused R&D and the incrementally-focused lean. As the Doblin-report pointed out, the exploratory capabilities of Novo Nordisk were less than fully developed (#35). This meant that Novo Nordisk did not have any structures or methodologies in place for doing so — it meant that the Innovation Culture Initiative had to create every tool they found necessary. Just like the conventional Novo Nordisk approaches to innovation adhered to highly regimented and disciplined process management methodologies, conventional projects (of which there were more than 1,200 at the time of this research) also followed a very specific range of similarly structured project methodologies (#4 Paul, project manager). Chief among these were the project management methodology (PMM) and the stage-gate methodology (Morris, Pinto, & Söderlund, 2011). While

<table>
<thead>
<tr>
<th>Future workplace</th>
<th>N/A</th>
<th>Corporate People and Organization</th>
<th>Exploring ways of systematically following emerging trends and themes in HR related practices specifically focused on advancing the virtual workplace in an increasingly global company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Googling the beta cell</td>
<td>Strategic Drug Discovery</td>
<td>Diabetes research and development</td>
<td>Exploring new bioinformatics in order to accelerate discoveries in large scale drug research</td>
</tr>
</tbody>
</table>

Table 1: An overview of the six innovation projects
these methods ensured a very structured and universal process with a strong focus on risk management as well as on delivering already known value potential to the business, they did require a *known* problem, potential, or cause of action that need to be carried out. In other words, they did not leave any room for the uncertainty or the iterations that were central to the Innovation Culture Initiative perspective on innovation. It was not explicitly focused on learning and therefore required a fixed problem and oftentimes a fixed solution. This realization meant that the Innovation Strategy Office needed to create their own process methodology to help them structure the innovation processes and to help the project managers establish a new kind of objective — knowledge creation through exploration — as well as help them stay focused on that objective. The innovation strategy leadership policy that came to formally constitute the Innovation Culture Initiative defined the Innovation Project Model as such:

“The innovation project model is used by innovation project managers when driving forward their respective projects. An innovation project can act as a pre-project phase that feeds naturally into a more ‘normal’ project using the widely applied Project Management Methodology (PMM) or any other project model.” (document #68)

While it was meant to function as the guideline for all the projects of the innovation project portfolio, its supplements, tools, and process illustrations were not fully complete until late 2011 (documents #60 and #61). This meant that while the overall structure and process of the Innovation Project Model was ready for the formal launch of the Innovation Culture Initiative, the project teams simply had to experiment with different techniques and approaches until the Innovation Project Model became fully developed. In other words, the Innovation Project Model functioned more as a guide and was retrospectively developed from a mixture between the ideals of innovation literature as well as the best practice of the projects themselves.

![Model 6: The Innovation Project Model](image)

It is worth noticing that while the Innovation Project Model was in part created as a reaction to the conventional project management models, it is remarkably comparable to them at first glance. The
overall look of the model seems to connote concepts of linear sequentiality and of stage gates designating the ends and beginnings of separate project phases. A closer examination of the model does, however, show significant differences to the conventional models which more than justifies its creation. Especially worthy of note is level of iterative and pragmatic approach inherent to most of the separate phases of the project model. In order to examine such properties of the design of the Innovation Project Model more closely, the following sections are focused on each of its five phases. It is important to note that this walkthrough is not based on the experiences of the project teams as they operationalized it, but rather on the formal policy documents describing its overall purpose and the purpose of each phase. This limitation is meant to ensure a more immediate and less biased illustration of the formal ideals and principles inherent to the project model.

2.5.1. Phase 1: exploration

Before the innovation project teams begins to drive to project, a ‘pre-project’ exploratory phase is carried out. Whereas the other phases of the Innovation Project Model must be considered relatively explicit, the exploration phase is not formally structured or described in any detail and only associated with the Innovation Steering Committee. It is meant to represent the many ad hoc explorations taking place in the different Novo Nordisk lines of business as well as in the more structured and scheduled review and reflection processes of the strategic planning process (SPP) or the regular strategic audit processes within Novo Nordisk. These embedded exploratory processes ultimately provide the Innovation Steering Committee with important information regarding salient business opportunities and potentials. The Innovation Steering Committee strategically selects a number of innovation themes for Novo Nordisk to pursue further and discusses these themes with the executive management team who finally signs off on them. At the end of this pre-project phase of exploration, the Innovation Steering Committee is able to lay out a number of broadly defined innovation themes to the rest of the Innovation Culture Initiative – themes that are already thought
to contain significant business opportunities for Novo Nordisk. By selecting such themes strategically, the Innovation Culture Initiative effectively restricts and focuses the scope the innovation projects. Novo Nordisk chose this approach as they wanted to be able to limit as much unnecessary risk as possible as well as to provide the innovation projects with as many opportunities to succeed as possible. The exploration phase ends when the Innovation Steering Committee provides the rest of the Innovation Culture Initiative with a number of selected innovation themes within which one or more innovation projects would be situated in order to set the direction of them.

2.5.2. Phase 2: opportunities

As the first phase carried out by the project teams themselves, the opportunities phase is designed to encourage the innovation project managers and their teams to learn as much as they can about the business opportunities inherent to the theme with which their project is designated. The Innovation Project Model manual defines it as such:

“Identify and qualify new opportunities that appear relevant and attractive to Novo Nordisk. The most important questions to answer is why we should do something and what our role may be. The goal is to envision opportunities by identifying and recombining strategic insights. Opportunity projects are highly exploratory, knowledge intensive, creative and often transformative in nature.” (document #61)

With this, the Innovation Project Model suggests a certain approach for the opportunities phase: initial exploration and learning followed by the clustering of insights ending with a selection of key opportunities to pursue further. It thus begin with an exploratory process in which the project manager and the project team themselves are encouraged to make use of different venues to learn as much as possible — examples of such venues could be reviews of similar Novo Nordisk projects from the past, interviews with key stakeholders and subject matter experts, mapping and reviewing relevant academic publications, making use of rapid ethnography, or making use of personal network
“Don’t just go for the obvious. Try also to identify value hypotheses about small or invisible things that could be valuable for stakeholders” (document #61). The project team is required to dedicate themselves fully to the exploration of business opportunities for the full two to three months, learning as much as possible in that time about, simply put, what can be realized.

Whereas the project teams may have a guiding business rationale defined by their strategically selected innovation theme, they do not know where the exploratory process of the opportunities will take them. Even though they have a number of tools and suggestions at their disposal — such as where to start, what to do first, who to talk to — the process inherently adheres to a snowballing dynamic where any insight generates a number of new insights some of which will in turn require further exploration. It is a highly iterative and pragmatic process characterized by a significant level of uncertainty and risk, which made it highly unlike most other Novo Nordisk project methodologies. Following any specific opportunity might lead to something, or it might not.

It is worth noticing that the two to three months duration is highly unusual for Novo Nordisk project management tradition. Spending an entire quarter of a year without being required to produce any specific and concrete value analysis or estimation before the very end was a much more uncertain approach than the conventional PMM or stage gate approaches during which cost-benefit analyses are required at a very early stage to ensure the value of the project itself. Perhaps because of the increased uncertainty and risk, project teams are encouraged to structure their exploration and learning as much as possible. They are asked to use learning plans to both proactively and retrospectively keep track of their progress, while using different knowledge mapping tools, such as posters with key insights or different other kinds of visualizations and illustrations of guiding metaphors or narratives, to try and cluster these insights. They are encouraged to continually articulate their findings, to use brainstorms, and to arrange workshops involving non-team members to discuss their processes.

The final stage of the opportunities phase is aimed at the selection of key opportunities that will provide the basis for the following conceptualization phase. It is a matter of the project team presenting the learning and insights gathered from the initial explorations to the respective project steering committee in order to arrive at a decision regarding which insights to proceed from. In the Innovation Project Model, project teams are strongly encouraged to invite their project steering committee into a series of presentation and re-framing exercises during this point of the phase in order to better communicate the insights derived from their exploration process. They are asked to include as much as the multi-modal documentation from their exercises of clustering insights (videos, interview transcripts, posters, building blocks, guiding metaphors, etc.) so as to make the selection of key opportunities as qualified as possible. In other words, they are asked to mirror or recreate as much of their own learning experiences as possible so that their project steering
committee would be able to make their informed decisions. This is certainly one particular area in which the Innovation Project Model was different than the conventional Novo Nordisk project management tools: “Make sure to facilitate the reframing workshop as a creative process with focus on discussions, exploration and learning rather than as a traditional meeting focusing on passing on information and making decisions.” (document #61).

The opportunities phase ends as soon as the project steering committee and the project team have decided on a number of key insights that should drive the following concepts phase.

2.5.3. Phase 3: concepts

Following a highly uncertain two to three months of exploring a specific innovation theme for business opportunities, the innovation project is moved to the concepts phase aimed at transforming the key insights generated from the opportunities phase into more specific and more tangible business concepts. The Innovation Project Model manual defines it as such:

“These projects are about finding out what should be done to address an opportunity relevant for Novo Nordisk. The goal is to understand user and stakeholder needs in practice and, based on these, create meaningful solutions. Technological feasibility and business value are also checked – but neither technology nor business cases are fully developed. Concepts projects are design driven, user oriented, highly creative and aim to make transformative opportunities concrete.” (document #60)

Like the opportunities phase, the process of the concepts phase follows a specific structure. Initially, project teams focus on the potential deliverables as well as the level of ambition for those deliverables: “How far may we take this project?” (document #60). It becomes a matter of asking what could change the way ‘we do things around here’. The project teams have to take the selected key insights as their cue and begin exploring ways in which they could transform those insights into viable business solutions. They are encouraged to undertake a process of learning highly comparable
to that of the opportunities phase characterized by significant levels of iteration, pragmatism, risk, and uncertainty — once again, it becomes a matter of trial and error, of snowballing, and of searching high and low for inspiration. In other words, the project teams are to use different methods to play around with ideas. While all insights produced by the opportunities phase are interesting or fascinating, not all of them can realistically be developed into viable business concepts, so the purpose of the conceptualization phase becomes to figure out which ones have that potential.

With regards to the interaction with people outside of the project team, the Innovation Project Model suggests the development of a stakeholder engagement strategy for each key insight in the conceptualization phase — initially mapping all potentially relevant stakeholders and consequently engaging them appropriately. This network of stakeholders, which will often include end users, representatives of management, and representatives from Novo Nordisk’s own corresponding lines of business, will be able to provide the project teams with immediate user feedback, with testing, and with external perspectives to question the assumptions of the team. The stakeholders are meant to function as a form of control group that will help the project team direct their conceptualization efforts and make them align their prototyping and their mockups to the end user as much as possible. The Innovation Project Model encourages project teams to use stakeholder engagements as much as possible as it will help them to develop and to qualify their concepts while ensuring that they capture as much of the potential value of the key insights as possible.

The final stage of the conceptualization phase is the selection of the key concept. Once again, the structure of this innovation phase is highly comparable to the previous phase. Project teams are tasked with communicating their process with as much detail as possible to their corresponding project steering committee using once again using multi-modal documentation to bring the members of the project steering committee as close to the conceptualization phase itself so that they will have an optimal perspective on the decisions before them.

The conceptualization phase ends when a single key concept has been chosen. The project team may have come up with a number of viable concepts and those not selected for the next phase of the innovation process will be possible to postpone for a later project.
2.5.4. Phase 4: proof of concepts

The final of phase directly involving the innovation project teams is the proof of concepts during which the selected key concept of the previous phase are to be realized into small scale practice. The Innovation Project Model defines it as such:

“In the proof of concept phase solution concepts are piloted on a small scale to test for real-life applicability and value. Solutions are refined based on input from the pilot, until a clear plan for how to implement on a larger scale is ready. Eventually, a detailed project proposal is handed over to line-of-business for further development and implementation.” (document #68)

Project teams are tasked with realizing the concept in order to test and prove the real world viability of the concept. Whereas both the opportunities and concepts phases are highly atypical of Novo Nordisk project management tradition in their strong emphasis on iteration, exploration, uncertainty, risk, and learning, the proof of concepts phase seems far more comparable to the structure of conventional project management. Project teams have to perform complete maps of internal and external stakeholders, risk analyses, cost projection analyses, cost efficiency analyses, and so on. In this way, they are able to proceed with their project in a much more linear fashion with a clear and unambiguous objective: to prove the viability of their project in the real world. The success of this phase is contingent on the objective of the project as well as on the perspective of the corresponding project steering committee. To some projects a fully detailed roadmap of the hand over as well as of the implementation process are sufficient, while others have to drive the first actual steps of the project themselves. The phase therefore ranges from anywhere between a few weeks to several months of time.

The proof of concepts phase ends as soon as the project teams are ready to present a fully documented project proposal to their project steering committees.
2.5.5. Phase 5: hand over

The last phase of the Innovation Project Model is the hand over of the innovation project from the Innovation Culture Initiative to the appropriate line of business. This responsibility to handle the hand over phase is formally placed with both the project team and the relevant line of business. Other than including the phase in the Innovation Project Model as a logical conclusion to the innovation process, there is no instructive information provided to the project teams as it is not regarded as a direct responsibility of the Innovation Culture Initiative. Rather, it is a matter of projects leaving the portfolio of the Innovation Culture Initiative for a corresponding line of business portfolio and not something directly relevant to the innovation project methodology.

The ‘receiving’ line of business is to designate a project manager of their own to undertake the project in the form of comprehensive documentation provided by the innovation team and consequently begin the full scale realization of the project. This process of realizing the full value potential of the project is assumed to adhere to one of the more conventional project methodologies of Novo Nordisk, like PMM or stage-gate. From a process design perspective, then, the hand over of the innovation project from the Innovation Culture Initiative to the line of business is assumed to follow a simply transfer dynamic. One project manager handing his or her material over to another project manager.

2.6. Synthesizing the empirical setting

The objective of this second chapter was to introduce the complex organizational setting of the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative in order to become sensitive to those complexities. At this concluding section of the chapter, it seems warranted to assert that numerous indications of such complexity exist. The initiative was established as an experiment to develop the exploratory capabilities of Novo Nordisk otherwise
focused almost exclusively on exploitation of its current product portfolio and surrounding market. This focus on exploitation was strongly represented by the two dominant innovation practices of R&D, focused on incremental and radical innovations of the product portfolio of the company, and lean, focused on incremental innovations of its productivity through the kaizen philosophy. The principles developed and sustained by these two innovation practices were considered to be at the core of the company’s cultural identity. There was a significant and explicit alignment towards structure, discipline, and control in order to maximize value and impact, while an equally significant and explicit aversion towards risk, failure, and uncertainty was in place to minimize the consequences of unwanted variation, deviation, and noise. Such a focus had ensured that Novo Nordisk enjoyed a position as leader of the diabetes care market and as the most valuable company in Scandinavia. It was within this context of a highly disciplined, effective, and successful company that the Innovation Culture Initiative was created as somewhat of an experiment in 2009. Catalyzed by a potential for creating a new kind of value through exploration, the fundamental purpose of the department was to develop a new approach to a new type of innovation focused on non-product based business development concepts — a type of innovation focused on learning. The Innovation Culture Initiative was structured according to the two organizing principles of agility and adjacency. It was to be a small department existing outside of, but adjacent to the core business in order to remain free of the conventions and structures represented by the lean philosophy. As such, the department was meant to exist as a ‘protected’ innovation community tasked with developing and operationalizing a new innovation practice. It consisted of a centrally placed and strategically-oriented Innovation Steering Committee, a coordinating and supporting Innovation Strategy Office, and finally six innovation project teams tasked with driving their projects through the newly developed Innovation Project Model designed to augment the fundamental focus on learning — on constructing knowledge and on applying that knowledge to develop valuable business concepts which would ultimately be handed over to the relevant line of business within Novo Nordisk. Each of the six innovation projects were chosen to be part of the portfolio due to their strategic rationales and value propositions which were highly unlike those of more conventional Novo Nordisk innovation projects. After only four years, however, the Innovation Culture Initiative was terminated after a critical assessment of the process and impact of the experiment in 2013. The main reason highlighted was a significant misalignment between the Innovation Culture Initiative and the core business regarding their understanding of innovation, their focus on uncertain processes of explorative learning, and their definition of value.

It was within this empirical context that this research project attempted to examine the knowledge-intensive innovation processes of the Innovation Culture Initiative. It was a context in which such a focus on knowledge as a valuable dimension of innovation was new and in which this focus could have contributed to the cited ‘misalignment’ which ultimately resulted in the termination of the
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department. The unique characteristics of the Innovation Culture Initiative within Novo Nordisk makes it an ideal empirical context for this research endeavor: it was oriented explicitly towards knowledge and learning, it was designed as a ‘protected’ community tasked with developing a new innovation practice, it was structurally situated adjacent to the core business free of its conventions, and it placed the Innovation Project Model at its core designed to enable project teams to work optimally with knowledge-intensive processes.
Chapter 3

Introducing, defining, and discussing knowledge communication research
Chapter 3: Introducing, defining, and discussing knowledge communication

The concepts of knowledge and communication are complex ones. On the one hand, they are distinctly abstract and often essential elements of fundamental philosophical or psychological discussions (Polanyi, 1962). On the other hand, they are used frequently in everyday conversations. In the specific context of this project, these two concepts will form the pivotal point around which everything else is centered. Because of this central position, it becomes even more important to take a closer and more critical look at them and the context in which they are used. It is therefore the purpose of this chapter to examine and discuss the concepts of knowledge and communication.

Since knowledge in particular has been an object of study for some of the oldest and most venerable scientific traditions, it is difficult to demonstrate a fully exhaustive review of relevant literature. As Kastberg puts it: “Due to the fact that the concept of knowledge has been pondered upon ever since before the ‘Theaetetus’, I cannot — for obvious reasons — present a literature review with any claims of representativeness” (Kastberg, 2011a: 141). Indeed, in much contemporary research on knowledge, the main objective has been to reduce this seemingly overwhelming complexity in order to convert the concept into something approachable. This certainly applies as knowledge was introduced to the domain of management research (e.g. Jacobson, Butterill, & Goering, 2005; Lin, Geng, & Whinston, 2005; Liyanage, Ballal, Elhag, & Li, 2009). With this simplifying approach, knowledge is seen as a tangible product of the mind. The communication of such tangible products simply require a process of externalization and consequent transfer from the person ‘with’ knowledge to the person ‘without’ knowledge through straightforward transmission. While such an approach to knowledge and communication may seem intuitive because of its simplicity, it has been subject to strong criticism for that very same reason (e.g. Kastberg, 2011a; Kincaid, 1979; Ringberg & Reihlen, 2008; Tsoukas, 2002). It seems, then, that knowledge communication is approached with at least two different agendas — one seeking to reduce its complexity, another seeking to retain it:

“On the one hand, epistemology, the theory of knowledge, has formed the centerpiece of heavyweight philosophical arguments for millennia. On the other, knowledge management has many aspects of a lightweight fad. […] We may then, be trying to lift a gun too heavy to handle to aim at a target too insubstantial to matter”. (Brown & Duguid, 2000: 118).

Inspired by Brown and Duguid’s words of warning, any ambition of working with the concepts of knowledge and communication requires a strict balance between applicability and complexity. It is a matter of retaining the nuances that have made the concepts interesting for thousands of years, while remembering that any discussion of them must ultimately result in something which catalyzes, enables, and empowers. The ambition of this chapter is not to make these concepts any fuzzier, but rather to make them sufficiently crisp to use analytically.
In order to achieve this ambition, such an examination of knowledge must limit itself to a specific context if it is to ensure that precision and relevance accompany the more conventional scientific virtues of validity, transparency, and robustness. The context of this project and of this chapter is that of knowledge communication — a specific discipline as well as a specific process. It is within such a framework that this chapter will explore the concepts of knowledge and communication in order to ultimately provide a conceptual synthesis comprised of salient theoretical perspectives within and adjacent to the discipline of knowledge communication.

3.1. Knowledge communication as process and as discipline

As stated in the introductory remarks, this research project situates itself within the discipline of knowledge communication. That statement is, however, not as straightforward as it may seem at first glance as the disciplinary state of knowledge communication is quite contested. On a most intuitive and immediate level, ‘the discipline of knowledge communication’ or ‘knowledge communication research’ connote a meta-theoretical dimension to ‘knowledge communication’ which makes it more complex than if it merely connoted the process of ‘communicating knowledge’. As an academic, it would be intuitive for me to use words such as ‘discipline’, ‘domain’, ‘research tradition’, ‘approach’, or ‘field’ to describe this other dimension and to somehow situate knowledge communication research within a conventional institutional or disciplinary terminology with which I am comfortable. By choosing one of these labels to describe the disciplinary state of knowledge communication research, however, the exercise of clearly defining knowledge communication quickly becomes muddier than one might expect. First of all, very few researchers seem to have specifically examined this disciplinary dimension of knowledge communication research, and therefore, very few explicit definitions exist (Eppler, 2006; Kastberg, 2007, 2010). Second of all, knowledge communication researchers seem to approach knowledge communication research from very different disciplinary positions, examine very different domains, use very different methodologies, and argue for very different analytical perspectives (e.g. Engberg, 2009; Eppler, 2004; Fage-Butler, 2011; Jacobsen, 2012; Kastberg, 2011a; Risku, Mayr, Windhager, & Smuc, 2011). Seeing as this research project is situated in what I have referred to as the discipline of knowledge communication up until now, I do not have the luxury of simply ignoring such muddiness and skipping ahead as this would make me and my research ignorant of the academic context to which I claim to adhere. One could even argue that the muddiness itself provides a highly interesting jumping off point for an exploration of knowledge communication research, since such a state does not seem immediately desirable from a conventional Kuhnian perspective on the formation of traditional science paradigms (Kuhn, 2012).
As I began my initial exploration of knowledge communication, I was focused on the process of knowledge communication — how people communicated what they knew. However, I quickly learned that the different disciplinary positions, the attention towards different domains, the framing of different methodologies, and the application of very different analytical perspectives made the discipline of knowledge communication seem far more heterogeneous and perhaps even far more fragmented than I had first assumed it to be. My initial process focus was therefore expanded to include a focus on the discipline. If I were to know how researchers of knowledge communication defined the process they were focusing on, I had to know the disciplinary context in which they did so. This first section of my theoretical framework will therefore begin with an exploration and discussion of the disciplinary state of knowledge communication. I will let the section begin with an examination of salient definitions of knowledge communication as process, and from there, I will move on to examine the disciplinary frame in which these definitions are situated. The guiding questions — the pivotal points around which the section will revolve — are 1) how do researchers of knowledge communication define the process of knowledge communication, and 2) is a conventional descriptive term like ‘scientific discipline’ sufficiently accurate and nuanced to describe what knowledge communication is on an institutional and disciplinary level?

3.1.1. Structuring a conceptual literature review of an emerging discipline

To answer such questions, I have conducted a conceptual literary review of knowledge communication publications (Armitage & Keeble-allen, 2008; Brownlie, 2007; Ramey & Rao, 2011; Tranfield, Denyer, & Smart, 2003). The structure of the conceptual literature review allows the researcher to maintain focus on a central concept or question guiding the review while making iterations, pursuing unexpected sources of information, examining closely adjacent concepts, as well as gradually expanding the number of search engines, journals, and concepts by allowing a snow-balling dynamic (Brownlie, 2007; Dohn, 2010). It simply enables the researcher “to compare and contrast the different ways in which authors have used a specific word or concept” (Jesson, Matheson, & Lacey, 2011: 79). Even though the conceptual literature review does not follow the same rules as the more traditional systematic literature review, it does have a set of guidelines to direct the reviewer and to provide readers with transparent access to the guiding method (Fage-Butler & Jensen, 2014). The following condensation of these guidelines is inspired by the more extensive walkthrough by Findley (1989).

1. The goal is to provide insights into the role, function, and context of a specific concept
2. The goal is not to seek conceptual homogeneity, but rather to establish a nuanced overview
3. Articles are selected for review only on the basis of their conceptual focus
4. Articles are not reviewed in an isolated context, but comparatively
5. The review is iterative, expansive, and snow-balling
In this way, the conceptual literature review is an ideal match for pragmatically-oriented research designs since these tend to favor iterative processes. Such processes often require the researcher to revisit criteria, modify searches, and move in directions that that may or may not have constructive outcomes or results. As such, it emphasizes iterations of search, analysis, interpretation, and refinement (Boell & Cecez-Kecmanovic, 2014). Since the research design of this project certainly falls into the category of pragmatism, I have chosen to adhere to the structure and guidelines of this approach to the literature review process. Because the systematic literature review is often considered to be the standard, it is important for me to emphasize the need for a different approach. The systematic literature review seeks to be replicable, transparent, evidence-based, and unbiased (Jesson et al., 2011; Ramey & Rao, 2011). These are obvious strengths making any review results very robust, reliable, and subject to thorough academic scrutiny. It does, however, require the reviewer to have a fully developed review strategy and structure in place before undertaking it as well as requiring the reviewer to strictly adhere to said strategy while undertaking it (Tranfield et al., 2003). In order to provide the reader with full transparency and the ability to replicate the review results, every step, every criteria, as well as the sequence of them must be made explicit (Jesson et al., 2011; Petticrew & Roberts, 2006). Since this requires a linear research process, it makes the systematic literature review less appropriate for iterative research designs.

I wanted to approach the literature review of knowledge communication research from two different, but complimentary points of entry in order to make the review as warranted and as robust as possible. The first point of entry explores salient definitions of the process of knowledge communication, while the second perspective explores salient narratives of the discipline of knowledge communication. This two-pronged strategy takes its cue from a conventional Kuhnian perspective on scientific disciplines in which salient scientific discourses (i.e. paradigms or disciplinary matrices) and chronologies (i.e. scientific revolutions, disciplinary phases, and cycles) are used to evaluate and determine disciplinary states (Kuhn, 2012). As the following sections will show, however, such an attempt at clearly dividing the literature review into a focus on the process and a focus on the discipline quickly became reduced to a point of entry rather than to a process structure – definitions of the process said as much about the discipline, as the disciplinary narratives said about the process. These overlaps did, however, neither challenge the structure of the approach nor the outcomes of the review.

A traditional place to begin any conceptual exploration, and certainly an intuitive one, is with definitions – to find out how the researchers themselves have defined what a certain concept is about. I want to know how researchers of knowledge communication define the process of communicating knowledge and to investigate this, I specifically want to examine the following three parameters of their definitions: 1) epistemology, 2) communication, and 3) agency. By orienting my
exploration according to these three dimensions, the definitions are all aligned towards how knowledge is understood, how the process of communicating knowledge is perceived, and finally how the researchers view the role of the people involved. This meant that I want to learn how knowledge is conceptualized, which dynamic the communication of that knowledge follows, and finally, how the researchers see the fundamental mechanic or agency of the process of communicating knowledge. At this point, it is important to bear in mind the iterative nature of the literature review and to bear in mind that these three analytical parameters came into existence during rather than before the review process. As I read and as I reflected, epistemology, communication, and agency seemed more and more important, and because of this, they are the three parameters with which I will examine the definitions.

The search for academic publications focusing on the process of communicating knowledge began with broad database searches and continued from there to alternating between expanding and narrowing. From even the most hurried read of knowledge communication publications (e.g. Eppler, 2007; Kastberg, 2011a), it quickly becomes clear that a somewhat limited number of unique and explicit definitions of knowledge communication exist. As I wanted to be able to adhere to the principle of direct comparability with a fixed conceptual focus, I established a range of criteria for each definition and for the context in which they are situated:

1. Each definition explicitly attempts to define the process of knowledge communication
2. Each definition explicitly focuses on both concepts of knowledge and communication
3. Each publication explicitly situates itself within knowledge communication research
4. Each definition is different from the other

In other words, each definition is a unique, deliberate, and explicit attempt to define the process of communicating knowledge within the disciplinary context of knowledge communication. These criteria led me to find four definitions spanning from 2002 to 2012. After listing each definition, I will examine the three analytical parameters of epistemology, communication, and agency more closely in order to establish a comparative overview of them. However, since the purpose of this section on the conceptual literature review of the project is to provide a comparative overview of salient definitions and not a fully comprehensive discussion of the concepts or parameters in question, each definition will be examined briefly and concisely without establishing any significant distance to the wording of the definitions themselves. Such an expanded discussion of the pivotal concepts and underlying assumptions of knowledge communication is placed later in this chapter. Finally, I will also look at all other information on the discipline of knowledge communication that these definitions either directly or indirectly provide — such as publication year, object of study, disciplinary points of entry, and other elements of their bibliographical contexts.
3.1.2. Four salient definitions of knowledge communication

*Definition #1 by Reinhardt & Stattkus, 2002:* “We define knowledge communication as an intended and interactive construction and exchange of knowledge resp. experiences and skills on a verbal and nonverbal level. [...] Knowledge communication has three major goals: (1) diffusion of knowledge within the company, (2) prevention [probably meaning ‘retention’] of knowledge through building redundancies, and (3) creation of new knowledge by exchanging existing knowledge” [emphasis in the original]

*Epistemology*

Based on the phrase “an intended and interactive construction”, it becomes apparent that the authors view knowledge as a construction, rather than, for instance, as a cognitive product; Reinhardt and Stattkus thus assume a constructivist epistemology in this earliest of the four definitions. They further emphasize this epistemological perspective by adding “resp. experiences and skills”, thereby indicating that knowledge is somehow connected to experience – our previous impressions, perceptions, and sense-makings of the world around us – as well as to skill – capabilities developed on the basis of applying what we know to a given situation. Just like such an emphasis is conventional to a constructivist epistemology, their final comment is as well: “on a verbal and nonverbal level”. Enabling knowledge to be seen as both verbal and non-verbal introduces a notion of knowledge as tacit – as ineffable sets of subsidiary particulars. Even though such epistemological properties – knowledge as tacitly constructed and tied to experiences and skills – are by no means a unique proposal by Reinhardt and Stattkus, but more like an amalgamation of previous epistemological claims (e.g. Nonaka, 1994; Polanyi, 1962; Stehr, 1992), it is the first explicit definition of knowledge communication, and thereby, Reinhardt and Stattkus are the first authors to define the epistemological perspective of knowledge communication as constructivist.

*Communication*

The only mention of communication is a somewhat indirect one: “an intended and *interactive* construction” [emphasis added]. With this, Reinhardt and Stattkus argue communication to be an interactive process during which knowledge is constructed. The link between knowledge and communication is certainly established even though with nothing more than a single word and even though that single word merely functions as an adjective in an epistemological argument. Without specifying further, it is difficult to know which communicative assumptions lie beneath “interactive” other than a dynamic based on multiple and interpersonal communicative actions.

*Agency*

When trying to establish agency in terms of intended action or process, Reinhardt and Stattkus’ definition is very clear. By stating three specific objectives for knowledge communication, they
situate it as a highly strategic process with which company managers retain, diffuse, and create knowledge. Such objectives introduce a highly normative aspect to their definition while simultaneously placing it in an organizational or managerial context. They initially argue broadly that knowledge communication is an interactive process of construction taking place between people, but ultimately argue that a notion of agency should be placed in a managerial context with normative objectives.

Definition #2 by Kastberg, 2007: “Knowledge communication is strategic communication. As ‘strategic’ it is deliberately goal-oriented, the goal being the mediation of knowledge across asymmetries. As ‘communication’ it is participative (interactive) and the communication ‘positions’ converge on the (co-)construction of (specialized) knowledge.”

Epistemology
Even though Kastberg’s definition came five years later than that of Reinhardt and Stattkus, it seems to draw on the same basic epistemological assumptions despite introducing and framing it somewhat differently. Knowledge is still viewed as from the perspective of constructivist epistemology, and therefore, it is still an abstract construction of communicative processes. Kastberg does, however, introduce a new epistemological aspect to knowledge communication: “(specialized) knowledge”. With this, he argues that knowledge communication does not look indiscriminately at all knowledge, but rather more specifically at specialized knowledge. From his paper, it quickly becomes clear that Kastberg is referring to a specific type of knowledge relevant to a given situation when he chooses to introduce specialized as an epistemological property. An example of such could be the knowledge about stakeholders in a public relations environment or the knowledge of process management in a network group of executives. Kastberg does not limit the specialization property, but introduces it broadly to argue that knowledge communication is not a sub-discipline of philosophy or a psychology aimed at discussing the relationship between knowledge and communication in the most fundamental and abstract sense, but rather a discipline aimed at examining and discussing specific dynamics of specialized knowledge in specific domains.

Communication
If Reinhardt and Stattkus were indirect about their perspective of the communicative dynamics of knowledge communication, Kastberg must be said to be far more explicit in this regard. Communication is characterized as participative, interactive, and converging. While also adopting the understanding of communication as interactive, Kastberg furthers the argument by claiming communication to be participative and converging thereby referencing salient proponents of the perspective of communication as meaning-making and constitutive (e.g. Barnlund, 1962; Dance, 1967; Kincaid, 1979). It takes the metaphor of a spiral shape to connote how communicators
approximate a shared meaning by converging through continuous interactions during which communicative positions and perspectives are adjusted.

**Agency**

Following his line of argumentation with the focus on knowledge communication of specialized knowledge, Kastberg states that all instances of knowledge communication have the objective of mediating knowledge. In this way, it becomes a strategic and goal-oriented process, which distances itself once again from disciplines simply focusing on ‘all’ communication or ‘all’ knowledge. This mediation of knowledge is advanced by his mention of knowledge asymmetries. According to Kastberg, as well as other knowledge communication researchers (e.g. Jacobsen, 2012), such asymmetries are ever-present differences between the knowledges of people as well as, fundamentally, the catalysts for an instance of knowledge communication. The agency of Kastberg’s definition therefore becomes the strategic and goal-oriented mediation of knowledge across asymmetries. Unlike Reinhardt and Stattkus, Kastberg does not specify any particular domain, but rather argues more abstractly for knowledge communication as a process.

**Definition #3 by Engberg, 2009:** “In this approach [to knowledge communication], the knowledge underlying meaning-making processes […] is seen as what I would term a socially inspired entity. The idea is that the knowledge base of an individual is influenced and shaped by the interaction with others and by the social relations and conditions under which these interactions are performed […]. Knowledge and meaning are thus not stable entities, but dependent on influences from social factors that change with time.”

**Epistemology**

The first observation that becomes apparent from this third definition is that Engberg does not state his epistemological perspective as explicitly or as concisely as we saw with constructivism in the first two definitions. Even though there are a number of indicators in his definition, it is not explicitly stated whether or not he assumes a conventional epistemological perspective. First of all, we see that knowledge is defined as “a socially inspired entity”. With this focus, supported at several other points in definition, Engberg introduces a social dimension to knowledge and simultaneously elevates that dimension to directly influence and shape all knowledge. He argues that social interaction as well as the conditions under which social interaction takes place effectively means that knowledge becomes an unstable entity. If knowledge and meaning are contingent upon its ever-changing social dimension, knowledge and meaning are inherently unstable and dynamic. While this argument may be seen as fairly harmonious with the constructivist epistemologies of the two former definitions, Engberg’s mention of a “knowledge base” seems to conflict with such an assumption. Even though this epistemological alignment is not particular explicit, it seems to be
orientated towards cognitivism — a perspective which tends to see knowledge, behavior, and social interaction as separate, albeit intertwined entities (von Krogh, 1998). With regards to knowledge communication, a cognitivist perspective would perhaps see a clearer distinction between knowledge and communication just as it would perhaps find no problem with arguing for a ‘base’ of personal knowledge being at the core of human cognition. It is a much more psychologically oriented perspective and one which allows for more functionalistic approaches to analytical processes of knowledge communication. Regardless of which label to use, it seems clear enough that Engberg argues for an epistemological perspective in which the knowledge base of individuals are directly shaped by social interaction.

**Communication**

Precisely because of this social alignment of epistemology, it becomes somewhat challenging to separate the epistemological perspective of his definition from the communicative perspective. Like Reinhardt and Stattkus, however, Engberg makes use of the word ‘interaction’ and thus argues for an interpersonal series of communicative actions without going into more detail. It is, however, clear to see that the primary focus of the definition lies with epistemology and that Engberg chose a less clear communicative positioning.

**Agency**

Like Kastberg’s, this definition does not seem to be domain-specific and does not seem to be normative in any sense. It does, again like Kastberg’s, argue that the purpose of knowledge communication as a process is the meaning-making function. Since knowledge is not a stable entity as it is shaped and influenced by social dynamics and contexts, the agency of communicating knowledge revolves around making sense and creating meaning. Even though Engberg does not specifically say so, it does seem comparable to the properties of goal-orientation and strategy that we saw in the previous definition.

*Definition #4 by Eppler, 2012:* “... one can view knowledge communication as the (deliberate) activity of interactively conveying and co-constructing insights, assessments, experiences, or skills through verbal and non-verbal means. Knowledge communication has taken place when an insight, experience or skill has been successfully reconstructed by an individual because of the communicative actions of another. Knowledge communication thus designates the successful transfer of know-how (e.g., how to accomplish a task), know-why (e.g., the cause-effect relationships of a complex phenomenon), know-what (e.g., the results of a test), and know-who (e.g., the experiences with others) through face-to-face (co-located) or media-based (virtual) interactions.”
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Epistemology
This final definition is also the most current. Eppler published an almost identical version of it in 2007, but this is the most updated. Eppler is very explicit concerning agency, communicative perspective, and certainly also epistemological perspective. Just like Reinhardt and Stattkus and Kastberg, Eppler subscribes to constructivism when arguing for “co-construction”, “re-construction” as well as the communicative components examined more closely in the following section. In this way, his definition seems to adhere to what is beginning to appear to be conventional knowledge communication epistemologies. This is further supported by his mention of “insights, assessments, experiences, or skills” as well as “verbal and nonverbal means” almost identical to the phrasing of Reinhardt and Stattkus. As such, knowledge is once again directly linked to the way individuals make sense of the myriad of impressions and perceptions facing them every day from the world around them. Eppler does, however, set his definition apart from the former by specifying knowledge as know-how, know-why, know-what, and know-who matching the epistemological categorization seen in OECD’s 1996-report (OECD, 1996). Even though this may seem comparable to Kastberg’s notion of ‘specialized knowledge’, it does represent a different perspective in which knowledge is viewed as belonging to one of four categories. This epistemological typology or structure is typically adapted by researchers seeking to convert the otherwise highly abstract concept of knowledge into something more approachable and relatable. It is a way to ‘materialize’ epistemology, and one may certainly argue that an intangible and ambiguous concept like knowledge could need a degree of ‘materialization’. By choosing to argue that knowledge always belongs to one of these four categories, however, Eppler introduces an agenda of simplification — a desire to make knowledge a more concrete concept with which to work analytically. Such an agenda could certainly also be seen in each of the other definitions albeit more indirectly. All authors are seeking to specify their epistemology in a concise manner without explicitly giving room for deeper philosophical and psychological discussions.

Communication
Matching the perspectives of all former definitions, Eppler views the communicative dynamic as interactions revolving around meaning-making or co-constructing agendas. Unlike any of the former definitions, however, communication is specified to be either interpersonal or virtual — either face-to-face or media-based. Even though Eppler’s definition is thus the only one to exemplify communication, it does not seem to be at odds with any of the other perspectives, but rather just seems to expand.

Agency
With the claim that knowledge communication is about “conveying” as well as “the successful transfer of” knowledge, this definition takes a very direct approach to the notion of agency. Whereas
each of the other definitions seemed to focus on the agency dynamic of knowledge construction through communicative interaction, Eppler designates knowledge transfer to be the ultimate objective of knowledge communication. On a most immediate level, such a perspective could be seen as conflicting with his constructivist epistemology. Knowledge transfer seems to imply a transmission of something from somewhere to somewhere else (Kincaid, 1979). Even though Eppler remains completely loyal to the vocabulary of the constructivist epistemology, this notion of knowledge transfer seems to be somewhat at odds with that.

3.1.3. Condensing definitions of knowledge communication as process

By examining each of the four definitions of knowledge communication as process explicitly and comparatively, a number of patterns seem to appear. In fact, one may even argue that all contributing authors seem to largely agree on their perspective on communicating knowledge when focusing on epistemological, communicative, and agency-oriented properties even though they certainly emphasize different aspects of it.

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<tr>
<th>Epistemology</th>
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<td>Reinhardt and Stattkus (2002)</td>
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Table 2: Definitions of knowledge communication as process
The overview presented in Table 2 shows the orientations of the definitions examined previously with regards to epistemological alignment, communicative understanding, and approach to agency. It illustrates how the four definitions share many of their theoretical assumptions and also that researchers explicitly situating themselves within the discipline of knowledge communication appear to be somewhat aligned. Knowledge communication as process is generally conceptualized through a constructivist epistemology. Knowledge is seen as belonging to both a personal and a social dimension. Rather than focusing on all knowledge, knowledge communication specifically addresses knowledge specialized within a given context and domain determined by the researcher. The communication of knowledge follows an interactive and participative dynamic in which communicators are seen to converge in a process of meaning-making. Communication is also seen as a process of co-construction. The agency of knowledge communication seems to be the strategic and goal-oriented communication of knowledge involving more than one communicator.

Apart from the apparent homogeneity of the definitions of knowledge communication as a process, they also provide important information on the disciplinarity of knowledge communication, which seem to be more heterogeneous. More specifically, the contexts in which the definitions appear provide such important information. During my conceptual literature review, I noted that each of these four salient articles were characterized by a significant number of differences despite being highly aligned in their perspective on the process of communicating knowledge. The particularly interesting differences could be found in the disciplinary ‘points of entry’ into knowledge communication and object(s) of study. While the authors of all four articles explicitly state their focus on processes of knowledge communication and also explicitly situate themselves within a discipline of knowledge communication, they also argue that they approach such research from different disciplinary positions. Reinhardt and Stattkus approach knowledge communication through management studies, Kastberg through communication studies, Engberg through semiotics and linguistics, and Eppler through studies of corporate communication and power. Subsequently, not one of them argues that they somehow work ‘exclusively’ or ‘purely’ with knowledge communication research, but rather that they approach it from different scientific points of entry. Whether or not one may refer to such a state as multi- or interdisciplinarity, it certainly seems to question the assumption of disciplinary homogeneity that one may adopt from exclusively examining the definitions of knowledge communication as process. These disciplinary differences or dispersions are further supported by the objects of study. Reinhardt and Stattkus examine what they refer to as the ‘brain-drain’ of companies when they experience high employee turnover, Kastberg examines the ontological consequences of adapting a constructivist understanding of the process of communicating knowledge, Engberg examines the semiotic structures in the communicative action of legal experts, while Eppler examines the discursive and communicative ‘gaps’ between experts and decision-makers in management. Such a mix of academic disciplines echoes with the same
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intensity in other knowledge communication publications than the four salient ones of this literature review. Fage-Butler examines concepts of risk and trust in her study of patient-centered communication in patient information leaflets (2011b), Jacobsen examines the discursive properties of knowledge asymmetries in her study of professional communication (2012), while Risku et al. examine informational design in the context of mediation and translation (2011).

With these differences made apparent by the contexts of the four salient definitions of knowledge communication, we can briefly summarize and reflect. Whereas the explorative exercise of the disciplinarity of knowledge communication certainly does not allow for a confident attempt at accurately answering both pivotal questions guiding it, it does enable me to answer the first one: ‘how do researchers of knowledge communication define the process of knowledge communication?’ There seems to be a fairly homogenous understanding of the process of knowledge communication within the discipline of knowledge communication. This homogeneity becomes especially prominent when analyzing the epistemological perspectives, communicative understandings, and agency-orientations of salient and explicit definitions of knowledge communication within the discipline. Despite such a homogeneous understanding of process, however, a significant range of knowledge communication publications indicate a substantial heterogeneity regarding the discipline within which this understanding is situated. Such indications include, but is not necessarily limited to, disciplinary points of entry (e.g. Eppler, 2006; Risku et al., 2011) and objects of study (e.g. Engberg, 2009; Reinhardt & Stattkus, 2002). This observation shows an important discrepancy between a homogeneous understanding of knowledge communication as process and the wide range of knowledge communication publications indicating heterogeneous disciplinarity.

Whereas such a discrepancy is certainly interesting, it seems to catalyze more questions than it provides answers — questions concerning a more precise disciplinary categorization, concerning a chronology of disciplinary developments, concerning the existence or non-existence of a dominating paradigm, and similar questions traditionally associated with such an exploration (Chalmers, 1999). It certainly does not allow me to answer the second pivotal question of this explorative exercise: ‘is a conventional descriptive term like ‘scientific discipline’ sufficiently accurate and nuanced to describe what knowledge communication is on an institutional and disciplinary level?’ For that reason, it seems reasonable to conclude that if a comparative overview of salient definitions of the process of knowledge communication explicitly situated within the discipline of knowledge communication does not enable me to answer that second pivotal question, a different approach is required. This realization moves this literature review from its first to its second section — from approaching disciplinarity through definitions to approaching disciplinarity through chronological narratives. As argued in the introduction to this chapter, such an alternate approach remains loyal to
a conventional Kuhnian perspective used to evaluate and determine disciplinary states of scientific disciplines (Chalmers, 1999; Kuhn, 2012).

3.1.4. Pre-paradigmatic maturation or increasing eclecticism

With the aforementioned disciplinary heterogeneity of the salient definitions as the catalyzing factor, it seemed intuitive to me to examine whether or not other researchers of knowledge communication had attempted to provide a similar disciplinary or institutional overview. My perspective was therefore adjusted to focus on publications explicitly commenting on such disciplinary dimensions rather than on more processual or conceptual ones. Since my review of the different definitions of knowledge communication had showed that most authors defined the process of communicating knowledge rather than the discipline of knowledge communication (e.g. Reinhardt & Stattkus, 2002; Risku et al., 2011), it did not surprise me to find only two publications which explicitly did address disciplinarity. One was from Kastberg (2010) and one was from Eppler (2012). Unlike the salient definitions of the process of knowledge communication, Kastberg’s and Eppler’s narratives of the disciplinarity or institutionalization of knowledge communication showed significantly different approaches. A comparative discussion of their different perspectives could potentially provide an answer to the second question of the conceptual literature review: is a conventional descriptive term like ‘scientific discipline’ sufficiently accurate and nuanced to describe what knowledge communication is on an institutional and disciplinary level?

To guide and to structure the comparative discussion of this section, I will initially outline and consequently adhere to a conventional Kuhnian perspective of the institutionalization of academic disciplines, because of its widely accepted terminology and typology (Chalmers, 1999; Kuhn, 2012). According to Kuhn, all sciences belong to scientific fields (Kuhn, 2012). Such scientific fields go through a circular process of three distinct phases and by determining the chronological developments of any scientific field, one may ascertain the current phase of the field in question — or in other words, one may comfortably categorize the disciplinary or institutional state of the scientific field. Following a chronological logic, these three phases are 1) pre-paradigm: a chaotic battleground of competing scientific discourses, 2) normal science: a relatively stable situation in which a paradigm and a corresponding terminology dominates explicitly, or 3) revolutionary science: where the paradigm from the normal science phase is falsified thereby making way for the proposal of a new paradigm (Kuhn, 2012). Shifts between the pre-paradigm phase and the normal science phase occur when the field reaches maturity by virtue of the emergence of a dominating and explicitly codified paradigm (Chalmers, 1999; Kuhn, 2012). Paradigms are sets of theories, methods and approaches that generate and reinforce a single, specific perspective on a certain worldview. An example of such could be the CCO-paradigm within organizational communication research (Putnam & Nicotera, 2008) or the open innovation-paradigm with innovation management research.
The term ‘paradigm’ was adjusted by Kuhn to ‘disciplinary matrices’, and should be seen as following Popper’s falsification cycle (Kuhn, 2012; Moses & Knutsen, 2012). This implies that mature scientific fields are somewhat single-stranded entities that adhere to circular and sequential development steps during which dominating paradigms emerge and fall (Chalmers, 1999). Since Kuhn published this theory in “The Structure of Scientific Revolutions” in 1962, it has been used as the default approach to quickly illustrating the disciplinarity or institutionalization of scientific fields. A prominent example of such an approach include Grunig’s renowned publication on excellence theory within the field of public relations, where Grunig makes the argument that public relations research had until then been a pre-paradigmatic field (Grunig, 1992). Another would be the more recent article by Ashcraft et al. situated in the field of organizational communication, which attempts to give a chronological and conceptual overview of the catalyzing discussions of the emerging CCO-paradigm (K. L. Ashcraft, Kuhn, & Cooren, 2009). Examples from other fields include Chesbrough & Appleyard (2007) on open innovation theory, Cowan & David (2001) on communication strategy, or Yanow (2009) on organizational ethnography. In short, Kuhn’s perspective seems to rest on an observation and an underlying assumption. The observation is that all scientific fields adhere to the specific development steps of initial discursive struggle, subsequent paradigmatic dominance, and final scientific falsification and revolution. The underlying assumption is that the catalyzing mechanic of such steps is the motivation to develop a dominating and ultimately maturing paradigm, or in other words, that the desirable state of a scientific field is paradigmatic maturity. With this perspective guiding and structuring the following comparative discussion, we can move on to examine Eppler’s narrative.

The title of Eppler’s publication, “Knowledge Communication – 10 Years On”, claims that knowledge communication research emerged around 2002 without referring to any particular catalyzing event or publication from that year except for the formation of the author’s own research group. It does, however, coincide with the earliest explicit definition of knowledge communication by Reinhardt and Stattkus mentioned earlier. When reading Eppler’s narrative of the genesis of knowledge communication, it quickly becomes clear that it is focused on themes of maturation and institutionalization. He noticeably highlights the following events as pivotal to knowledge communication research:

“In the last ten years, we have witnessed influential knowledge communication research in management, education, applied linguistics, computer science and public policy studies, the creation of several competence centers focusing on knowledge communication, several conferences dedicated to the topic, the creation of a chair in knowledge communication, at least 6 publicly funded research projects on knowledge communication in different contexts.” (Eppler, 2012: 3)
With keywords and phrases like “influential”, “creation of competence centers”, “conferences”, “chair”, and “publicly funded research projects”, Eppler strongly indicates an orientation towards maturation (Kuhn, 2012). There seems to be a sense of a ‘coming of age’ narrative. Such a perspective certainly adheres to that of Kuhn and specifically addresses the shift between the pre-paradigm phase and the normal science phase. At this point, it seems to be worth remembering the circular and sequential logic behind Kuhn’s phases: from immaturity and chaos over maturity and order to falsification and revolution. A mature scientific field is certainly one of institutions — of the competence centers, conferences, chairs, and public research projects emphasized by Eppler (2012).

In his publication, he further emphasizes conventional institutional characteristics like celebrated publications, citations, and awards (Eppler, 2012). By emphasizing this theme of maturation, Eppler indirectly advocates for a disciplinary move towards a paradigmatic state. Is knowledge communication then a mature, scientific field dominated by a single paradigm and supported by the institutions that act as testaments to this maturity? From the conceptual literature review of salient and explicit definitions of knowledge communication as a process, it would certainly seem that a homogeneous understanding exist among a wide range of researchers situating themselves as belonging to the discipline of knowledge communication. Whether or not such a homogenous understanding should be categorized as paradigm is another question entirely. Even though almost all of the definitions used seem to subscribe to a highly comparative epistemological perspective, communicative understanding, and agency-orientation, they emphasize different aspects in those perspectives. There also seems to be limited evidence for the observation that knowledge communication publications cite and adhere to one specific definition more than others. Arguing for the presence of a single, dominating paradigm in the discipline of knowledge communication therefore seems to require the acceptance of a number of assumptions highly dependent upon perspective.

According to the Kuhnian logic of scientific maturity, it is no wonder why Eppler seeks to characterize knowledge communication as a scientific field with its own dominating paradigm and explicit terminology (Moses & Knutsen, 2012). It is merely a natural development process to strive for such a disciplinary state. Furthermore, being able to characterize knowledge communication as a mature scientific field would automatically set it apart from other pre-paradigmatic fields still characterized by struggling discourses. As a researcher, I can certainly recognize such a desire for maturity, order, and fixed terminologies within knowledge communication, as it simply seems, after all, much more comfortable to be part of something mature and recognized than of some more or less chaotic and immature scientific battleground. What if, however, we were to associate less destructive and more constructive properties to the chaotic state of struggling scientific discourses?
Would the Kuhnian sequentiality then still seem desirable? Kastberg’s perspective, at least, seems to challenge such an assumption.

Kastberg’s 2010-article on the formative ideas and research impetus of knowledge communication provides us with quite a different narrative of the genesis of knowledge communication as a discipline, and one that offers another perspective on this maturation process. First of all, there is no mention of any year of beginning of this type of research, no mention of pivotal years of breakthroughs, falsifications, or revolutions. Rather, Kastberg focuses his lens on the gradual emergence of particular theoretical strands, trends, or discourses currently existing within knowledge communication and sets out to examine how these converged. Any attempt at precisely dating pivotal events or publications does not seem to be a specific agenda of Kastberg, as he draws upon such diverse sources as Kant and Plato, Humboldt and Laclau, as well as Luhmann and Mead (Kastberg, 2010). To Kastberg, exploring chronology is to explore the chronology of theoretical developments rather than institutional developments (Kastberg, 2011a). He argues that knowledge communication has emerged as a reaction to a number of different theories within scientific fields which he claims to be closely related such as language for specific purposes (LSP), knowledge management (KM), learning theory and communication research (Kastberg, 2010). These reactions have formed three particular theoretical dichotomies, which seem to have catalyzed knowledge communication into existence: 1) communicative dynamics as transmission vs. interaction, 2) orthodox cognitivist epistemology vs. constructivist epistemology, and 3) knowledge asymmetries as barriers and noise vs. knowledge asymmetries as ever-present catalysts (Kastberg, 2010). Even though such catalyzing dichotomies seem to fit the Kuhnian concepts of struggling scientific discourses, Kastberg does not explicitly make that connection. Instead, using the metaphor of the Greek agora, Kastberg emphasizes his focus on an idealized scenario of knowledge communication as a neutral meeting place with “productive meeting place for the exchange of ideas, practices and policies across traditional disciplinary borders” (Kastberg, 2011b: 5). To him, knowledge communication does not have a clear chronology that encourages sequential and circular depictions of gradual maturation, but rather a more eclectic one that is made up of researchers and theoretical discussions, dichotomies, and perspectives that all in some way or another focus on the same thing: knowledge communication — even if these very same researchers do not agree on what knowledge communication is. It is almost like a prismatic reflection of sorts, where a single beam of light representing a specific concept is dispersed into several beams each representing a very different meaning and interpretation — simultaneous divergence and convergence.

Kastberg’s perspective seems to be painted by the brush of post-structuralism in its agenda to deconstruct notions of unity and cohesion while promoting notions of eclecticism and constructive divergence. He focuses on formative dichotomies and on multiple theoretical strands existing
simultaneously. It is a completely different approach to the disciplinariness or institutionalization of knowledge communication than Eppler’s, which centers on the more conventional Kuhnian ideals of maturation and institutionalization. Kastberg’s narrative is one of messiness and complexity and even seems to be somewhat anti-institutional:

“As may also be inferred, it is my belief that these strands, again theoretically speaking, are converging even closer. […] This does not mean, however, that I am advocating a new, all-encompassing paradigm in the Kuhnian sense (1970), a new transdiscipline or the like. […] As Knodt laconically states: ‘[t]he end of metanarratives does not mean the end of theory, but a challenge to theory” (1995:xi). Rather than being destructive […] I see the challenges posed […] as being productive; of being impetus for new insights” (Kastberg, 2011b: 5)

With this, Kastberg seems to distance knowledge communication research even further from the more conventional dynamics of Kuhnian terminology. There is an intentional move away from the ideals of maturity and institutionalization with the expressed desire not to advocate “a new, all-encompassing paradigm” as would otherwise be integral to the logic of scientific fields. It seems clear, then, that Kastberg’s disciplinary chronology of knowledge communication research is almost a reaction to the conventional structures and terminologies of such exercises. It certainly would be a truism to state that he rejects any use of the conventional concept “scientific field” to describe knowledge communication research, so what is his alternative suggestion?

Three years prior to his 2010-narrative, Kastberg introduced the argument that knowledge communication should be viewed as ‘a third order discipline’ — an argument that one can see in all of his later publications associated with knowledge communication:

“A 3rd order discipline comes into existence when not one overarching theory and not one pervading method is common denominator. The common denominator is the object of study itself and unto that object (in principle) any theory and any method may be applied. [...] Its only obligation being to match the complexity of the object with modes of examination befitting to that complexity” (Kastberg, 2007: 21)

At first glance, such an appreciation of science seems to match Kastberg’s focus on formative dichotomies as well as converging theoretical strands. With the introduction of this disciplinary perspective, Kastberg makes use of a different terminology and typology than that of Kuhn and Eppler. Rather than addressing scientific fields and paradigms, he chooses to see different disciplines according their degree of institutionalization. By introducing the ‘third order discipline’, he naturally assumes the existence of first and second order disciplines. According to his perspective, first order disciplines are prototypical ‘Humboldt’ divisions of traditional university disciplines in which an object of study is exclusively being examined with a sanctioned and fixed number of theories and methods. Second order disciplines are those which examine different objects of study through the
use of one particular theory (e.g. critical theory on social science, pedagogy, and history) or method
(e.g. statistical method on population studies, corpus linguistics, and economics). These first two
seem to be highly similar to Kuhn’s notions of maturity, order, and institutionalization determined
by the dominating and highly codified paradigm.

Kastberg’s perspective on this order or hierarchy of scientific disciplines also seems somewhat
indicative of a larger perspective — one that may revolve around the scientific dichotomy of
imperialism and orthodoxy versus post-modernity and eclectic pragmatism. Kastberg sees both first
and second order disciplines as dogmatic and orthodox, while third order disciplines seem to
resemble the ‘kids in the back of the classroom’ — disciplines reacting to a perceived academic
rigidity and conservatism. The third order discipline neither provides any sanctioned theories or
methods nor does it provide highly codified terminologies. Instead, it invites researchers to choose
whichever theory and method that befits the complexity of their objects of study. This perspective
dispels any notion of a dominating paradigm, discourse, disciplinary matrix, core, or essence of
knowledge communication research in its strong (although not directly articulated) alignment with
pragmatism. With this, he attributes such notions of hegemony and imperialism to the Kuhnian
paradigm and thereby to the categorizing of knowledge communication research as a scientific field
undergoing processes of maturation and institutionalization. Kastberg argues that such a move
would be one of limitation, imperialization, and interpellation rather than one of maturation and
codification. Even though such a perspective should be seen more as a critique of the Kuhnian
appreciation of science than of Eppler’s perspective on the disciplinarity of knowledge
communication, it does raise the issue of perspective in such an examination.

If we take Eppler’s 2012-narrative to be an accurate illustration of knowledge communication
research, we may argue that knowledge communication is an as of yet immature, pre-paradigmatic
scientific field. The recent institutional accomplishments within the field as well as the emergence
of a paradigmatic understanding of the process of knowledge communication are testaments to an
immediately forthcoming shift from the pre-paradigm phase to the normal science phase. The
challenges related to assuming this to be accurate would primarily be associated with the notion of
the dominating paradigm and the highly codified terminology that goes with it. Despite a
homogeneous understanding of knowledge communication as process, the contexts of this process
clearly showed a heterogeneous approach to almost everything else — interdisciplinary points of
entry, objects of study, analytical structures, methodological choices, and so on. From this
perspective, Eppler’s narrative falls short of addressing such eclecticism and diversity making
knowledge communication as a discipline seem far more unified and focused than it is. One might
argue that this is a more fundamental challenge inherent to Kuhn’s logic of the scientific field and
less of a direct challenge to the logic of Eppler’s narrative. By adapting the Kuhn’s circular and
sequential perspective of science, one must assume a desire and a drive from researchers to unify and to develop their research in a specific direction in order to achieve synergy (Chalmers, 1999). Divergence, dichotomy, eclecticism, and difference are either parts of the chaotic battleground of discourses of the pre-paradigm phase from which will emerge a dominating paradigm, or they are parts of the falsification process inherent to the revolutionary science phase. They cannot be intentional elements within a mature, ordered, institutionalized, and codified field. It is perhaps here where the underlying logic behind Eppler's narrative conflicts with that underlying Kastberg's.

3.1.5. Synthesis: knowledge communication as a young, emerging discipline

What we are finally left with is fundamentally a choice of underlying logic and perspective. According to previous attempts to explore and categorize the disciplinarity of knowledge communication, it is either a maturing scientific field following the conventional logic of Kuhn, or it is a third order discipline following the logic of post-modern pragmatism. In this way, it becomes a matter of not only choosing a perspective with which to appreciate the disciplinary development of knowledge communication, but also choosing a terminology to make sense of it.

While I do not share the anti-institutionalization argument that scientific maturation necessarily results in scientific rigidity, hegemony, and imperialism, I do recognize that the eclectic and diverse nature of knowledge communication as a discipline makes it important to be aware of the connotations associated with certain disciplinary terminologies and typologies. I also believe it is important to acknowledge that by standing on the shoulder of giants, we may see further, gain greater momentum, and achieve all-important synergy. I would argue that scientific maturation helps to structure a discipline and helps to make important discursive struggles salient. Kuhn's sequentiality does, however, not seem to encapsulate the significant dynamic of knowledge communication research: divergence, dichotomy, and eclecticism. Based on the salient knowledge communication publications at the core of my conceptual literature review, I can confidently argue that such eclecticism and diversity catalyzes important, complex, and nuanced research of the process of knowledge communication. Forcing the researchers of these publications to adhere to a specific paradigm in order to signify maturity would seem counterproductive at best.

I realize that such a disciplinary state does not immediately seem to be significantly different from what Kuhn's pre-paradigmatic state suggests, and I believe that this introductory exploration and discussion of the disciplinary state of knowledge communication have certainly shown the matter to be complex. I believe it comes down to seeing knowledge communication as either a scientific discipline on its way towards a paradigm or as a scientific discipline that thrives from not having a paradigm. This characterization of the disciplinarity of knowledge has significant consequences for the rest of this chapter focused on the theoretical framework not to mention for the rest of the entire
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dissertation. By having no dominating paradigm and consequently not having an explicit terminology, it should be the objective of every knowledge communication researcher to place greater importance on notions of transparency and clarity regarding every part of the research project in question. When there is no sanctioned theory and only few attempts at providing comprehensive theoretical frameworks easily adaptable by others, it becomes increasingly difficult for researchers to ‘stand on the shoulder of giants’ — since there are only few giants with shoulders as of yet too narrow to stand on. It is therefore important for me — not only with regards to this theoretical chapter, but also when it comes to methodological choices and analytical structures — to be as explicit and as nuanced as possible. There are very few situations in knowledge communication research where it seems fair to assume anything.

I would therefore argue that knowledge communication is a young, scientific discipline that looks at the relationships between knowledge and communication from different perspectives within different domains. It has been catalyzed into existence through both formative dichotomies and theoretical strands converging from other related disciplines. Knowledge communication research is characterized by divergence, dichotomy, and eclecticism and continues to provoke discussions between theoretical discourses and perspectives. By having no dominating paradigm, knowledge communication research does not have any explicit terminology, and it does not have any default methodology.

It is important for me to reiterate that this explorative and comparative discussion of knowledge communication as both process and discipline was limited to publications explicitly situating themselves within that discipline, in line with one of the principles of the conceptual literature review. My more general exploration of knowledge communication as process, however, took me beyond this as of yet limited number of publications. As stated in the introductory remarks of the section, the process of communicating knowledge has been a critical one within many other disciplines besides that of knowledge communication — learning theory (e.g. Einsiedel, 2008; Lave, 1991), organizational communication (e.g. Ashcraft et al., 2009; Cheney, Christensen, Zorn Jr., & Ganesh, 2011), and knowledge management (e.g. Nonaka & von Krogh, 2009; Takeuchi, 2006) are merely a few examples of this. This broader exploration quickly showed that the homogeneous understanding of knowledge communication as a process that was founded in the intersection between constructivist epistemology and interactive, participatory communication was in fact largely limited to the discipline of knowledge communication. More specifically, it was the discussion of knowledge within management domains, like those associated to knowledge management research, which seemed to be far more numerous than those associated knowledge communication research. These discussions quickly began to dominate and emphasize an alternative understanding of the process of communicating knowledge: knowledge transfer theory (B. Johnson & Lundvall,
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2001; Kumar & Ganesh, 2009; O’Hagan & Green, 2002; Schulz, 2003; Virta, 2011). Knowledge transfer theory assumes a much more simple perspective on the process of communicating knowledge — that knowledge is a cognitive product able to be transmitted from one person to another person. If such an alternative understanding seems to be far more commonly and broadly adopted, why is this not the case within the discipline of knowledge communication? Some researchers even goes as far as to position these two approaches in opposition to each other in arguing that they represent two conflicting ‘camps’ or ‘schools’ (D’Eredita & Barreto, 2006; Zheng, Zhang, & Du, 2011). With this in mind, it seems more relevant to ask the question: what makes knowledge transfer theory different from knowledge communication theory, and why are the two not aligned?

3.2. A dominant, reductionist discourse: knowledge transfer theory

In order for this scrutiny of knowledge transfer theory to adhere to the same structure as that of knowledge communication theory in section 2.1.2., this section will include a closer look at the same three pivotal dimensions of the theory: epistemology, communication, and agency. The understanding of the process of communicating knowledge as knowledge transfer is particularly strong within the discipline of knowledge management (see Kumar & Ganesh, 2009 for an extensive literature review). This knowledge transfer theory is perhaps most clearly and most explicitly illustrated by Lin et al.:

“We develop a sender-receiver framework for knowledge transfer, which allows for the knowledge sender and the knowledge receiver, each with distinct self-interests, to have different perceptions of the situation. […] In developing the sender-receiver framework, we first introduce the market view of knowledge transfer. We treat knowledge as a good that moves in a knowledge market where parties may have incomplete and asymmetric information about other participants and the knowledge itself.” (Lin et al., 2005: 1)

From this definition, we are given several pieces of significant information about the underlying assumptions of knowledge transfer theory. Firstly, we can see a clear discrepancy between this and the knowledge communication theory developed by Reinhardt and Stattkus, Kastberg, Engberg, and Eppler in their definitions of knowledge communication. Epistemologically, knowledge is not viewed as personally and socially constructed, but rather as a product or a commodity with a certain value defined by a so-called ‘knowledge market’. Secondly, the definition states that the communication of such a knowledge product occurs according to a communicative framework of senders and receivers. Another somewhat more recent definition of knowledge transfer theory reduces this process of sending and receiving knowledge product to a bare minimum:

“Knowledge transfer […] is the conveyance of knowledge from one place, person or ownership to another. Successful knowledge transfer means that transfer results in the receiving unit accumulating or assimilating new knowledge.” (Liyanage et al., 2009: 6)
Even though the most cautionary assessment of such definitions would argue that it represents a far more simplified perspective than the homogenous perspective of knowledge communication theory, it does seem to include all of the same elements — epistemological perspective, communicative understanding, and agency-orientation. Furthermore, bearing in mind that this understanding is far more broadly accepted and utilized, it certainly deserves further examination and discussion (Kumar & Ganesh, 2009).

In order to retain as much nuance in this discussion on knowledge transfer theory as possible, it is important to note that the term ‘knowledge transfer’ has by now been so widely adopted that many researchers simply use it when referring to various other aspects of the process of knowledge communication such as ‘knowledge sharing’, ‘knowledge flow’, or ‘knowledge exchange’ (Kumar & Ganesh, 2009). Ringberg and Reihlen, for instance, argue that knowledge transfer can almost be referred to as a discipline in its own right, because of its broad scope (Ringberg & Reihlen, 2008). In the context of this discussion, however, knowledge transfer theory will be limited to theoretical perspectives all focused on the process of communicating knowledge.

The following section will adhere to a structure mirroring that of the previous comparative analysis of the definitions of knowledge communication: the first part will therefore be an epistemologically focused one, the second will focus on the communicative dynamics inherent to knowledge transfer theory, while the third and final part will discuss the implications related to agency. This structure is chosen as it enables a more transparent and direct comparative discussion of the relationship between knowledge transfer theory and knowledge communication theory. While the discussion will use Lin et al.’s definition as its cue, the pivotal point of focus will be researchers situating their publications within and directing their analytical perspectives towards knowledge transfer. As previously mentioned, such an examination is not limited to a single scientific field or discipline, but rather by the concept in question.

3.2.1. Epistemology: knowledge as universal products of cognition
Knowledge is specified “[...] as a good that moves in a knowledge market where parties may have incomplete and asymmetric information about other participants and the knowledge itself” (Lin et al., 2005: 1). The underlying epistemological perspective — knowledge as a tangible product — is strongly aligned with orthodox cognitivism in that knowledge “was considered to be representations of the world that consists of a number of objects or events. [...] Knowledge was universal. [...] Knowledge was explicit, capable of being coded and stored, and easy to transmit to others” (von Krogh, 1998: 134). Even though the concept of ‘representation’ is central to this epistemology, there is a real risk of starting a conceptual exploration simply too abstract and too philosophically oriented taking this discussion too far along a specific tangent (e.g. Foucault, 1994). Instead of doing so, I
have chosen to align myself with the thoughts of von Krogh in merely saying that orthodox cognitivists view representations as the appreciations produced by the mind as it attempts to make sense of objects or events in the world (von Krogh, 1998). Even though some current cognitive researchers have certainly nuanced this epistemological perspective quite significantly (e.g. Engberg, 2010), the more traditional approach still seems to ring true in knowledge transfer theory. From this epistemological perspective of knowledge as representation, knowledge must be considered to be free of the perspective of the knower. As knowers, we access the representations of the world, but those representations are not unique to each knower — they are universal. Since the representations of the world are universal, knowledge acquired from accessing such representations must be attributed the same characteristics (Kastberg, 2011a). Knowledge thereby becomes objectified and tangible. It becomes a something — independently of any variables. The orthodox cognitivist perspective thereby largely removes the variable of the knower — if we experience the same event, we access the same representation of it and thereby acquire the same knowledge from it. This makes knowledge universal and not unique to its knower. Individuals merely need to access the same experience or describe that experience to each other in order to gain access to the exact same knowledge. In other words, there is no process of construction or creation here. It is a matter of access equals acquisition. Ringberg and Reihlen describe this epistemology as positivistic and argue that it approaches “knowledge [as] synonymous with information and […] as a commodity whose comprehension is unproblematic or happens exogenous to the knower. Thus, knowledge ends up being treated as an exogenous variable” (Ringberg & Reihlen, 2008: 914). Knowledge is little more than the factual information of representations.

Following the conceptual logic of this orthodox cognitivist epistemology, it would stand to reason that knowledge — universal, tangible, and exogenous to its knower — can be subjected to any number of quantitative or evaluative estimates. By objectifying knowledge, we basically make it countable. From such a perspective, researchers would be able to count the number of people in a certain organization with a certain piece of knowledge, just like they would be able to evaluate the effectiveness of learning in a classroom setting by counting the number of students having acquired the correct piece of knowledge from their professor. It becomes a matter of 1’s and 0’s — of either having knowledge or not. Examples of such quantifying exercises include Borgatti & Cross (2003), Gupta & Govindarajan (2000), and Haas & Hansen (2005). Whether or not orthodox cognitivism is as closely aligned with positivism as Ringberg and Reihlen argue, it remains clear from its epistemological assumptions that they bear close resemblance. If knowledge is a product of cognition, and if knowledge can exist independently of people, then knowledge can be accessed, appreciated, and evaluated just like information can. Such approximation is further supported by the metaphors with which researchers of knowledge transfer theory conceptualize knowledge: “stocks of knowledge” (Gupta & Govindarajan, 2000), “markets of knowledge” (Lin et al., 2005),
“repositories of knowledge” and “knowledge database” (Davenport, De Long, & Beers, 1998), “carriers of knowledge” (Morten B. Jensen, Johnson, Lorenz, & Lundvall, 2007), and "knowledge storage” (Jasimuddin, Klein, & Connell, 2005). Such metaphors indicate a perspective in which the tangibility and control of knowledge is pivotal — where it is (e.g. inside people’s minds, reports, or databases), in which form it is (e.g. in writing, imagery, or verbal), and what it is used for (e.g. sharing, archiving, or commercializing).

With this epistemological perspective of orthodox cognitivism in mind, the communicative assumptions of knowledge transfer theory appear to be fairly straightforward. It would merely be a matter of a person sending whatever piece of knowledge acquired from the representations of a certain object or event to someone else. This other person will then have exactly the same knowledge about that certain object or event (Lin et al., 2005). As such, this communicative dynamic is a logical extension of viewing knowledge as a tangible and universal product exogenous of its knower. It assumes a process of transmission between a sender and a receiver — “as if it could be carried from a source to a receiver like water in a bucket” (Kincaid, 1979: 4).

3.2.2. Communication: linear transmission from ones ‘with’ to ones ‘without’

This way of understanding the communicative dynamic uses several labels such as ‘linear communication’, ‘transmission-based communication’, ‘mechanical communication’, ‘sequential communication’, ‘mathematical communication’, and probably a few more (Frandsen, Halkier, & Johansen, 2002). Whereas it immediately seems to signify a straightforward and simple approach to the matter of transmitting a cognitive product from a sender to a receiver and as such aligns perfectly with the assumptions of knowledge transfer theory, this transmission-based model of communication has been subject to significant criticism from many different researchers (e.g. Ashcraft et al., 2009; Kastberg, 2011a; Nonaka & von Krogh, 2009; Tsoukas, 1996). Such criticism often catalyzes further critical scrutiny, and this is certainly the case in the context of this project. It is important to examine and discuss the consequences for the way in which we understand the communicative dimension of knowledge-intensive processes and for that reason, it becomes important to look further into the transmission-based perspective at the core of knowledge transfer theory.

The appreciation of communication as a process of transmission has been a widely accepted way of conceptualizing communication in almost every research field or discipline working with communication theory since its origin (see e.g. Ashcraft et al. 2009 in organizational communication research; Thoger Christensen & Cornelissen 2010 in corporate communication research; and Frandsen & Johansen 2013 in public relations research). It was first introduced by Lasswell in his famous analytical formula: “Who says what in which channel to whom with what effect?” (1948).
Lasswell focused on deconstructing what he perceived to be the dynamics of verbal communication between people into smaller, analytical variables.

The aim was to empower different kinds of communication professionals to approach communication dynamics in a more efficient way with the appropriate tools at hand. It is important to note that ‘communication professionals’ at that time were often oriented towards communication technologies such as the telephone rather than on any more processual, interpersonal level. He argued that each element of this transmission process should be examined through a corresponding analytical perspective: the ‘who’ (communicator) with control analysis, the ‘what’ (message) with content analysis, the ‘channel’ (medium) with media analysis, the ‘whom’ (audience) with audience analysis, and finally, the ‘effect’ (effect) with effect analysis (Lasswell, 1948). Noticeably, the model did not address more than one active communicator emphasizing the analytical perspective on communication as a one-way process: the sending of a message.

The transmission model was a sequential and linear appreciation of verbal communication that was so clear in its terminology and function that it has remained largely unchanged since then. Researchers aligning themselves with the transmission model of communication do not often cite Lasswell, however, but rather Shannon and Weaver, who had worked on a similar model during the same time as Laswell (e.g. Seidl, 2004; Virta, 2011). Originally published only by Shannon in the same year as Lasswell’s model appeared (Shannon, 1948), this model of communication was reiterated by both Shannon and Weaver in their 1949-book “The Mathematical Model of Communication” (Shannon & Weaver, 1949). Their model of communication became perhaps even more recognized than Lasswell’s despite many and significant similarities. It too illustrates communication as a process in which a sender transmits a message through a channel to a receiver.
At first glance, it is fairly clear to see that the mathematical model is highly comparable to Lasswell’s. It remains linear and sequential and deconstructs the communication process into smaller, more analytically accessible variables in order to prescribe more precise targeting of variables with regards to communication analyses and communication strategies. One of the most fundamental differences between the two models is the areas of intended application. While Lasswell’s model was situated within sociology, Shannon and Weaver’s was designed for communication technology research — and more specifically, for the telephone (Shannon & Weaver, 1949). This technological focus is clear to see in the terminology of the model with an entirely different focus than Lasswell’s model on transmitters, receivers, and noise. While these terms were initially technical and meant to describe the actual machines that did the transmitting and receiving, and the noise created by the sending of electronic signals, they were later expanded to the more abstract terms of communication theory that can for instance be seen in knowledge transfer theory. Shannon and Weaver’s model eventually became known as the sender-receiver model of communication:

“At this view, a manager sends a message – say, a performance review – to an employee through some chosen channel or medium (face-to-face, for example). The employee interprets that message in a manner more or less in line with the manager’s intention, formulates a response, and on it goes” (K. L. Ashcraft et al., 2009: 4).

As was the case with the metaphors of cognitive epistemology, such as “stocks of knowledge” (Gupta & Govindarajan, 2000) and ”repositories of knowledge” (Davenport et al., 1998), we can see that the commonly used terminology associated with communication supports this transmission-based perspective with everyday examples like “getting my idea through to her” or “sending them some information” (Cheney et al., 2011). Communication becomes something very functional, and

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4 The feedback-loop on the mathematical model of communication was not included in the original model from 1948, but added by Weaver in the 1949-publication.
the evaluative parameter becomes one of efficiency or success — for instance, how effective are teachers in transferring their knowledge to the students in the auditorium (K. L. Ashcraft et al., 2009; Kastberg, 2011b)? Communication is reduced to a conduit for sending and receiving something (Christensen, Firat, & Cornelissen, 2009; Mumby & Stohl, 1996).

Since Lasswell, Shannon, and Weaver, many communication researchers have amended, nuanced, advanced, and modified these two original models without abandoning the logic behind the sequential and linear transmission of messages between senders and receivers. Prominent examples of this include Schramm’s interactive models first appearing in 1954, Gerbner’s 10 aspects of communication from 1956, and Berlo’s Sender-Message-Channel-Receiver-model (SMCR) from 1960. I would argue that the communicative dimension of knowledge transfer theory is a quite recent example of such an adaptation and modification. The definitions of knowledge transfer theory proposed by Lin et al. or by Liyanage et al. included in the introductory remarks of this section certainly display a terminological comparability with transmission-based communication (Lin et al., 2005; Liyanage et al., 2009).

3.2.3. Agency: transferring knowledge products

While the agency of the constructivist perspective on the process of knowledge communication was interactive and participative meaning-making strategically oriented towards mutual understanding, the agency of knowledge transfer theory is quite different. On its most simple level, knowledge transfer theory advocates for the transfer of knowledge between a source of knowledge and a recipient of knowledge. By adapting the orthodox cognitivist perspective on knowledge and the transmission perspective on communication, the agency of knowledge transfer becomes straightforward and uncomplicated. Kumar and Ganesh illustrate the simplicity of such an understanding quite clearly.

![Model 14: Kumar and Ganesh's model of knowledge transfer (2009)]
Here we see a source of knowledge (be it an individual, an organization, or otherwise) transferring knowledge to a corresponding recipient of knowledge via a linear, one-way process of transmission. This is perhaps the most simple and explicit illustration of the epistemological and communicative assumptions underlying knowledge transfer theory. It eliminates any variables deemed unnecessary and focuses on the fundamental process of transmitting a piece of knowledge from a sender to a receiver. A “source” of knowledge (the place where knowledge originates) sends a piece of knowledge via a “transfer process” (represented by a straight, one-way arrow) to a “recipient” of knowledge (illustrated without any action). An active sender gives knowledge to a passive receiver.

One might imagine that researchers of knowledge transfer theory would argue that Kumar and Ganesh’s model is an over-simplified illustration of this perspective. More complex illustrations of the knowledge transfer process aimed at displaying more of the variables of such a perspective, however, the fundamental and underlying assumptions of agency is confirmed. Risku et al., for instance, includes their ‘conventional knowledge transfer model’ and argue that such a perspective is common within the discipline of informational design:

“Common depictions of knowledge communication [as a process] usually involve a knowledge source (A), targeted individuals or groups (C), and – in the case of professional knowledge communication – a mediating party (B) who strives to transfer specific content or information from A to C.” (Risku et al., 2011: 170)

With this model, Risku et al. very directly compare the knowledge transfer process to a process of translation. A source text is mediated with a specific target in mind.

Their process remains a linear, one-way process of transmission including an active sender to a passive receiver regardless of whether it is a transmission of information or knowledge. Another example of a more complex model of knowledge transfer can be found in Foxon’s publication of learning in higher education (1993). She uses her model to illustrate how the risk of transfer failure decreases over time as the process of knowledge transfer continues.
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The model clearly shows that there is a high risk of transfer failure during the earliest knowledge transfer stages of “intention to transfer” and “initiation”, while there is a low risk of transfer failure as the process moves towards “partial transfer” and “conscious maintenance” with “unconscious maintenance” as the optimal transfer of knowledge. Even though the model is a two-dimensional diagram, the linear and one-way logic behind it is still clear.

Despite the varying complexity of knowledge transfer models, the understanding of agency of such processes remains the simple transmission of knowledge from an active sender to a passive receiver. The objective of such a process is full transfer — when the recipient possesses the same piece of knowledge as the receiver does.

3.2.4. Reflection and critique
The loudest voices critical of knowledge transfer theory are often found aligning themselves with epistemologies different to that of orthodox cognitivism (Sigggaard Jensen, Fejfer Olsen, & Mønsted,
2004). Chief examples of such voices could be Barnlund (1970), Kincaid (1979), Tsoukas (1996), or Kastberg (2010). One might argue such critical perspectives are exclusively motivated by their different epistemologies, and with that in mind, one could certainly argue such discussions are more fundamental and ideological than practical and concrete. According to such a perspective, discussing such abstract matters as epistemology would only serve to further polarize already different positions. I will, however, argue the opposite.

Because we are addressing epistemological and even ontological orientations, i.e. the most fundamental building blocks of any theoretical, methodological, and analytical perspective, it becomes crucial to reflect critically on those assumptions. If we are to explore ways in which we communicate knowledge, it becomes pivotal to explicitly discuss such fundamental assumptions so that we may understand them in the first place.

The purpose of this previous section has been to examine and discuss these fundamental assumptions of knowledge transfer theory in order to find out more about the discrepancy between it and knowledge communication theory. The purpose of this concluding subsection is to introduce salient critical perspectives of such assumptions as well as to reflect on knowledge transfer theory in relation to the theoretical framework of this project.

Common to most of the critical perspectives aligned with constructivist ontology is the point of theoretical and epistemological reductionism (Siggaard Jensen et al., 2004). Much like the structure of knowledge transfer theory itself, these perspectives are critical of especially two elements, which they believe are conceptualized and applied in a too simplistic manner: the epistemological and communicative assumptions (Kincaid, 1979). When orthodox cognitivists and subscribers to knowledge transfer theory define knowledge as a tangible and universal product exogenous of its knower, they simplify and reduce knowledge to de-contextualized representations, which exist ‘out there’ in the world. In removing the knower as a variable, this perspective elevates those representations to be objective and factual, while ultimately inferring that the extent of our knowledge is related to how many of the representations in the world we have accessed (Siggaard Jensen et al., 2004). In this way, it ignores mutualism and interaction, discourse and validation. Knowledge exists in a vacuum isolated from, and independent of, its context (Kincaid, 1979). By removing the knower as a variable, knowledge transfer theory further reduces the communication of knowledge to the extent to which one person is able to send his representation to another person. Knowledge is reduced to a thing, and communication is reduced to the neutral tool or vehicle — the conduit or medium along which this thing is transmitted (K. L. Ashcraft et al., 2009). It seems to introduce a distinct physicality to knowledge.

“There is a tendency to treat information as if it could be carried from a source to a receiver like water in a bucket (Diaz-Bordenave, 1972), sand carried across a city in a dumptruck (Berlo, 1969), or a bullet shot from a gun at a target (Schramm, 1973). All of these analogies of the communication process treat information...”
as if it were purely a physical entity which could be moved around like ‘billiard balls’ on a table” (Kincaid, 1979: 4).

Nowhere in this act of transferring knowledge is communication framed as something more than “the capacity to share and inform or conceal and confuse” (K. L. Ashcraft et al., 2009: 4). The process is reduced to two boxes and a straight arrow going from one of them to the other. It assumes causality in the mechanics of transfer: “A sender causes, by means of a message, certain effects in a receiver” (Barnlund, 1970: 49). One-way, transmission-based communication is not about mutuality or interaction, but rather about persuasion, manipulation, transfer, impact — it is about someone doing something to someone else.

The critical perspectives, then, must be said to be quite clear. They argue that knowledge transfer theory simplifies the process of communicating knowledge to the extent where it becomes significantly less accurate. They argue that this perspective reduces knowledge to a universal, tangible, and exogenous product of cognition, that it reduces communicative dynamics to a matter of linear, one-way transmissions, and finally, that it reduces agency to a matter of transferring pieces of knowledge from an active sender to a passive receiver.

I believe it is important to take into account the contexts in which knowledge transfer theory appears and also the goals it strives to achieve. Knowledge transfer theory is fundamentally a theoretical perspective designed to examine the process of communicating knowledge. It has the exact same purpose as the definitions of knowledge communication examined and discussed in the earliest part of this chapter. In this way, Lin et al. want to explore and analyze the exact same phenomena as Kastberg or Eppler do. One significant difference between the two approaches is, however, the audience to which they address their research. Researchers opting for knowledge transfer theory often seek to address various relevant practitioners — typically organizational managers (e.g. Jasimuddin & Zhang, 2008; Singh, 2007). The majority of the research conducted on knowledge transfer theory is published within the frameworks of various management disciplines and particularly that of knowledge management (e.g. Badal, 2013; Gupta & Govindarajan, 2000). Such a context might indicate a preference towards simplicity and reductionism in order to achieve greater structure and applicability. If researchers of the process of knowledge communication were to seek to let their research be applied and have concrete effects, some would deem it unwise or perhaps merely strategically unsound to engage in the type of abstract epistemological discussions that would be unavoidable if one were to engage in knowledge communication theory. If knowledge transfer theory aims at examining and addressing practical challenges and issues often related to management that might justify the kind of simplification and reductionism that we have been discussing throughout this section.
This difference between theoretical approaches to knowledge and communication was labeled by Iverson and McPhee as ‘information-based approaches vs. people-based approaches’ (Iverson & McPhee, 2002). They pinpoint the most salient difference between the two as a matter of focus or object of study – researchers of knowledge transfer theory orient themselves towards independently existing cognitive products or informational artifacts, while researchers of knowledge communication theory tend to study the individual and social dimensions of knowledge and knowers (further supported by Crane, 2013). It is therefore with some confidence that I conclude that knowledge transfer theory and knowledge communication theory operate with significantly different assumptions regarding epistemology, communicative dynamics, and agency in particular. I further believe that knowledge transfer theory, and particularly its simplifying agenda, is one of the scientific discourses that catalyzed knowledge communication theory into existence (Kastberg, 2007). It is, however, highly important to bear the context and objective of knowledge transfer theory in mind when examining it critically. To avoid becoming guilty of making similarly over-simplifying and over-reducing theoretical frameworks, I must address these concerns directly, while remaining loyal to my initial objective of both deconstructing and reconstructing the theoretical elements of such a framework. Because the ultimate purpose of this theoretical discussion is similar to that of knowledge transfer — to appreciate processes of communicating knowledge — I must strive to achieve this purpose without becoming guilty of any of its transgressions. The discussion must retain a sufficient degree of complexity and nuance, like it must retain a strong focus on both knowledge and communication.

3.3. Towards a constructivist approach to knowledge communication
The function of this section is to provide an insight into my theoretical perspective as well as the epistemological and communicative assumptions underlying it. By critically examining the various theories which comprise parts of my theoretical framework, I will discuss my way towards a conceptual synthesis.

In order to define the perspective of this project on knowledge communication research, I take my cue from the salient definitions previously introduced and discussed. The point of departure for all of these is an alignment towards a specific epistemology and for many that epistemology follows constructivism. Situated among the philosophies of science, such an alignment is often said to have been made popular in contemporary epistemological research by Michael Polanyi and later Haridimos Tsoukas (see e.g. Polanyi, 1962; Tsoukas, 1996). Tsoukas and Polanyi have not situated themselves as researchers within the discipline of knowledge communication, but rather among the researchers of the concepts and the process of communicating knowledge. Tsoukas is a researcher of organizational studies whereas Polanyi became a researcher of philosophy and social studies after his
work with chemistry, so their points of entry into the study of knowledge communication have been completely different even though the object of their focus has been more or less the same. Furthermore, while Polanyi published most of his work on constructivist approaches to knowledge in the 1960s and early 1970s, Tsoukas’ pivotal works came 20 to 30 years later. The argument that these two researchers popularized the constructivist epistemology therefore seems much more aligned with Kastberg’s disciplinary chronology than Eppler’s. As Kastberg states that it is more important to focus on the emergence and the developments of particular theoretical strands than it is to focus on certain years and events, his perspective would make it possible to see Polanyi and Tsoukas as belonging to the development of the same theoretical strand despite being separated by 20 or 30 years. Of course, this is merely a perspective and a certain way of appreciating developments of scientific discourse, and it is important to note that researchers within the discipline of knowledge communication are by no means the only ones to mention especially Polanyi as a pivotal figure. I have certainly found that most researchers of knowledge transfer theory as well as even researchers merely adapting its conventional cognitive and transmission-based approach will also typically cite Polanyi as a founding father or a central figure of their research. Singh, for instance, quotes Polanyi to emphasize his argument that the tacit property of knowledge makes it somewhat more challenging to transfer across national boundaries (Singh, 2007), while Khamseh and Jolly argue that importance of codification processes was a central point in Polanyi’s work (Khamseh & Jolly, 2008).

While the following section on my own constructivist approach to knowledge communication will show a very different understanding of Polanyi’s work, the fact that he, Tsoukas, and many other central epistemological researchers are currently being aligned with very different epistemological perspectives, makes it important to emphasize the need for clarity and transparency when pursuing a line of argumentation starting with such an ambiguous alignment.

Following this observation, the structure of the section will therefore not adhere to any particular chronological order, but rather to a structure of concepts or themes following Kastberg’s focus on developing, converging, diverging, and dynamic theoretical strands. Like most other approaches to knowledge communication research, it is oriented towards the two specific concepts of epistemology and communication. As mentioned previously, knowledge communication is inherently about the intersection between knowledge and communication, which means that my own conceptual division between the two is purely an analytical and an argumentative one meant to ultimately inform and facilitate a more fundamental discussion of this critical intersection. Furthermore, the section will probably be the first clear demonstration of the pragmatist alignment that characterizes the whole research project. As outlined in the introductory remarks on research design (section 1.4.), pragmatism aims at empowering our questions, problems, and challenges so that they may drive our research and determine our theoretical choices. It is in this spirit and on the basis of this research
design that the following conceptual discussion could be seen as encompassing an almost shameless
eclecticism of different theories.

Despite the fact that my review of knowledge communication research showed that almost all
explicit definitions of knowledge communication take a constructivist epistemology as their outset,
it would be wrong and certainly naïve to assume that the constructivist epistemology is in itself a
perspective somehow exclusive to knowledge communication research. For that reason, the
following discussion will include theories and researchers all focused on either the concept of
knowledge or communication, but in no way limiting those explicitly aligning themselves to the
discipline of knowledge communication. In fact, the most fundamental as well as most recent
research using a constructivist epistemology and on communication theory takes place adjacent to
the discipline perhaps because the discipline is so young. From an orthodox perspective on the
discussion of theoretical frameworks, such a pragmatic and thematic approach would probably be
seen as highly eclectic if not somewhat makeshift. I will, however, argue — once again referring to
the overall research design of the project as well as to Kastberg’s conceptual focus — that a problem-
driven research project must not restrict itself because of orthodox scientific discourse. That is the
reason for the pragmatist approach, and that is the reason for the structure of this theoretical
framework on the constructivist approach to knowledge communication.

Epistemology is the theory of knowledge and typically a concept associated with either philosophy
or psychology (Brown & Duguid, 2000). While this means that it has been a subject of extensive
study, it also means that knowledge was typically considered to be part of such more abstract
contexts. In the context of knowledge communication research, epistemological discussions and
reflections generate significant and fundamental assumptions regarding for instance the mechanics,
agency, and dynamic of the process of communicating knowledge. An epistemological discussion, or
at least an epistemological reflection or positioning, is essential to any theoretical framework or
analytical perspective within the discipline, and this research project is certainly no exception to that.

In order to make the following discussion as structured and as clear as possible, I am going to
approach two different dimensions of epistemology — knowledge as personal and knowledge as
social. I will explore and discuss each dimension based on a number of defining properties and
characteristics which gradually expand my epistemological perspective as the discussion moves
forward.

3.3.1. Epistemology 1: knowledge as personal, ineffable, and constructed

3.3.1.1. Knowledge creation and tripartition

I take my cue from Polanyi — regarded by many to be one of the most important founding fathers
of modern epistemological constructivism (e.g. D’Eredita & Barreto, 2006; Jasimuddin & Zhang,
The most fundamental and perhaps also most significant epistemological postulate of Polanyi is that all knowledge is personal (Polanyi, 1962). As researchers, we may appreciate knowledge in any context we desire, as Polanyi himself does, but it must always be with the fundamental assumption that all knowledge is personal, and that knowledge and its knower are completely interdependent (Polanyi, 1969b). He argues that individuals create knowledge as they appreciate the world around them. We appreciate by using our senses, and consequently, we create knowledge by making sense of our impressions. As knowers, we can only appreciate the world around us through our senses, and as knowers, we thus create our knowledge by experiencing impressions and perceptions. Such experienced sense impressions are ultimately internalized (Polanyi, 1969a, 1969b). Von Krogh specifies: “Because knowledge resides in our bodies and is closely tied to our senses and previous experience, we will come to create the world in ways that are unique to ourselves. Thus knowledge is not universal” (1998: 34). Digging deeper into the assumptions behind Polanyi’s perspective on the construction of personal knowledge, we see that sense impressions are seen as being somehow different from knowledge as the two are treated as separate entities. We perceive the world around us through our physical sense apparatus, we make sense cognitively of these perceptions, and finally construct cognitive concepts through the internalization of such impressions and perceptions (Kastberg, 2011a). This analytical deconstruction and categorization of knowledge construction — impressions, perceptions, and concepts — can be found throughout constructivist epistemological discussion (Borgatti & Cross, 2003; Brown & Duguid, 2000; Connell, Klein, & Powell, 2003; Engberg, 2010; Tsoukas, 2002), but perhaps nowhere as clear as with Davenport and Prusak (1998), Bell (1999), Choo (2003), or Kastberg (2007). According to these researchers, knowledge construction is a process oriented towards these three distinct dimensions of knowledge — a ‘tripartition’ of the knowledge construction, if you will. They argue that epistemological discussions would benefit from a perspective in which knowledge construction is seen as involving 1) data, 2) information, and 3) knowledge. Even though such labels appear distinctive from the terminology of sense impressions, perceptions, and concepts introduced above, they signify most of the same understanding while helping to clarify what is otherwise a highly abstract conceptual discussion. In that way, the tripartition of knowledge construction is an analytical or rhetorical tool, which exists to structure the way in which we understand that process. It also helps us to distinguish what is knowledge and what is not knowledge.

Data are argued to be the mere phenomena that we register with our senses or a certain sequence of items or events (e.g. the title of a book). It is the most immediate form of impression available to us as individuals. Information is the context-oriented sense making of data in which relations and comparisons to other data are vital (e.g. the reader infers that the title of the book is indeed a title and probably descriptive in some sense). Data become information to individuals, as we see patterns
and associate meaning with it. Knowledge is created when information is evaluated, judged significant, and ultimately subjected to internalization (e.g., the reader may induce meaning based on previous experiences with similar books or titles like the reader also knows how to accomplish tasks with this knowledge of the book and its title). In other words, knowledge is created when we decide — consciously or subconsciously — to learn from information. In one of his publications, Kastberg explains this tripartition:

“Data would be the phenomena which we register with our senses (sense impressions); information would be phenomena which we relate to other phenomena (perceptions); whereas knowledge would be phenomena with we integrate and evaluate — one way of the other (concepts).” (Kastberg, 2011a: 142)

Structuring the knowledge construction process according to data, information, and knowledge is inherently to place the way in which we appreciate and make sense of the phenomena that we experience on a continuum that reflects our involvement in such an appreciation and sense making process (Richtnér, Åhlström, & Goffin, 2013; Weick, 1999). In this perspective, sensing requires less cognitive involvement than constructing knowledge does. Even though one may criticize this for being an over-simplification of the knowledge constructing interactions between individuals and their surroundings, it does introduce a terminology which enables a deconstruction of the knowledge construction process and a focus on the most relevant of the three concepts or elements.

Expanding the discussion of this relationship between data, information, and knowledge, John Seely Brown and Paul Duguid published “The Social Life of Information” in 2000 to address the consequences of such a distinction in the context of information technology research and practice (Brown & Duguid, 2000). I find their discussion particularly important to mention, since it is one that addresses an important dimension within the epistemological discussion of constructivism — a discussion of how management researchers and practitioners in particular have changed the way they talk about knowledge as a direct consequence of this tripartite perspective of knowledge construction. They argue that, until quite recently, knowledge had been a concept almost exclusively used by the disciplines of philosophy and psychology whereas information had been more commonly associated with the social sciences, business studies, and management research in general. Of the two concepts, information has traditionally been considered to be the more tangible and approachable (Brown & Duguid, 2000).

When making the distinction between knowledge and information has become as important as they claim it has, it is primarily because of a range of practical consequences to very specific and tangible elements of everyday business life, like process design, project model templates, or process management. They argue that management researchers and practitioners in particular can no longer afford to make inaccurate distinctions between information and knowledge, since such a distinction
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is crucial to the success of everyday business initiatives. Standard work produces written on business policy documents are, for instance, not the equivalent to ‘capturing the knowledge’ of the worker having developed those procedures. Brown and Duguid’s discussion of the relationship between data, information, and knowledge adheres to the same fundamental understanding of these three concepts as Davenport and Prusak (1998), Bell (1999), Choo (2003), or Kastberg (2007) do. I emphasize their work, because of its thorough walkthrough of salient epistemological changes in management studies and highlight the consequences of those changes. They are, however, not the only researchers focused on epistemological discussions to argue for the importance of an understanding of knowledge construction as tripartite. Only a few years later, Wenger, McDermott, and Snyder published their “Cultivating Communities of Practice” in which they build their argumentation on this very same understanding (2002). While both books will continue to contribute to the discussion of this chapter, it is important to emphasize their focus on what is essentially a very important distinction to make — that it is important to differentiate between data, information, and knowledge in order to appreciate the way in which individuals construct their personal knowledge by making sense of the world around them and by the process of internalization.

3.3.1.2. The unarticulated, ineffable, and tacit

If we accept that all knowledge is personal, and that the construction of knowledge can be appreciated as a dynamic continuum following the concepts of data, information, and knowledge, we can move on to another of Polanyi’s fundamental, epistemological postulates — that all knowledge will always have a tacit dimension (Polanyi, 1966).

The process of internalization assumes something which knowers can internalize information into. It is important to emphasize that this observation does not mean that people take something that exists outside of them and put it inside of them. Instead, it refers to the abstract process of constructing knowledge by internalizing information generated from data. Constructivist epistemology would make it inconsistent to describe this something with the more conventional descriptors previously listed in the discussion of knowledge transfer theory, like “stocks of knowledge” (Günthner & Luckmann, 2000) or ”repositories of knowledge” (Davenport et al., 1998), which makes finding an alternative necessary. Whereas Polanyi merely spoke of ‘conscience’ and ‘mind’ without becoming more specific, Tsoukas introduced a new term to cover what he thought Polanyi’s theory was aiming for: ‘the unarticulated background’. Tsoukas specifies:

“All articulated knowledge is based on an unarticulated background, a set of subsidiary particulars which are tacitly integrated by individuals. Those particulars reside in the social practices, our forms of life, into which we happen to participate. [...] An utterance is possible only by the speaker’s indwelling in a tacitly accepted background” (Tsoukas, 1996: 18)
It is important to bear in mind that the logic as well as the assumptions behind the concept of the unarticulated background match that of Nag and Goia’s cognitive structures or frameworks of tacit knowledge (2012) as well as Engberg’s knowledge systems or cognitive frameworks (2010). We can therefore see that whereas the label of the unarticulated background might be unique to Tsoukas, the concept of the abstract cognitive space of knowledge is far less unique. With this definition of the unarticulated background as the space (in the most abstract sense of the word) for personal knowledge, he claims that all knowledge has an unarticulated property. In her study of Nobel Prize winners and the very difficult task of mediating their scientific knowledge in the televised acceptance speech, Manerko’s research supports the ever-present tacit property of knowledge that Polanyi and Tsoukas are arguing. She claims that individuals do not know in words, but rather in abstractions (Manerko, 2012). In this way, our knowledge cannot be compared to a database of memorized words, since this would make communicating knowledge an effortless task. Knowledge becomes something other than simply ‘stored data’ already codified in language as orthodox cognitivism would argue. Apart from everything else it may be, knowledge always has an unarticulated and tacit dimension. One of the most famous stories illustrating the tacit property of knowledge comes from Polanyi himself and revolves around riding a bicycle. He explains the relationship between balance and movement in the following way:

“For a given angle of unbalance, the curvature of each winding is inversely proportional to the square of the speed at which the cyclist is proceeding. [...] If the cyclist starts falling to the right, he turns the handlebars to the right. This results in a centrifugal force pulling the cycle to the left.” (Polanyi, 1966: 50).

The point of his story is the argument that even though we may put into words how movement affects balance while riding a bicycle, it does not help to actually ride the bicycle. To learn, we have to actually do it, and by learning how do it, we construct more knowledge about riding a bicycle than we can put into words. As we learn, we create the tacitness of knowledge.

This property, tacitness, is a widely recognized one in the discipline of knowledge communication (e.g. Kastberg 2011; Eppler 2007; Jacobsen 2012). As a highly complex and abstract concept, however, it is no surprise that there are different ways of understanding what ‘tacit’ really means. While Polanyi and Tsoukas claim that all knowledge dwells in the unarticulated and tacit background of individuals, researchers like Nonaka and Jasimuddin would argue that tacit knowledge merely means knowledge that is more difficult to access, that it is merely problematic to write down, or that it has not simply not yet been articulated (Ambrosini & Bowman, 2001; Jasimuddin & Zhang, 2008; Nonaka & von Krogh, 2009). To these researchers, tacit knowledge exists at one end on a continuum with explicit knowledge existing at the other thereby arguing that tacit is merely tacit until it is made explicit.
In countering this claim, Polanyi, Tsoukas, Manerko, and many other researchers argue that the internalization process through which we construct knowledge from the information of data is not somehow a process of indexing words or cataloguing instructions, but rather a process of imbedding experiences, feelings, and impressions into a personal background where these experiences, feelings, and impressions exist in an unarticulated and tacit state. Polanyi famously wrote: “We know more than we can tell”, and with this he argued that our knowledge and our language are different things (Polanyi, 1966). We communicate with language, we appreciate the world through the system of meaning that language creates, we share experiences and knowledge through language, but we do not use letters and punctuations to somehow ‘store’ our knowledge (Manerko, 2012). Tsoukas writes:

“Tacit knowledge consists of a set of particulars of which we are subsidiarily aware as we focus on something else. [...] Tacit knowledge cannot be ‘captured’, ‘translated’, or ‘converted’, but only displayed, manifested, in what we do. New knowledge comes about not when the tacit knowledge becomes explicit, but when our skilled performance – our praxis – is punctuated in new ways through social interaction.” (Tsoukas, 2002: 15)

The difference between these two approaches to Polanyi’s argument on the tacit properties of knowledge may seem difficult to separate and perhaps even insignificant, but on further inspection, it has some very tangible analytical consequences and practical implications. If tacit knowledge is understood as not-yet-articulated knowledge or difficult-to-articulate knowledge, models for communicating knowledge between people or between groups of people would focus on processes of externalization and explicitation. It would be a matter of converting tacit knowledge into explicit knowledge. A matter of getting knowledge out of the knowers and onto pieces of paper or inside databases.

Nonaka’s SECI-model from 1994 is a well-known conceptualization of this understanding. It introduces different cycles of converting knowledge and illustrates how such knowledge conversion requires different processes to match the properties of existing and future knowledge. Converting tacit knowledge to explicit knowledge would, for instance, require a process of externalization, while converting explicit knowledge to tacit knowledge would require a process of internalization. It is important to bear in mind that the SECI-model is now 20 years old and that Nonaka himself has argued against the simplicity and dualistic approach to knowledge that made it possible (Nonaka & Takeuchi, 2011). By introducing the notion of the tacit-explicit continuum rather than the tacit-explicit duality seen in the SECI-model, Nonaka has later softened his knowledge conversation theory significantly, even though he still seems to advocate for the same four processes for converting knowledge.
While the SECI-model has been subject to some criticism, it contributed to understanding knowledge as a complex entity. Nonaka and Takeuchi argued against any notion of simply transferring knowledge products between people, and instead introduced a more complex and interaction-based approach. It remained inherent to their model, however, that tacit knowledge could be subjected to a certain process in order to make it explicit. In this way, it almost became a matter of developing photographs — a difficult, but doable process.

Moving from this perspective on tacit knowledge assumed by for instance Nonaka and Jasimuddin, it becomes interesting to explore the consequences of assuming the perspective of Tsoukas and Manerko for a moment. In the article “Do We Really Understand Tacit Knowledge?” from 2002, Tsoukas argues for this different perspective (Tsoukas, 2002). Taking Polanyi’s original statement “We know more than we can tell” quite literally, Tsoukas approaches knowledge as inherently tacit, which means that knowledge will only qualify as knowledge when it has a tacit dimension — what Tsoukas also refers to as subsidiary particulars. There is no such thing as exclusively explicit knowledge, which means that Tsoukas does not recognize the existence of knowledge without knowers. As such, knowledge cannot be ‘disembodied’, as it were. Processes of externalization and explicitation would therefore change from being about capturing knowledge on paper to being communication on the basis of knowledge — communication using words, gestures, sounds, as well
as many other elements all enabling understanding and sense-making, which may in turn be used to construct knowledge.

Even though Tsoukas does not follow this line of argumentation of knowledge as ultimately tacit to its most radical end, doing so would certainly mean an approximation of solipsism. If we are all individuals appreciating the world through our unique senses and in our unique contexts with our unique perspectives, we ultimately create knowledge that is unique to every one of us. If that knowledge is inherently unarticulated and tacit, we would never really be able to share knowledge with one another by communicating. As such, we would be isolated islands of unique experiences. This ‘postmodern paralysis’ is certainly a danger looming at the most radical end of this perspective on knowledge communication, but it is not a part of the constructivist approach of this theoretical framework nor was it on the agendas of any of the researchers included in this discussion. From their focus on the social dynamics of personal knowledge, there seems to be some indication of the fact that they were aware of this risk of solipsism. Tsoukas’ reluctance to continue along the trajectory of his theoretical argument makes it clear to see that social interaction plays a pivotal role in knowledge construction processes. These researchers argue that even though all knowledge is personal knowledge, and even though knowledge is ‘ineffable and forever tacit’, there is a social aspect to knowledge that is invariably connected to the individuality and the personalization of knowledge (D’Eredita & Barreto, 2006). This argument is perhaps one of the reasons why Polanyi and Tsoukas have become so prominent exponents for the constructivist epistemology within the knowledge communication discipline.

The social aspect of the constructivist epistemology could be situated somewhere in the space between the ‘knowledge’ and the ‘communication’ of the discipline of knowledge communication. However, because it is integral to the epistemological perspectives of Polanyi and Tsoukas, I will examine the social aspect of knowledge communication with an analytical separation in mind. Firstly, I will look at something which may be labeled ‘the social dynamic of personal knowledge’, and secondly, I will look at that which may be labeled ‘the dynamics of communicating knowledge’. While the first is oriented towards the interplay between the individual and social aspects of knowledge, the second is oriented towards the process of communication. Such a distinction can rarely be found to be quite as clear-cut in knowledge communication publications, and for good reason, as it is a purely rhetorical construct for argumentative reasons. Drawing a line between what is knowledge and what is communication is rarely as simple as that. I will argue, however, that it may help to situate several of the otherwise heterogeneous theories of knowledge communication used in this framework in a way so as to optimize coherence and synergy.
3.3.2. Epistemology 2: the social dynamics of personal knowledge
Even though it would perhaps be more intuitive to begin this part of the chapter focused on the social dynamics of personal knowledge with a direct continuation of either Polanyi or Tsoukas’ epistemological arguments, I want to begin somewhere else. While such a jump may seem somewhat disruptive at this point, it is in fact to avoid skipping steps in my argumentation — I want to pick up the epistemological discussion with the question: bearing in mind that we can clearly observe that people all around us are in fact communicating on the basis of what they know, whether such observations take place in everyday life or in the workplace, why do they do so and how does this social dynamic affect the constructivist epistemology? With the principle of theoretical eclecticism and pragmatism as the guiding light, the point of departure for answering that question will be a theory specifically oriented towards finding the fundamental catalyst for all instances of knowledge communication: knowledge asymmetry theory, which has only recently been amended to apply explicitly to knowledge communication research (Jacobsen, 2012; Kastberg, 2011a). To make the transition from the previous sections on the epistemological properties of personal knowledge even more effortless, knowledge asymmetry theory builds on the very same epistemological properties — particularly personalization, ineffability, and the tripartite understanding of knowledge construction. As a final primer, I will argue that this theory is one that may serve as an optimal catalyst for appreciating the way in which the uniquely constructed knowledge of individuals is invariably tied to social dynamics and how these two sides of knowledge are perhaps not as separate as they may seem from an analytical distance.

3.3.2.1. Catalyzing communication: knowledge asymmetries
From a highly critical standpoint, knowledge asymmetry theory could be seen as little more than a natural extension of the very basic assumptions already underlying constructivist epistemology, i.e. the assumption that knowledge is unique to its knower. A logical extension of that assumption is that the knowledge of one knower will always be different from that of another. As individuals, we may experience the same object or event, we may sense the same data, but because our senses are unique to each of us, and because our unarticulated backgrounds created over our lifetimes are also unique to each of us, the knowledge created from encountering those objects or events will be different for each of us. We make sense of our worlds differently. Looking at the same painting in an art gallery will, for instance, not generate the same impressions or perceptions regardless of who is looking. Some spectators may have quite extensive knowledge of the artist, some may have an academic background in fine arts, some may be red-green colorblind without knowing it, some might have been brought up in a home with a general dislike of fine art, and some may just not be a big fan of a particular color. Because the knowledge of our unarticulated backgrounds is constructed throughout our lives, it becomes impossible to account for all the variables that make it up. Sure, it would
definitely make sense to speak of certain degrees of proximity, comparability, and similarity regarding the knowledge creation process of different individuals. The spectators in the art gallery are, for instance, looking at the same painting in the same place and maybe even at the same time. Some of them may have similar experiences with art, just like more than one of them may be red-green colorblind. The important observation is, however, that knowledge created from impressions and perceptions are never completely identical. The knowledge created by different people may be highly comparable, but will never be identical, because at the end of the day, it is still constructed by different individuals. Two project managers having worked side by side in the same company for 20 years will still get different impressions from a certain briefing memo. Even though their shared history and close personal connection mean that their perceptions and reactions to the memo in question will probably be highly comparable, they will never be identical, because they are different people. This inherent difference between what people know is referred to as a ‘knowledge asymmetry’. It is defined as:

“[...] a relation, which is produced in communication. The discursive construction of knowledge asymmetry is observable via perturbations. Knowledge asymmetry becomes communicatively salient where a single-plane distinction is observed between the knowledges of the ‘alter’ and the ‘ego’. The distinction is one which allows one or more positions to appreciate the knowledges of ‘alter’ and ‘ego’ as being non-identical under the same sortal.” (Kastberg, 2011a: 145)

With this definition, Kastberg does two things: firstly, he emphasizes knowledge asymmetry theory as relevant to the discipline of knowledge communication, and secondly, while doing so, he distances the definition from being used to describe what he refers to as a conventional “metaphor to designate an unwanted aspect of human interaction” (Kastberg, 2011a). In other words, he argues that the word ‘asymmetry’ is not inherently destructive, negative, or unwanted, but while doing so, he indicates that such associations are traditionally connected to the word. Before Kastberg and Jacobsen’s recent work with knowledge asymmetries, the concept had typically been used to describe the differences of knowledge between those, who knew something, and those who did not know that something — between those ‘with’ knowledge and those ‘without’ knowledge (Jacobsen, 2012; Kastberg, 2011a). The asymmetry in such a relation was specified as the difference or imbalance regarding the ‘amount’ of knowledge of one individual and the lack of knowledge of another. Typically focusing on different constellations of ‘experts’ and ‘non-experts’ or ‘lay people’, like ‘expert-lay’ or ‘expert-expert’, researchers within scientific disciplines focusing on knowledge or adjacent concepts like expertise and learning, have seen knowledge asymmetries related to a relationship characterized by concepts like power, authority, discourse, leadership, etc. Jacobsen provides an excellent and brief overview of some of these different constellations:
“The concept of knowledge asymmetries has been used to denote a definite and precise recognition of the knowledge difference that a priori exist between ‘experts’ and ‘laymen’ (Parsons, 1975); or between ‘experts’ and ‘novices’ where expert knowledge ‘distinguishes outstanding individuals in a domain from less outstanding individuals in that domain, as well as from people in general’ (Ericsson and Smith, 1991: 2). Similarly, the concept of knowledge asymmetries is used to recognize ‘domain experts’ from ‘decision makers’ (Eppler 2004, Kampf and Longo 2009); or in the recognition of differences between ‘expert’ and ‘other experts’ located in fields with different scientific, organizational and political agendas (Alrøe and Noe, 2011).” (Jacobsen, 2012: 3)

Inherent to most of these constellations is a notion of hegemony and the process of appreciating and consequently categorizing people as either ‘with knowledge’ or ‘without knowledge’ through an act of interpellation. Furthermore, conventional research on knowledge asymmetries also tends to see this difference as unintentional or destructive – as generating gaps that need to be filled if one wants to avoid misunderstandings (Eppler, 2007). Students ‘lack’ the knowledge of their professors just like patients ‘lack’ the knowledge of their doctors. This perspective attributes such qualities as ‘lacks’, ‘wants’, and ‘deficits’ to the knowledge asymmetry concept while dividing people into the ‘haves’ and the ‘have nots’ (Jacobsen, 2012; Kastberg, 2011a). Conventional knowledge asymmetry theory is thus aligned with traditional gap models of communication in that assumes an event of knowledge communication wherein one party has the relevant knowledge and where another party does not have it (Kastberg, 2011a). This perspective has particularly been quite dominant within research of the public understanding of science movement (PUS) where the emergence of knowledge deficits models was meant to illustrate a situation where the scientists or experts of a society had a surplus of scientific knowledge that needed to be pushed onto a public of ignorant lay people (Bucchi, 2008; Einsiedel, 2008). There seems to be a certain epistemological assumption to such conventional appreciation of knowledge asymmetry theory that links it to knowledge transfer theory and to orthodox cognitivism. The degree of successful transfer is often illustrated by estimating the extent of asymmetry between source and target – between senders and receivers of knowledge (Sun, 2009). This means that knowledge asymmetry would not be perceived as an ever-present relation inherent to all instances of knowledge communication, as Kastberg argues in his definition, but rather that it would function as an evaluation of an interpersonal relationship. When one ‘has’ knowledge and another ‘lacks’ knowledge, there is an asymmetrical relationship. Like it was the case with the epistemology of knowledge transfer theory, there almost seems to be a physicality to knowledge as a concept in this context. It personally reminds me of a seesaw on a playground where one child is heavier than the other. It is clear that when Kastberg and Jacobsen criticize such conventional hegemonic and functionalist approaches to the concept of knowledge asymmetry, they base their criticism on its underlying epistemology which conflicts with their own constructivist approaches.
Jacobsen (2012) and Kastberg (2011a) are, however, beginning to question the assumption of inherent hegemony when examining knowledge asymmetries. According to their new perspective, knowledge asymmetries are always present between individuals, since knowledge is personal and unique to its knower. In his meticulous analysis of the theoretical assumptions of knowledge asymmetry theory, Kastberg examines the term from three different perspectives: 1) from the point of view of basic assumptions of asymmetry, 2) from the point of view of basic assumptions of knowledge, and 3) from the point of view of basic assumptions of communication (2011a). He argues that ‘asymmetry’ is a relation rather than an evaluation. Asymmetry is thereby moved from being about the ones with knowledge and the ones without knowledge, to being about how the knowledges of individuals relate to one another in their ever-present differences inherent in the constructivist epistemology. He specifies this point by stating that one may speak of ‘asymmetry’ rather than more general ‘difference’ when this relation of knowledge exists under the same sortal. A relation where two people know different things is not necessarily an asymmetrical one. Such a perspective would include every possible relation and would therefore not be able to tell us anything. The difference of knowledge must be within the same relevant sortal in order to reach the connection, relation, and interdependency necessary for one to characterize this difference as being asymmetrical. Kastberg and Jacobsen both go on to argue that the existence and appreciation of knowledge asymmetries are in fact the catalysts for any knowledge communicative event to take place. The primary reason for engaging other people in knowledge communicative events is the assumption that we know different things and that what we know could be relevant, interesting, motivating, encouraging, engaging, or simply amusing to someone else. If we knew the exact the same things, there would be no reason for communicating what we know. Because we perceive knowledge asymmetries when communicating with other, we are motivated to communicate.

Even though it certainly must be characterized as a nuancing amendment to conventional appreciations of knowledge asymmetries and even though the main argument of their perspective introduces a whole new mechanic to knowledge communication, I believe Kastberg and Jacobsen approximate almost paralyzing levels of abstraction in their more general argumentations. If we accept that knowledge asymmetry is merely a relation in which people know different things within the same sortal while not specifying knowledge asymmetries any further, we risk moving closer to a term that becomes too general to use analytically. In instances of knowledge communication research, the knowledge of the people in question will almost always be within the same sortal — after all, it is very rare for two individuals to talk about two completely different and unrelated things at the same time in the same conversation. Even though Kastberg himself seems recognize this risk of paralysis, knowledge asymmetry almost becomes equal to ‘difference of knowledge’, which would simply make knowledge asymmetries integral to a constructivist epistemology and not specifically worth addressing. Whereas I believe that one may rightfully criticize Kastberg and Jacobsen for
approximating such a level of paralyzing abstraction, I will argue that their nuancing of knowledge asymmetry theory is nonetheless valuable. This is particularly the case with two specific observations emerging from their research: 1) knowledge asymmetries should not be associated with ‘those with’ and ‘those without’ knowledge as in the epistemological assumptions and terminologies of orthodox cognitivism — it is not a matter of wants, lacks, deficits, or gaps needing to be filled — and 2) the perception and appreciation of knowledge asymmetries are the fundamental mechanic that drives us as individuals and as knowers to communicate knowledge with each other.

At this point in the epistemological discussion, it seems necessary for further discussion to recap the salient points of the previous sections. The point of departure of this epistemological discussion was the fundamental assumption that all knowledge is personal. This brought us to the realization that we as individuals know different things. Knowledge asymmetry theory has now moved this realization one step further. The appreciation that we know different things relevant to each other catalyzes us to communicate with each other on the basis of what we know. The way in which we perceive this difference affects the way in which we take it into account when we communicate. In other words, our approach to communicating with each other on the basis of what we know is a direct product of our ability to appreciate the knowledge asymmetries between us.

Apart from this very fundamental epistemological assumption, which lies at the heart of knowledge asymmetry theory — that we as individuals know different things — there is an assumption that is perhaps even more fundamental to the dynamics of knowledge communication. The assumption that we as individuals do not exist as isolated islands of uniquely constructed knowledge, but that we instead exist among each other. There is always a ‘self’ and an ‘other’. If knowledge asymmetry theory provides us with the fundamental mechanic that drives us to communicate knowledge with each other, it seems to be an appropriate point in this discussion to further examine the relation between the personal dimension of knowledge, which has been at the core of the constructivist perspective until this point, and the social dimension of knowledge that seems to have been introduced by knowledge asymmetry theory.

3.3.2.2. Engaging the ‘other’: individual and social knowledge

By introducing an important social dimension to its perspective, the constructivist approach to the concept of knowledge communication becomes more complex, and also more abstract. Inherent to the epistemological approaches by Tsoukas and Polanyi, and in particular to the knowledge communication approaches by Kastberg and Jacobsen, are notions of ‘self’ and ‘other’, even though these may appear under different labels like ‘communicators’, ‘agents’, ‘partners’, or similar. The observation that there is always a ‘self’ and an ‘other’ originates from the immediate assumption that whenever we communicate, there simply must be more than one communicator. This even
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applies if there is only one person in a given situation even though that may seem somewhat contradictory. In a communicative scenario with only one person, constructivist knowledge communication theory assumes, in its most abstract sense, that the person in question ‘communicates’ with his or her surroundings. In this sense, ‘communication’ could perhaps seem to be a less appropriate term to use than ‘interaction’, since ‘communication’ often connotes ‘interpersonal communication’ rather than ‘communication’ in the broadest sense. Despite the choice of term, the logic behind the process remains the same. There is always more than one in such an interactive relationship even though this may be an imagined or abstract ‘other’. While this may seem to push the term ‘communication’ to its limit, it is in fact true to its most fundamental meaning of meaning-making interaction. A person could in this way ‘communicate’ with what he or she sees or hears, with a book he or she reads, or certainly with another person. Based on that most immediate assumption, we can say that all knowledge communicative actions or events require the presence of a ‘self’ and an ‘other’. Furthermore, since I use knowledge communication theory to analyze interpersonal communication, it would be safe to say that in the context of this research project, knowledge communication would often assume both ‘self’ and ‘other’ to be humans.

The reason for introducing these notions of ‘self’ and ‘other’ into this more abstract social dimension to this discussion of constructivist epistemology is, simply, that I want to expand the discussion and take it to the next level. Constructivist epistemology is certainly unique in its focus on the personal properties of the knower, but it is equally focused on the social dynamics in which the knower engages the ‘other’. Even though this section will discuss these concepts in somewhat abstract terms, the purpose of it is very concrete. I basically want to examine more closely what goes on when one person communicates with another about what he or she knows. While the concept of knowledge asymmetries introduced the catalyzing mechanic for communicating knowledge, this epistemological discussion is still in the dark concerning how the social dynamic of communication ultimately affects the knower and the knowledge of the knower. Can we, for instance, argue that the personal dimension of knowledge exists and functions independently of the social? Do the two dimensions exist in an adjacent relationship, or are they somehow interdependent? Does the social dimension of constructivist epistemology directly or indirectly affect the personal dimension? There are many questions that would be left unanswered if we were to end the discussion at this point, and so the purpose of this final section in the epistemological discussion is to clarify the dynamics of such a social dimension by looking more closely at the concepts of ‘self’ and ‘other’ in the process of communicating knowledge.

The point of departure for this exploration into the social dynamics of personal knowledge will be Tsoukas’ concept of the unarticulated background that was also part of the discussion on the tacit properties of personal knowledge. I have chosen to once again take my cue from the concept of the
unarticulated background, since it introduces and frames the fundamental relationship between the personal and the social in quite an eloquent manner. Tsoukas frames it as such:

“First, all articulated knowledge is based on an unarticulated background, a set of subsidiary particulars which are tacitly integrated by individuals. Those particulars reside in the social practices, our forms of life, into which we happen to participate. Before we are cognizing subjects we are Daseins (beings-in-the-world). An utterance is possible only by the speaker’s dwelling in a tacitly accepted background. Secondly, a practitioner’s ability to follow rules is grounded on an unarticulated background. Hence the rules an observer is able to postulate in a practice (rules-as-represented) are different from the rules actually operating in the activities of the agents (rules-as-guides-in-practice). And thirdly, the unarticulated background in background understanding that socialization imparts to us is not only cognitive but also embodied; we acquire particular skills through training our bodies to relate in certain ways to the world which we dwell is known by us through our having been socialized into it by others.” (Tsoukas, 1996: 17)

According to Tsoukas, all knowledge is constructed on the basis of sets of social rules that we all acquire continuously through social interaction. It is the rules and regulations that enable us to immediately make sense of data (sense impressions) and to situate what we perceive within a context that enables us to learn from it. Such rules are tacitly integrated, and we may therefore not be able to explicitly account for them or indeed establish a complete overview of them if we were asked to do so. They are simply the rules, regulations, and structures of social interaction that we as individuals have experienced throughout our lifetimes, and they in turn become the rules, regulations, and structures that we come to expect from current and future social interactions. More specifically, they emerge as we engage with different social contexts — an carpenter may, for instance, share a unique vocabulary with his/her close colleagues, they may share a tacit understanding of what qualifies as particularly good wood-work, they may have an ineffable way of initiating apprentices in their workplace, and they may have the same perspective on their management or on their union based on previously shared experiences. Such social contexts — cultures, fields, communities — provide us with rules, regulations, and structures with which we construct and appreciate knowledge (Brown & Duguid, 2000). In this way, one may argue that there are two interdependent aspects of our unarticulated backgrounds: 1) we are produced by them: we appreciate the world and construct our personal knowledge on the basis of social rules, and 2) we produce them: we constitute the rules and regulations of ourselves and of others by engaging in social interaction. They make up the way we expect the world around us to function. They enable us to predict events, behavior, and routines, because we expect others to adhere to most of the same rules and regulations as we do. While we adhere to them, we project them.

With this in mind, Tsoukas argues that the tacitly integrated rules and structures of our unarticulated backgrounds enable and empower us to make *judgments*. Our socially produced unarticulated
backgrounds are as important as our physical senses in our appreciation of the world, and it is through the virtue of these that we are able to judge the myriad of impressions of everyday life by exercising judgment. We construct knowledge from such impressions. Here Tsoukas returns to the notion of knowledge construction as tripartite — data, information, and knowledge. By exercising judgment, individuals are able to separate these from each other and also able to know when to construct knowledge from information. Judgment becomes the ability to make distinctions of impressions based on the social rules and structures of one's unarticulated background (Siggaard Jensen et al., 2004; Tsoukas, 2002). We are able to navigate the world, because we know that the world functions according to sets of social rules and regulations. Because we are part of the world, we are products of these same rules and regulations as much as we are the ones producing them. Through them, we are able to exercise judgment and by doing so, we understand the world and the impressions, perceptions, and experiences derived from it. Engberg supports this argument in saying that:

“The knowledge underlying meaning-making processes is seen as what I would term a socially inspired entity. The idea is that the knowledge base of an individual is influenced and shaped by the interaction with others and by the social relations and conditions under which these interactions are performed. Knowledge and meaning are thus not stable entities, but dependent on influences from social factors that change over time.”
(Engberg, 2009: 225)

With this, personal knowledge is connected to social factors in not only close adjacency or interdependency, but perhaps even in mutuality. One exists because of the other. We cannot limit the constructivist epistemological perspective to the personal properties discussed in previous sections, just like we cannot limit it to this social dimension. As the tacitly integrated social rules and regulations of our unarticulated background enable us to exercise the judgment needed to make sense of the world, we cannot within reason argue that knowledge construction could occur without them. On the other hand, such social rules and regulations are unique to each individual since they are ultimate products of our interactions and communications with the world around us. Knowledge should perhaps then not be viewed as personal on one side and social on another side, but as personal and social at the same time (Engberg, 2010). One cannot exist without the other, and one exists because of the other. The premise for making such an argument — abstract as it may be — can certainly be found within the theories and concepts that have been part of the epistemological discussion so far. Even the most fundamental notions of ‘self’ and ‘other’ are testaments to such mutuality. Inherent to the words themselves are the assumption of mutual dependency as there can be no meaning attributed to the word ‘self’ without an awareness of the word ‘other’ and vice versa. The ‘self’ has meaning, because of the ‘other’. We are able to characterize ourselves as individuals, because we know of the social, just like we are able to take part in social interactions, because we are individuals. Such direct argument of mutualism can certainly be seen in the concept of the
unarticulated background. If we recall, the unarticulated background was “a set of subsidiary particulars which are tacitly integrated by individuals. Those particulars reside in the social practices, our forms of life, into which we happen to participate. [...] An utterance is possible only by the speaker's indwelling in a tacitly accepted background” (Tsoukas, 1996: 17). Tsoukas thus explains it from two perspectives: one relating to the abstract space into which impressions, perceptions, and experiences are internalized in the process on constructing knowledge, and another relating to the production and replication of the social rules and regulations that enable us as individuals to exercise judgment necessary for constructing knowledge. In other words, individual knowledge construction is only possible, because we have tacitly integrated sets of social rules and regulations. In this way, there is simply no way of separating the personal and the social aspects of knowledge.

The mutualistic relationship between the personal and social dimensions of knowledge provides us with another epistemological observation: that knowledge is not a stable entity. Engberg included this observation in his comments on the “socially inspired entity”, as he argued that knowledge must be regarded as contingent on the social dynamics in which it is constructed and in which it is enacted or communicated (Engberg, 2009). The ability to exercise judgment is generated by the social dynamics of which we are part, and since we know that social dynamics are exactly that — dynamic — then we must argue that knowledge is completely dependent upon its social context (Berger & Luckmann, 1966; Etienne Wenger et al., 2002). Even though such an observation certainly nuances constructivist epistemology, it also complicates it. The discussion focused on the personal dimension of knowledge argued that knowledge is created by making sense of the world around us and constructing knowledge through a process of internalization. The concept of the unarticulated background argued that this sense-making ability — the ability to make judgments — is generated by tacitly integrated social rules and regulations. Now we can advance that argument. Since our ability to make sense of the world, our ability to navigate the myriad of impressions by exercising judgment, is a direct product of social dynamics, it stands to reason that it will continue to be a direct product of social dynamics. Knowledge is therefore not a stable entity, but rather dependent on an ever-changing social dynamic.

Even though such a highly abstract discussion of ‘self’ and ‘other’ in processes of communicating knowledge may make it far more difficult to clearly conceptualize knowledge or even paralyze any attempt at doing so, it is an important one when exploring the assumptions underlying constructivist epistemology. From it, we are now able to argue that even though all knowledge is personal knowledge, it does not exist in a vacuum. All knowledge construction, all learning, follows certain rules and regulations that we have experienced throughout our lives. We are able to appreciate what we know because of social dynamics. This elevates the ‘communication’ element in ‘knowledge communication’ to an incredibly important position and completely emphasizes the point that both
concepts of knowledge and communication exist in a not only interdependent but mutualistic relationship.

The condensed reading of constructivist epistemology is as follows: we know that all knowledge is personal knowledge and that we as individuals know different things. Such ever-present knowledge asymmetries catalyze knowledge communication as we try to understand and mediate across them. It is from such communicative actions (interpersonal or otherwise) that we construct knowledge through a process of making sense of the impressions, perceptions, and experiences generated by our interaction with the world around us. We navigate this myriad of impressions by exercising individual judgment. This ability is determined by our appreciation and production of social rules and regulations that make up our unarticulated backgrounds. As such, the personal and social dimensions of a constructivist epistemological perspective on knowledge communication exist in a mutualistic relationship. Knowledge is personal and social at the same time.

Until this point, the discussion of the constructivist approach to knowledge communication has been focused on its personal and social epistemological dimensions. Based on that, we are now able to argue that it is not possible to separate the two concepts of knowledge and communication, as they exist in a mutualistic relationship. The discussion has, however, not yet focused on the communicative dynamics of knowledge communication. If all knowledge is constructed from interaction, how does that interaction take place? By virtue of the following guiding question — what is the fundamental communicative mechanic of the constructivist approach to knowledge communication? — the discussion moves on to look at the conceptualization of communication that enables us to appreciate this dynamic.

3.3.3. Communication: transaction, convergence, and construction

A logical continuation of constructivist epistemology and of all the theories discussed in relation to it would be the assumption that the dynamic of communication should be appreciated as interpersonal interaction. Kastberg and Jacobsen’s knowledge asymmetry theory, Tsoukas’ engagement of the ‘other’, and Kastberg and Engberg’s concept of comprehensival convergence all indicate a certain way of viewing how communication takes place. The purpose of this following section is to make these underlying assumptions explicit. Communication seems to be an integral element of the epistemological assumptions of the previously mentioned researchers, and for that reason, it becomes imperative to examine and discuss further. It will begin with an exploration of the so-called ‘transactional model of communication’ that seems to function as the point of departure for many of the above knowledge communication researchers (Engberg, 2009; Eppler, 2007; Jacobsen, 2012; Kastberg, 2011a).
3.3.3.1. Origins of the transactional communication approach

It is difficult to precisely pinpoint the origin of the transactional approach to understanding communicative dynamics. Communication researchers conventionally argue that it was Frank Dance’s spiral-shaped model of communication — commonly referred to as Dance’s helix-model of communication — published in 1967 that introduced this notion of communication as continuous transactions between people (Dance, 1967; Frandsen et al., 2002; Kincaid, 1979).

Because of its simplicity, it has been criticized for eliminating variables that would enable it to be used analytically by researchers to appreciate communication processes. It only illustrates the meaning-making process of communication and removes the communicators themselves as well as any process, cognitive or otherwise, associated with these communicators. The objective of Dance’s helix-shape was, however, not to empower researchers to perform better analyses, but rather to challenge the mechanical way of appreciating communicative dynamics that until then had been dominating (e.g. Berlo, 1960; Shannon & Weaver, 1949; Shannon, 1948). In his 1967-article, he explains the virtue of such the helix-metaphor:

“If you take a helically-coiled spring, such as the child’s toy that tumbles down the staircases by coiling in upon itself, and if pull it full out in the vertical position, you can call to your imagination an entirely different kind of communication than that represented by compressing the spring as close as possible upon itself. If you extend
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the spring halfway and the compress just one side of the helix, you can envision a communicative process open in one dimension, but close in another. At any and all times, the helix gives geometrically testimony to the concept that communication while moving forward is at the same moment coming back upon itself and being affected by its past behavior, for the curve of the helix is fundamentally affected by the curve from which it emerges.” (Dance, 1967: 295-296)

Taking his cue from contemporary publications on cybernetics (e.g. Wiener, 1948), Dance took the feedback loop adapted by Weaver in 1949 very seriously and argued that this marked the beginning of an understanding of communication as a process in which communicators could modify their future behavior on the basis of the current behavior by the virtue of feedback (Dance, 1967). This implied an appreciation of communication as continuous, evolving, and accumulative in the way that each communication activity or process was viewed as directly connected to and dependent on previous activities or processes. The way in which we communicate is a result of the way that we have previously communicated. Dance’s helix-model is dynamic and interactive in the way that communicators engaging each other in processes of communication and evolve their communicative positions through these processes. There is no longer an idea of static communicators exchanging messages until they have done so successfully, but rather of dynamic communicators converging on a shared understanding through continuous interactions. As we seek to mediate and to understand, we converge on shared meaning by being dynamic in our expressions, communicative positions, and appreciations of each other. A few years after Dance’s 1967-publication, Dean Barnlund labeled this approach to communication ‘the transactional model of communication’ (Barnlund, 1970). He argued for the importance of this shift in communicative appreciation by including a number of communication postulates through which he advocated for it: 1) communication describes the evolution of meaning, 2) communication is dynamic, 3) communication is continuous, 4) communication is circular, 5) communication is unrepeatable, 6) communication is irreversible, and 7) communication is complex (Barnlund, 1970). These postulates all challenge the linear appreciation of communication and criticize it for being too structuralistic and functionalistic. According to both Barnlund and Dance, communication should not be subject to such reducing simplifications (Barnlund, 1970; Dance, 1970).

Dance’s helix-shape should certainly be seen as a reaction to the linear appreciation of transmission-based communication, but in fact also to another more intermediate one — the circular appreciation of communication. Before the introduction of the helix-shape, other communication researchers had also been exploring the feedback loop of cybernetics. We can even see this circular model in Barnlund’s fourth communication postulate. Some current communication researchers — as well as Frank Dance in the late 1960s and early 1970s — argue that the first steps towards this new helix-model of communication were present in the later versions of some transmission-based perspectives
(Dance, 1967; Frandsen et al., 2002). One could even argue that the first approximation to this transactional or interactive dynamic is seen in the very first of the linear, sequential transmission-based models from Shannon and Weaver. Their mathematical model of communication from 1949 included a loop in which the receiver provided feedback to the sender — or the information source. This seems to suggest that some degree of interactivity had been part of the model, even though it was not highlighted or commented on particularly by the authors (Shannon & Weaver, 1949). This variable of feedback — of interaction — became integral to many of the transmission-based models of communication and was perhaps most refined by Wilbur Schramm and C. E. Osgood (Schramm, 1954).

The Schramm-Osgood model challenged this linearity completely and began arguing for a circular model of communication. With any notion of senders and receivers being dispelled, ‘interpreters’ now decoded and encoded messages to each other in loops of communication. Even though the model retains a somewhat mechanical and strictly sequential approach to the process of communicating, it seems clear to see how Dance’s spiral shape was inspired by the circularity of this iteration.

Model 19: The Schramm-Osgood model of communication (Schramm, 1954)

The primary change from Shannon and Weaver to Schramm and Osgood is perhaps in their focus on communication as an interactive process between people rather than a more technical process of transmitting electronic signals. People are interacting by communicating, and this observation was among the first to situate communication as a two-way process (Frandsen et al., 2002). This meant that a new metaphor of communication was introduced — communication as a circular process rather than a linear one. Communicators were now exchanging messages rather than simply sending and receiving them. While this was certainly a nuancing of the transmission-approach, it was not as such...
a completely new way of appreciating communication. The circular Schramm-Osgood model still assumed communicators to be static and communication to be a full-circle process with no change in the positioning of the communicators (Dance, 1967). Communication was still about sending and receiving messages even though this had now been illustrated as a two-way process where the cognitive processes of the communicators — decoding, interpreting, and encoding — simply helped communicators to communicate more effectively thus increasingly the chance of successful communication. The metaphor or analogy of communication had changed from a line to a circle, but the underlying logic remained largely unchanged. With the introduction of the helix or spiral metaphor to communication theory, this logic changed, and researchers were able to develop a new terminology to better match the changing appreciation of communication as both concept and process (Beebe, Beebe, & Ivy, 2004; Kastberg, 2007). The metaphor changed once again from a circle to a helix provoking a corresponding terminological change from revolving around interactions to transactions (Beebe et al., 2004). It is certainly speculative whether or not Shannon and Weaver’s feedback loop or Schramm and Osgood’s interactive communicators were meant to be the first steps towards a new appreciation of communication as transaction, but it does remain clear that this way of conceptualizing communication directly or indirectly catalyzed Dance’s helix-model and also the first models of constructivist knowledge communication. One may even argue that Dance and Barnlund themselves touch upon the process of communicating knowledge. Barnlund’s early focus on the meaning-making processes of communication (Barnlund, 1962) as well as Dance’s focus on the applications of communication theory to learning and child development practices (Dance, 1967) both revolve around an, albeit abstract, sense of meaning-centered communication occurring on the basis of what we know.

From the discussion of the social aspects of knowledge, we know that we as individuals try to mediate and understand across asymmetries and that we adjust our communicative positions continually depending on our appreciations of self, other, and the relationship between them. We can therefore argue with some confidence that there are a considerable degree of comparability between this argument and that of transactional communication. The question is how this comparability — how this connection between constructivist epistemology and transactional communication can be made explicit?

3.3.3.2. Communication as constitutive of knowledge

We begin that exercise by looking at what is one of the first knowledge-centered models of communication: Kincaid’s convergence model from 1979. Adapting Dance’s helix-metaphor and explicitly inspired by Barnlund’s focus on the meaning-making dynamics of communication, Kincaid introduces concepts of information and knowledge to the appreciation of communication as transaction.
He did not publish it as a researcher within the discipline of knowledge communication, but he did focus on the process of communicating knowledge from the field of communication theory. From a strict communication theory perspective, Kincaid’s publication does not seem to contribute with any significant changes to the theories of either Dance or Barnlund, but from a knowledge communication perspective, however, his publication is quite significant. Kastberg argues:

“Convergence metaphorically alludes to the idea that communicative partners converge on mutual understanding and [...] shared meaning. [...] When it comes to knowledge communication, [this] idea seems to be aligned with [...] the ideas of ‘interactivity’ and ‘co-construction’ of knowledge. [...] Knowledge communication is (or should be) transactive, simultaneously interactive and allowing for knowledge to be co-constructed interactively” (Kastberg, 2007)

Such an appreciation of knowledge communication dispels many of the otherwise clear elements of the conventional communication models in its advocacy of a more abstract and dynamic approach. Just like knowledge transfer theory adopted the linear appreciation of communication, constructivist approaches have adapted Kincaid’s model. The model no longer includes any mention of senders or receivers, of message or transfer. Instead, we may speak of communicators or communicative participants engaging each other in communicative actions or communicative events (Kastberg, 2010). We do not send each other information or try to somehow codify what we know, but simply
communicate verbally and non-verbally. Kincaid does not distinguish between the concepts of communication and interaction in the sense that I have done when discussing epistemology. To him, communication is interactive. Communicators will always seek to converge on a shared meaning through communication, which in this sense is highly reminiscent of Barnlund’s argument. At this point, it is important to recall knowledge asymmetry theory, which also argued for such an intuitive objective of mutual understanding, because neither perspective – communicative convergence or knowledge asymmetry – assumes a power-free context in the Habermasian context even though they do not include a discursive dimension in that perspective. Through this continuous, evolving, and accumulative communication, however, communicators not only converge on a shared meaning, but also construct knowledge from it as they appreciate it. In this way, the meaning-making exercise at the heart of interpersonal communication becomes a social practice while the knowledge construction ensuing from it, remains individual. Such a distinction between individual and social in communicative actions or events would have to be purely analytical with the previous discussion of the mutuality of personal and social knowledge in mind. What is fundamentally important about this approach to knowledge communication is the status that communication is given. It is no longer the neutral medium, tool, or conduit that we saw in knowledge transfer theory, but rather integral to knowledge construction. Within a theoretical and conceptual framework of knowledge communication, we can no longer address communication as an independent variable characterized by efficiency or success, but rather as a constitute process of knowledge construction and knowledge communication.

Kincaid introduced a new aspect to the helix-model of Dance: that of convergence. By doing so, he effectively reverses the direction of the communication spiral in arguing that as communication brings us closer to a shared meaning, the communicative positions also converge. This notion of convergence is a curious one at first glance as it seems to challenge some of the other aspects in the constructivist approach to knowledge communication at the same time as it enables us as researchers to appreciate processes of knowledge communication with a more nuanced understanding of its dynamics. I am referring especially to the concept of knowledge asymmetries. Even though Kastberg and Jacobsen nuanced the concept by arguing that knowledge asymmetries are fundamental and necessary catalysts for any instance of knowledge communication to even take place, they also argued that such ever-present asymmetries are testaments to ever-present social discourses. Because we are different, we know different things, and because we become aware of this difference through interaction and communication, it has social significance (Jacobsen, 2012; Kastberg, 2011a). Discourse theory tells us that the social aspects of knowledge are as significant to both knowledge creation and knowledge communication processes as the personal aspects (Foucault, 1969). The inevitably asymmetrical relationship between the knowledges of the ‘self’ and the ‘other’ is characterized by discursive struggle, social validation, as well as power and
authority. In its most idealistic form, the convergence model could be seen as ignoring such social aspects in its advocacy for harmonious processes of collaborative meaning-making. It assumes communicators to be ‘partners’ in a sense and partners that are equally engaged in generating meaning and seeking understanding across asymmetries. Communication becomes goal-oriented with the goal being mutual understanding, and the convergence model assumes that the communicative partners will always seek to strive for such a mutual understanding. It is important to emphasize that mutual understanding does not somehow dispel any notion of control, authority, hegemony, or other communicative aspects introduced by, for instance, discourse theory (Fairclough, 1985; Foucault, 1969). Instead, knowledge asymmetry theory merely states that individuals will always seek to understand even though they may not like it or agree with it. It would only be from a most critical perspective, then, that one might argue that the theory assumes an idealistic and perhaps somewhat naive power-free communication (Habermas, 1984).

Even though such social aspects of epistemology are not explicitly addressed in Kincaid’s convergence model to knowledge communication, it seems that it could quite effortlessly be amended to include them. In its most basic form, the convergence model illustrates how differently positioned individuals seek mutual understanding and meaning-making through continuous, evolving, and accumulative communication and how these individuals construct knowledge on the basis of that meaning-making. By observing that such knowledge communicative actions or events are social, and that they are therefore catalyzed by the existence and appreciation of asymmetrical relationships as well as being characterized by inevitable discursive struggle, the convergence model is nuanced to a point where it would enable a constructivist epistemological perspective to appreciate the dynamics of knowledge communication processes.

With Kincaid’s appreciation of Dance’s helix shape, the transactional approach to communication illustrated how individuals communicate what they know. It reaffirmed that knowledge communication is not about sending what we know to others, and while doing so, it introduced a new perspective on the connection between knowledge and communication. Even though these two concepts exist in an interdependent and mutually informing relationship, we can approach them analytically as separate in order to critically examine each one. If we do so, we may say that people construct knowledge from either communication with other people or from interaction with their world. This links knowledge construction directly with communication and situates it as constituent. It is through communication that we construct knowledge, so seeing these two processes as analytically separate may ease understanding of their relationship. Communication and interaction are processes by which the ‘self’ engages the ‘other’. The impressions, perceptions, and experiences generated by such communicative or interactive processes can then be internalized by individuals in the construction of knowledge. In instances of knowledge communication — in the interpersonal
sense of communication — we seek to mediate and to understand across asymmetries and thereby engage each other in dynamic, interactive processes during which we change our expressions, communicative positions, and appreciations of each other in order to converge on a shared meaning.

The constitutive aspect of communication is crucial to the study of knowledge communication. Seeing as we cannot appreciate what people know due to the tacit and ineffable nature of knowledge, we can only hope to approximate it through what has been called ‘acts of knowing’ by numerous researchers (Brown & Duguid, 1991; Lave, 1991; Etienne Wenger et al., 2002). If individuals construct and appreciate knowledge through communication, we can approach that communication as constitutive and with that, the object of study becomes communication. In other words, if knowledge communication researchers seek to study knowledge, they must do so through communication and practice.

3.4. Synthesizing the conceptual framework of KC theory

With the discussion of the communicative assumptions underlying the constructivist approach to knowledge communication, I am now able to provide a condensed overview of the conceptual framework up until this point — a synthesis of salient theoretical concepts to knowledge communication research. It is important for me to emphasize that such a synthesis and such a conceptual framework has by no means been part of Eppler’s institutionalization agenda or of Kastberg’s outline of knowledge communication as an emerging discipline. Instead, it is an attempt to condense a number of theoretical discussions within and adjacent to the discipline of knowledge communication in order to provide a consistent and clear overview of the theoretical orientation present throughout this project. By including this conceptual synthesis, I hope to show an analytical perspective that retains the complexity and nuance of its comprising theories, while simultaneously displaying a sufficient degree of applicability and operationalization.

1. Knowledge is unique to its knower and always has a tacit property

   All knowledge is personal, and because it is personal, we can never know exactly the same thing. Since knowledge creation is not a process of cataloguing words, but rather of the internalization of sense impressions, perceptions, and experiences generated from our interactions with the world, all knowledge will always have a tacit dimension. Whereas this does not mean that we cannot communicate what we know, it does mean that we will always know more than we can tell.

2. Knowledge cannot exist independently of knowers

   Since all knowledge is personal and will always have a tacit dimension, knowledge will always require knowers. Processes of externalization (codification, articulation) should
therefore not be viewed as producing explicit knowledge, but rather as processes of communication. We cannot make what we know fully explicit and thereby enabling it to exist independently of knowers. We can, however, communicate on the basis of what we know and certainly about what we know. In this way, it is important to remember the difference between information and knowledge. While information (sometimes referred to as knowledge within other epistemologies) may be incredibly nuanced and complex, it will never have a tacit dimension and will never require a knower — it is not the same as knowledge. Even though knowledge and information are often seen as interchangeable concepts, the epistemological difference between them is important.

3. Knowledge is personal and social at the same time

Knowledge construction will always follow the rules and regulations of social life, since it is these very rules and regulations that enable us to exercise the personal judgment necessary to navigate the myriad of impressions of our worlds and to make sense of them. In other words, social discourses enable us to construct and appreciate personal knowledge. The ability to exercise personal judgment is determined by our experiences with social rules and regulations as well as our appreciation of them. We make sense of the world because a multitude of different social discourses have empowered us to do so. Such ever-changing social discourses also mean that knowledge will never be a static entity, but rather, it will exist as a dynamic concept completely dependent on the social context in which it exists. This is further supported by the observation that we constitute ourselves simultaneously as individuals and as individuals belonging to a social world by interacting with others. It is the social world that enables us to be individuals. Since neither personal nor social dimensions could exist independently of each other, knowledge should be viewed as simultaneously personal and social.

4. The appreciation that knowledge asymmetries catalyze communication of knowledge

All knowledge is unique to its knower, and we will never know the exact same thing. When we perceive such an ever-present difference of knowledge to belong within the same sortal, it is not merely a difference, but an asymmetry. The ability to appreciate and to evaluate such knowledge asymmetries is what catalyzes us to communicate on the basis of what we know. We communicate with each other, because we do not know the exact same things. By evaluating and qualifying knowledge asymmetries, we adjust our communicative positions and approaches to each other making the ability essential to knowledge communication.
5. Communication follows a transactional and meaning-centered dynamic
   The process of communicating may be understood metaphorically as a converging helix or
   spiral shape illustrating how individuals engage each other in interactive, evolving, and
   accumulative processes. As conversations (in the broadest sense of the word) progress,
   communicators continue to appreciate and evaluate the knowledge asymmetries between
   them and use these to continuously adjust their communicative positions, mediations, and
   appreciations of each other in order to approximate a shared meaning. Through transaction,
   communication becomes about more than sending and receiving messages. It becomes co-
   creation.

6. Communication is constitutive of knowledge
   With the meaning-centered transactional approach, communication can no longer be
   viewed as a tool or an independent variable, but rather as a constitutive social practice. By
   communicating, we enter into the sense-making and meaning-making exercises from which
   we construct knowledge. The continuous, evolving, and accumulative nature of
   communication allows us as individuals to appreciate the sense impressions, perceptions,
   and experiences of our worlds as well as to construct knowledge from them. Separating
   knowledge from communication therefore becomes an exclusively analytical exercise, as
   they must be regarded as mutualistic. We construct knowledge by communicating with the
   world around us.

The synthesis above is the result of an initial exploration and consequent discussion of several
theoretical trajectories within and adjacent to the discipline of knowledge communication. Despite
striving to represent differently oriented theoretical perspectives in the discussion, the synthesis
should be considered a manifestation of a certain approach to knowledge communication research
– one significantly informed by the empirical field towards which it is oriented. As such, it is not
representative of the entire discipline of knowledge communication, but perhaps only aligned in a
comparable way. Regardless, the purpose of the exploration and discussion comprising this chapter
was to develop a conceptual framework which could be applied analytically. By perceiving
knowledge and communication as two distinct yet interdependent concepts – complex yet
approachable – the perspective developed above ultimately enables an analytical approach in which
researchers can appreciate the knowledge-intensive innovation practices of Novo Nordisk's
Innovation Culture Initiative. It is a perspective which situates communicative practices a pivotal
for any appreciation of knowledge.
Chapter 4

Methods for constructing and organizing data
The different disciplinary points of entry to knowledge communication research introduced and discussed in the previous chapter demonstrated that no single methodology was sanctioned or otherwise considered to be conventional (section 2.1.). Even though knowledge communication was often situated as the object of study, it was approached from significantly different theoretical perspectives with corresponding and therefore equally different methodologies. Without any ‘default’ choice of method, researchers of knowledge communication must let the phenomenon towards which they orient themselves determine how they approach that phenomenon.

A conventional academic rationale would be to consider ‘method’ as synonymous with ‘tool’ (Cassell & Symon, 2004) – a tool which ought to be chosen strategically and carefully when the object of study as well as the theoretical perspective through which to view it have become apparent to the researcher. Such a series of steps would enable the researcher to be sure to choose the right tool for the right job, as it were. Based on this rationale, it would be safe to say that research methods conventionally serve somewhat functionalistic purposes. They are there to enable the researcher to approach his or her field of study empirically, but otherwise serve little other purpose in their research endeavor. Whereas this may be convention and true for many researchers, the method of this particular project is placed in a differently pivotal and constitutive role. Instead of functioning as a mere tool, the method of this project – organizational ethnography – has been such an integral part of the overall shaping of the project itself that separating the method accurately from the rest of the project becomes a difficult exercise. In fact, it would be valid to say that the entire project emerged from the exploratory process made possible by organizational ethnography. I realize that such a statement could at first glance seem to approximate an unhealthy circular reasoning, but I would argue that it is rather a matter of sound iteration and allowing for the emergence of a more precise analytical perspective. As such, organizational ethnography was chosen as an empirical approach at a time where neither theoretical framework nor analytical perspective were set in stone. A fundamental orientation was established towards the innovation practices of the Innovation Culture Initiative in which the two central concepts of knowledge and communication were thought particularly salient. The method needed at that time was therefore one of true exploration, and the overall empirical approach and specific methods inherent to organizational ethnography were deemed the most appropriate. With such a decisive and central role, it meant that organizational ethnography fundamentally enabled an empirical approach to the field of the Innovation Culture Initiative which catalyzed most of the entire project. When methods are situated as such pivotal and defining elements for any research project, they deserve as much scrutiny and critical discussion as possible in order to make their otherwise diffuse role and function as transparent as possible. This further serves to establish the robustness necessary for any research project to be considered valid (Bazeley, 2013; Flick, 2009).
Chapter 4: Methods for constructing and organizing data

On a more operational level, organizational ethnography was chosen to function as a framework for the construction of data and for the organization of data. During the initial process of data construction, the framework consisted of the three methods of participant observation, document collection, and interviews in order to enable the construction of as holistic and multi-dimensional data as possible (Rix- Lièvre & Lièvre, 2010). During the following process of organizing that data, the framework consisted of the method of template analysis aimed at providing the structure necessary for nuanced and complex sense making (King, 2004). The following chapter aims to provide a precise and critical insight into these specific processes: the construction of data and the organization of data as well as the larger empirical framework of organizational ethnography in which they are situated. With the ambition of providing a critical insight, the sections will aim to not only introduce qualities and nuances of these methods, but also the challenges and complexities inherent to them.

4.1. Organizational ethnography as empirical framework

Organizational ethnography is an empirical approach that offer unique ways of approximating and appreciating the everyday practices of a specific field as well as the meaning-making interactions that constitute these practices (Editors, 2011; Marcus, 2007; Watson, 2011). It takes its cue from an interpretivist philosophy of science, particularly pragmatism, and seeks to place the researcher, or ethnographer, in the middle of the field in question in order to enable him or her to experience the practices of that field first hand. In this way, organizational ethnography is fundamentally about enabling the researcher to experience practices and processes which he or she seeks to understand: “The whole point is to aid us in gaining access to the conceptual world in which our subjects live so that we can, in some extended sense of the term, converse with them” (Geertz, 1973: 24). This focus on practices rather than on ‘truth’ has its roots in discussions oriented towards the philosophy of science, e.g. Popper (in Peirce, 1995) or Ayer (1968). Ayer exemplified eloquently: “We know what the effects of electricity are, but we do not know what electricity is” (1968: 55). In this way, organizational ethnography seems ideal to operationalize the theoretical focus of knowledge communication on communicative practices.

Choosing organizational ethnography to study knowledge and the communication of knowledge in a particular organizational context is in itself not without precedence (Lave, 1991). Two particular pieces of research are particularly worth paying attention to in this context: Orr’s “Talking about machines: an ethnography of a modern job” from 1996 and Nag and Gioia’s “From common to uncommon knowledge: foundations of firm-specific use of knowledge as a resource” from 2012. Being the most cited of the two, Julian Orr used an ethnographic approach to explore the ways in which American photocopy service technicians conceptualized and articulated their work and how
the community-specific knowledge created from that conceptualization directly affected their performance (Orr, 1996). The findings presented in his book have been cited and used as the foundations by many other researchers of epistemological dimensions of organization and organizing processes emphasizing the unique and rich properties of the ethnographic method as well as of the data created with it (e.g. Brown & Duguid 2000, Wenger et al. 2002). A more recent example of such use of ethnography is Nag and Gioia’s study from 2012. The two researchers explored American metal casting firms in order to learn how routines are direct products of knowledge and how that knowledge consequently becomes transformed actively by their companies into a strategic resource (Nag & Gioia, 2012). Their study illustrates the ability of ethnography to enable researchers to holistically link practice to strategy, micro to macro, by experiencing not only a specific phenomenon, but also its context. Both projects furthermore highlight organizational ethnography as an empirical approach highly appropriate for exploring and appreciating the nuances and complexities of abstract concepts such as knowledge, communication, organization, and certainly set precedent for doing so.

Much like Nag, Gioia, and Orr, I chose organizational ethnography as the methodological framework of this project because of its ability to enable researchers to experience what happens in a specific empirical field, what is said by whom, and how people practice their work. More importantly, organizational ethnography allows the researcher to situate these practices in their all-important everyday context in order to appreciate them holistically (Beckman & Barry, 2007). As such, this approach would place me in the middle of the practices of the Innovation Culture Initiative of Novo Nordisk and enable me to experience their work with knowledge and with the communication of knowledge in the context of specific innovation projects. While this may be one of the most fundamental ambitions of organizational ethnography and also one of the primary reasons for using the approach, it is also one of the most problematic by far: to experience how things actually happen (Watson, 2011). Ethnographers often argue that any researcher in any context cannot hope to appreciate how things ‘actually happen’ in any given field without being there themselves to experience it (Watson, 2011). This argument is, in fact, more revealing about ethnography than it may seem at first glance. Firstly, it states that ethnography is about appreciating practices first hand (Lave, 1991). Secondly, it states that ethnography is about placing the ethnographer figuratively and literally in the middle of those practices and, furthermore, that such an immersion is optimal for experiencing what actually goes on (Van Maanen, 2011). Finally, it hints at one of the underlying and historically significant assumptions of ethnography: that ethnographers are in fact able to experience what actually goes on in any given field by situating themselves in it — an understanding that something interesting is going on somewhere and that by physically placing the ethnographer in the middle of it, he or she is able to access that something (Watson, 2011).
At its outset, it would seem that such an ambition would require a somewhat more positivistic philosophy of science than that which ethnography is currently associated with, but none the less one which has been — and occasionally continues to be — at the heart of this empirical approach (Maanen, 2006). In this way, ethnographers almost become cartographers, or gold-diggers setting out to discover some hidden treasure in a field that appears exotic. The philosophical discussion of whether or not ethnographers are able to access and appreciate ‘what actually happens’ in a given field is not only relevant to any practitioner of contemporary organizational ethnography, but certainly to the study of knowledge communication due to the strong constructivist context of these concepts. In order to examine the importance of this methodological conundrum closer, the changing purpose and orientation of ethnography over time become particularly important to discuss.

4.1.1. The changing purpose and orientation of ethnography

Since the time of Malinowski’s “Argonauts of the Western Pacific” from 1922 and Mead’s “Coming of age in Samoa” from 1928, ethnography has undergone a number of fundamental philosophical and methodological changes (Maanen, 2006). These changes illustrate why contemporary organizational ethnography is as it is and why it has come to be a method of intense scientific debate (Bazeley, 2013; Cassell & Symon, 2004). They contextualize why it is focused on practice, why participant observation is regarded as its primary method, and particularly why the data generated by ethnography had proven time and time again to be the subject of discussion. The philosophical alignment and methodological structure of contemporary organizational ethnography thus becomes informed by its historical development and for that reason, this development becomes important in the context of this project.

In what is, perhaps somewhat fashionably, referred to as ‘ethnography 1.0’, researchers of ethnography were tasked with observing cultures through the method of participant observation and conveying information about these cultures through precise accounts (Jacobsen, 2012; Van Maanen, 2006). It was about observing the culture of people different from yourself from a close physical proximity and in order to figure out what that culture was all about. ‘Culture’ was viewed as an entity — as a ‘something’, which could be observed and accounted for, and something that could be evaluated as good or bad, strong or weak. At the time, this approach did not seem as distinctive and separate from the more traditional sociological observation and would therefore often be regarded merely as a type of sociological study (Yanow, 2012). Ethnographers were primarily different because they were not afraid to get ‘their fingers dirty’ with strange, foreign cultures in order to observe them. From the field journals and photographs of particularly Malinowski, we now know that ‘getting one’s fingers dirty’ was more of an empty signifier than an real one — ethnographers could often be seen as distanced observers completely separate from the culture in which they were meant to participate. Ethnographers dressed in white shirts sitting in lavishly
decorated tents sipping tea while surrounded with native tribesmen came to be more or less conventional (Malinowski, 1922). Such an approach to the observation and examination of culture emerged from the nation-building exercises of post-Enlightenment Europe and were primarily used as a new way of exploring — not only geographically, but also culturally — as a sort of cultural typography (Jacobsen, 2012). Ethnographers were the civilized surveyors sitting in ivory towers observing less civilized peoples. To practice ethnography was to observe, evaluate, and convey — it was about benchmarking strange cultures to those of the Western civilization in order to provoke fascination, wonder, and a sense of the exotic. Furthermore, these exotic cultures were often defined and delimited by the physical and geographical layout of a specific village, island, or similar, which later provoked the use of ‘cultural islands’ as a highly descriptive term of ethnography 1.0. Ethnographic fields were comprised on single, easily delimited sites. This so-called standard model of ethnography has also been described as “the single-site, year in the field, one-tribe-one-scribe, objectivist, rather detached model” (Van Maanen, 2011).

With the linguistic turn and constructivism as an emerging philosophy of science in the 1960’s (Moses & Knutsen, 2012), the standard model of ethnography 1.0 faced significant challenges and consequently experienced significant changes (Jacobsen, 2012). Until then, it had a strong positivist foundation, but now postmodern deconstruction seemed to challenge many of the fundamental assumptions of ethnography. How could ethnographers sit in ivory towers and observe the life worlds of the people they were observing, when these life worlds were ultimately constructed by a social and cultural practice which the ethnographer did not share? How could they get full and unhindered access to an objective truth about life worlds, if such truths were far from objective if they even existed? These challenging questions forced ethnographers to reflect on their roles as objective observers and conveyors (Van Maanen, 2006). By embracing the notion that ethnographical accounts could never become the objective truths that they were once thought to be, ethnographers began to constitute their discipline differently. In this ‘ethnography 2.0’, the role of the researcher changed from the observer and conveyer of objective truths to the explorer and storyteller of subjective experiences. The focus of the researcher changed from perceiving with fascination at a distance to experiencing with fascination up close. It became about personal immersion into the field in which the ethnographer were exploring, but in order to so, the ethnographers themselves had to approximate that which they explored. They began to try to access the constructed life worlds of the people they were studying — or, more simplified, they wanted to find out what ‘went on inside their heads’ (Van Maanen, 2006). The popular movie “Dances with Wolves” starring Kevin Costner is often mentioned among contemporary ethnographers as a popular and particularly clear example of this essential ambition of ethnography 2.0 to immerse oneself in something completely foreign and exotic in order to understanding what ‘actually goes on there’. Whereas this certainly shifted the focus of ethnography from discovering an objective truth to discovering a subjective truth,
ethnography was still about ‘digging around’ for something, even though this ‘something’ was now personal, constructed, and psychological. It meant that ethnography still held on to an understanding of the ‘something’ in the field waiting to be discovered. The shift in this centrally guiding metaphor from gold mining to exploring was certainly underway, but despite of this, its connection to ethnography 1.0 remained strong (Gilliam, 2012).

The latest and most recent incarnation of ethnography is referred to by some as ethnography 3.0 (Jacobsen, 2012). Whereas it certainly includes a number of changes to the empirical approach, one could perhaps attribute these changes to a gradual process of refinement rather than with the radical, philosophical shift that made ethnography 1.0 change into 2.0. Ethnographers have honed their focus and provided some answers to the many questions, dilemmas, and paradoxes catalyzed by the linguistic turn of the 1960’s (Yanow, 2009). It has now changed from being about conveying facts about single-sited, easily delimited, exotic fields (i.e. tribes, villages, and islands) to being about narrating personal experiences about multi-sited, diffuse, everyday phenomena (i.e. practices, communications, and cultures) (Marcus, 1995; Van Maanen, 2006; Watson, 2011). It is no longer about digging around to figure out what goes on inside people’s heads, but rather about experiencing the practices of a field without attaching fully predetermined evaluative properties to those actions. In this way, ethnography retains its focus on true exploration while recognizing that this exploration is fundamentally about appreciating enacted practice. The ethnographer now aims to become immersed in such everyday practices in order to gradually become sensitive to the tacit assumptions, beliefs, and ‘ways of doing things’ of the ‘natives’ of their field (Born, 2004). It is ultimately about experiencing the field — not as a something existing somehow independently of the ethnographer, but rather co-created by the ethnographer:

“It is ironic perhaps to say it, but if we focus in this way on ‘how things work’ in field settings rather than trying to get ‘inside’ people’s experiences or poke about inside their heads and hearts, we might produce work which will be more relevant to human experience and, indeed, to practice.” (Watson 2011: 213)

Few methods have had been subjected to equally turbulent changes, and while this certainly means that ethnography should be considered a dynamic and ‘living’ empirical approach, it also remains one which is still characterized by some of the fundamental philosophical discussions and schisms of its history. While each of the three incarnations of ethnography presented above may appear to supersede the previous, current ethnographic projects reveal that the method continues to be used in many different philosophical contexts and for many different purposes (Van Maanen, 2006). As such, some of the ideals and principles of ethnography 1.0 and 2.0 can still be found in the 3.0 incarnation. This certainly applies to contemporary organizational ethnography prompting further critical scrutiny for its relevance to this project.
4.1.2. Using ethnography to study organizational practices

This gradual change to the philosophical alignment mirrors a change to the type of fields being occupied by ethnographers. It is now far less ordinary to make perilous journeys to Samoa or to the distant islands of the Western Pacific, and more so to make somewhat less perilous journeys to a branch of a certain organization or community. As a natural consequence, the people of those fields are also changing. From hunters, shamans, or tribesmen to engaged, reflexive business executives, politicians, or photo copy salesmen well aware of the role of the ethnographer as well as of the methods being used. Participants, also known as actors (Marcus, 1995), informants (Garcia, 2000), or interlocutors (Van Maanen, 2011), are now considered to be far more informed about the practice of ethnography and thus far more actively and directly engaged in its process (Veggel, 2005). The structure of ethnography has also changed. From being about accurately conveying observations about an exotic culture in ethnography 1.0 and being about post-modern deconstruction of standardized structure in favor of psychological ‘insights into the minds of individuals’ in ethnography 2.0, ethnography 3.0 is now being described as ‘baroque’:

“Exemplary ethnographies today reflect the uncertain state of the genre, and I call their current messy character baroque, rather than experimental, perhaps most acutely in the sense of the word that is often associated with the Portuguese barroco – a pearl that is not round, but of irregular and elaborate shape.” (Marcus, 2007: 1129)

As such, contemporary organizational ethnography has become an empirical approach that seems to be almost unique to whichever ethnographer is using it (e.g. Geertz 1972; Orr 1996; Lave 1991; Weeks 2004; Jensen 2010). These very different depictions of ethnography are, however, not without common denominators, and it is this commonality which makes ethnography appear as Marcus’ baroque pearl rather than as a completely fragmented methodology. Ethnography can be regarded as a standardized empirical approach because most contemporary ethnographical accounts adhere to a comparable set of parameters, despite doing so in a unique manner (Yanow, 2009). Van Maanen was among the first to make these parameters explicit: 1) a fieldwork experience and narrative as the most central element, 2) an explicit and transparent theoretical perspective through which to appreciate the practices of the field, 3) a gradually increasing focus on a specifically interesting empirical phenomenon within the field, 4) a holistic analysis of the context of that phenomenon, 5) a focus on the ordinary and the everyday, and finally 6) being critical and reflective of the ethnographer’s own experiences and style of narration (Van Maanen, 2006). With these six parameters, ideals, or principles of ethnography, the method can be described more accurately than before. It becomes a method focused on immersing the researcher within a particular field in order to let that researcher gradually develop their focus on a specific empirical phenomenon and correspondingly adjust their analytical perspective as they begin to see certain narratives become
more salient than others. It also becomes a method in which critical reflection and transparency are particularly essential since it rests completely on the personal sense making of the researcher. While few ethnographers explicitly align their research with these parameters, they help to clarify what qualifies contemporary ethnography in what could be referred to as its ‘post-postmodernism paradigm’ (Gilliam, 2012):

“Fieldwork practices are biographically and contextually varied – stunningly so. Studies differ in terms of working style, place, pace, time, and mix of evidentiary approaches (interviews, surveys, content analysis, network mapping, etc.) yet all rely on some form of lengthy participant-observation, a rather stock if oxymoronic phrase that indexes one of the most impressive ways yet invented to make ourselves uncomfortable.” (Van Maanen, 2011: 221)

The popularization of ethnography specifically focused on organizational practices gained traction as ethnography 2.0 began to change into ethnography 3.0 (Editors, 2011). Peters and Waterman’s “In Search of Excellence: Lessons from America’s Best-Run Companies” as well as Deal and Kennedy’s “Corporate Cultures: The Rites and Rituals of Corporate Life” are now regarded as the first publications to shine a spotlight on the importance of culture to companies and the use of ethnography to examine those cultures (Deal & Kennedy, 1982; Peters & Waterman, 1982). The two publications did, however, a lot more than that. They introduced the concept of ‘culture’ into the management domain in much the same way as ‘knowledge’ was only a decade later. By initially adapting the evaluative dimension of ethnography 1.0, corporate cultures were viewed as either good or bad, strong or weak, excellent or poor, with a message of empowerment through enlightenment — helping managers do something about these cultures by informing them about cultural dynamics: “Fix bad cultures, as it were” (Weeks, 2004). Following the cue of these pioneers of cultural management, Edgar Schein became one the founding fathers of the managerially oriented organizational ethnography and sought to establish the ‘leader’ of any organization as the pivotal role in ‘working with culture’ (Schein, 2004). One of Schein’s hypotheses was that organizational leaders could work directly with culture by using some of the techniques found in ethnography. By understanding what culture was and how culture worked, leaders would become empowered to do something about it — a message of action. According to Schein, organizational cultures should be perceived as having three distinct ‘layers’: 1) the cultural artefacts: explicit and stand-alone signs signifying the formal identity of the organization, 2) the espoused values: the formal set of values and dispositions of the organization, and 3) the underlying assumptions: the ‘actual’ values of the organization. Specific examples from this project corresponding to these layers include 1) the large printouts of the Innovation Project Model hanging in numerous places within the office space of the Innovation Strategy Office or the sheer number of books on innovation present there as well, 2) the Novo Nordisk annual report from 2014 in which the dominant innovation practices of the company
are particularly highlighted, and 3) the personal views and thoughts of a project team member discussed in confidence at the end of a long day. Whereas managers could easily change the first two and most superficial cultural layers through conventional bureaucratic means, they needed to become cultural leaders in order to change the underlying assumptions of the organizational members — to become champions of their culture. He stressed highly functionalistic approaches to culture by using key themes such as “deciphering”, “transmitting” and “controlling” — leaders must understand the culture of their surroundings in order to shape it for the good of the organization (Schein, 2004). Once again, organizational ethnography seemed closer aligned with ethnography 1.0, than with its more contemporary incarnation. For this reason in particular, this approach became subject to substantial criticism from the early 1990s and was broadly termed ‘cultural engineering’ (e.g. Kunda 1992). It clearly drew on a positivist philosophy of science and encouraged managers in a highly functionalistic manner to fix or engineer their cultures in order to increase productivity. Cultures were once again delimited by physicality and geography like Malinowski’s cultural islands in that they advocated for a 1:1 perspective on the relationship between site and culture. A company was treated as a sort of cultural island, and managers were encouraged to become lay-ethnographers in order to observe, decipher, and consequently change the culture of their employees. The strong criticism of cultural engineering is perhaps best exemplified by Mumby and Stohl’s “Disciplining Organizational Communication” in which they write:

“The management assumption that culture is a monolithic, unitary structure that can be imported or changed to meet instrumental organizational needs suggests a lack of appreciation of the vast array of communicative and cultural practices that constitute organizational life.” (Mumby & Stohl, 1996: 63)

Contemporary organizational ethnography still struggles with its focus and identity and could as such be seen as having moved along two very different tangents — a more managerially oriented one, and a more academically oriented one. To many, it has become the managerial tool of Schein typically used by change management agents to work with the manipulation of cultural dimensions (e.g. Carnall 2007). In this perspective, organizational ethnography enables the observation and deciphering of the informal dimensions of their organizational cultures in order to better control and optimize them. To others, however, organizational ethnography has begun to adhere far more to the latest incarnation of ethnography than to this managerial focus and should perhaps simply be regarded as ethnography within the specific domain of organizations. Recalling Geertz famous expression, Van Maanen articulates this perspective:

“Anthropologists do not study villages, they study in villages: organizational ethnographers do not study organizations, they study in organizations. The aim is to provide a localized understanding of the cultural processes – meaning making – as it occurs from a few vantage points within the organization.” (Van Maanen, 2011: 221).
In this way, organizational ethnography focuses specifically on fields made up of organizing processes, practices, or principles – it is an umbrella concept to signify a specific orientation of perspective, something which has also been referred to as the ‘anthropology of western cultural institutions and corporations’ (Born, 2004). While this certainly refers to the cultural management publications of the 1980’s (e.g. Peters & Waterman 1982; Deal & Kennedy 1982) as well as to the explicitly critical perspective of the 1990’s (e.g. Kunda 1992), it signifies that organizational ethnography is simply contemporary ethnography specifically oriented towards the domain of the organization with whichever conceptual and epistemological consequences such an orientation might have.

Organizational ethnography is, then, the study of everyday practices in organizations by an ethnographer experiencing those practices over time. It places the ethnographer in the middle of the field in question thereby enabling him or her to appreciate the practices of that field in their context. It is an approach that focuses on fieldwork experience created through participating and observing the ordinary and the everyday. This focus makes it ideal for the study of knowledge and the communication of knowledge as enacted practice is pivotal. Organizational ethnography became my method of choice because of two specific considerations: I needed a method to enable holistic and immersive exploration of the Innovation Culture Initiative in order to allow me to develop and fix my analytical perspective, and I needed a method to enable a way of approaching the complex processes of knowledge communication within the practices of innovation. While this choice would allow me to participate in those practices and thereby bring me close enough to them so that I might appreciate their nuances and complexities holistically, it would also require a constant critical reflection of my own position and perspective as a researcher in order to ensure the possibility of creating a transparent and robust fieldwork narrative. This critical reflection (motivated by epistemological hypochondria) is nowhere as salient as in the process of constructing data.

4.1.3. Writing and constructing ethnographic data

Regardless of contemporary perspective, however, organizational ethnography is certainly characterized by a history of positivism, normativity, and of functionalism, and it is this history that has provoked one of the most telling characteristics of ethnography into existence: that of epistemological hypochondria (Garcia, 2000). Geertz famously argued that these schisms of ethnography have generated an overly active reflexivity among ethnographers (Geertz & Marcus, 1986). He referred to the continuous reflection on the validity, robustness, and transparency of both the methods of ethnography as well as the data generated by it. Every ethnographer needs to be as explicit as possible regarding his or her epistemological perspective, methodological orientation, and – perhaps most importantly – the purpose of choosing ethnography as an empirical approach. While this methodological angst, as Yanow later referred to it (2009), has certainly been a product of the
significant changes to the philosophies of science behind ethnography, it continues to force ethnographers to make their philosophical perspectives, epistemological orientations, choice of methods, and structures of analysis as transparent as possible.

Since organizational ethnography completely relies on the ethnographer to produce ethnographic data, the construction of that data becomes crucially important. It is not unsurprising that this process of constructing data changed alongside the changes to the philosophical alignment of ethnography introduced previously. The linguistic turn in particular transformed it as ethnographers began to argue that writing itself constituted a world-making process, which constructed rather than conveyed:

“Research writing is itself a way of world-making... a construction (perhaps intersubjective, between researcher and situational members and/or researcher and members of the epistemic community whose theoretical literature frames the research) of the world it (purports to) describe(s), rather than a mirror reflecting that world in a one-to-one correspondence between words and the events, scenes, acts or interactions they present” (Yanow, 2012: 34)

It was now no longer a matter of objectively mapping exotic cultures and conveying discoveries, but instead about constructing narratives in order to communicate personal impressions and experiences generated during periods of fieldwork. The writing of such ‘accounts’ or ‘narratives’ became synonymous with the construction of ethnographic data (Geertz, 1972, 1973).

When undertaking fieldwork, the ethnographer writes different kind of texts, which serve as the raw data or empirical material of the field work. Herein lies somewhat of a peculiarity, however. ‘Raw data’ often connotes something free of perspective and free of analytical process — something which is entirely impossible within contemporary ethnography. Since this ‘raw data’ can never be free of the subjectivity of the ethnographer, it challenges the conventional meaning of ‘raw’. Field notes are constituted by the perspectives, thoughts, experiences, analyses, feelings, and insights of the ethnographer at the moment of their conception. They are non-coherent, heterogeneous, descriptive, and interpretive all at the same time (Jacobsen, 2012). Very little has been published on the practices of taking field notes as most ethnographers regard it as a highly personal endeavor reminiscent of keeping a personal journal (O’Connor & DeMartino, 2006). Van Maanen has once again been among the few to direct specific focus to the particular styles of ethnographic writing and in his 2006 ‘state of the field’-article, he examines the three most prominent styles: 1) realism, which emphasizes precise and detailed descriptions without apparent interpretation (e.g. Beckman & Barry 2007), 2) the confessional tale, which emphasizes the intersection between immediate descriptions and the personal interpretations of the ethnographer (e.g. Rix-Liévre & Lièvre 2010), and finally 3) impressionism, an almost post-structuralist approach to field notes that often results in
abstract narratives, vignettes, metaphors and symbols underlining the fuzziness and complexity of the research process (Jacobsen, 2012; Van Maanen, 2006). Such categorization is naturally a simplification of something entirely unsimple. However, it illustrates the need for and importance of transparency perhaps more to ethnographic writing than to other academic disciplines.

Writing ethnography is the construction of data. It is, however, simultaneously the analysis of that data. By trying to understand the practices of a field, the ethnographer engages in continuous and intuitive sense-making processes — when these become integral to the data generation itself, the borders between data and analysis of data become blurry (Weick, 1999). In the field, the ethnographer chooses which practices to focus on, which events to write in the field journal, which questions to ask, which practices to participate in, and so on. All of these choices are ultimately based on sense-making processes — on ongoing and immediate analyses of what goes on. For this reason, many ethnographers choose not to clearly separate method from data and analysis, since their empirical approach tends to blur any neat distinction between them (e.g. Rix-Lièvre & Lièvre 2010; Jensen 2010). To illustrate the challenge from the perspective of more conventional philosophies of science, ethnographers construct data themselves based on continuous analyses in the field meaning that raw ethnographic data has already been analyzed in some sense of the word. The ethnographer then goes on to organize the data according to a specific analytical approach (e.g. open coding or template analysis) before finally moving on to narrate whichever stories appear particularly salient and interesting. Such conventional processes result in no less than three separate analytical processes even though these tend to exist under different methodological labels (Orr, 1996). The writing of ethnography is more than merely plotting notes in a field journal. It is about the simultaneous construction and analysis of data by the conscious and subconscious sense-making processes integral to organizational ethnography.

While this emphasizes ethnography as a dynamic empirical approach, it also highlights the need for transparency and critical reflection. The process of writing ethnography is personal, iterative, and fundamentally based on impressions and experiences, while simultaneously blurring the lines between the construction of ethnographic data and the analysis of that data. If the ethnographer is to organize that data and make available to their readers in such way that those readers may relate critically to it, it is crucial — perhaps more so for the ethnographer than any other researcher — to retain a strong focus on transparency, validity, and robustness.

4.1.4. A holistic and multi-dimensional framework

For these analyses to be as nuanced and as robust as possible, organizational ethnography situates holistic and multi-dimensional research as its core (see Van Maanen’s parameters of contemporary ethnography). While often used to refer to the specific empirical method of participant observation,
it is an overarching methodological framework aimed at providing a researcher with the tools and techniques necessary to explore and experience the everyday practices of a certain field. As such, it strongly emphasizes a combination of research methods in order to provide the researcher with a holistic experience of the field in question (Davenport, Dous, & Voelpel, 2005). It is important for me to mention that 'holistic' means ‘multi-dimensional’, ‘multi-perspectival’, and ‘complex’ in this context. The reason for such clarification is that ethnography has had a somewhat troublesome relationship with the word ‘holistic’ often using it the past to signify ‘the whole, objective truth’ – what Van Maanen calls the most dangerously seductive ethnographic fiction (2011). Since one of the primary strengths of ethnography is the exploration and experiencing of complexities and subtle nuances otherwise indiscernible to other research methodologies (e.g. survey-based approaches), it needs to enable the researcher to appreciate as many dimensions as possible. Contemporary organizational ethnography therefore often become operationalized by three specific research methods: participant observation, interviews, and document collection (Bazeley, 2013; Falzon, 2009; Miles & Huberman, 1994). In this context, these methods function as the more tangible ‘tools’ of organizational ethnography. By combing these three methods, the ethnographer is enabled to appreciate a number of different, but complementary and significant dimensions of a field. With them, he or she is able to transform what used to be little more than single-dimensional places conveyed by the cultural cartographers of ethnography 1.0 to more multi-dimensional spaces rich with nuance and complexity. Through ‘informational wealth’, the ethnographer is far better able to understand and make sense of the intricate and indiscernible dimensions of any field which more than often are constituent of the very things that make any field unique. In other words, adapting a methodological framework that enables the ethnographer to appreciate as many dimensions of a field as possible, increases the chance for that ethnographer to experience and understand such dimensions.

An integrate and conventional element of such a framework — especially one containing three distinct research methods — is the process of triangulation (Miles & Huberman, 1994). The immediate goal of triangulation is to approach a phenomenon from three, or more, different positions adapting three, or more, different perspectives in order to appreciate the phenomenon as holistically as possible (Eisenhardt, 1989). Within the context of organizational ethnography, however, such triangulating processes deserve pause and reflection as they are not necessarily as straightforward and ideal as they may appear at first glance. The primary reason for such careful reflection is the fundamental assumption associated with triangulation that these three different positions and perspectives somehow converge into a single, complex, and nuanced ‘truth’ about the phenomenon. By approaching it from so many angles, the researcher would surely be able to figure what the phenomenon really is with what can only be regarded as an explicitly positivistic orientation. This assumption has certainly provoked some inquisitive reactions. Mathison, for instance, argues against
the supposed ‘magic’ of triangulation and against the assumption that all triangulation leads to ultimate convergence (Mathison, 1988). Instead, she claims while the objective of triangulating methods certainly is to enable the researcher to gain a more holistic perspective on a certain phenomenon, data from different methods tend to show different things. She argues that there are typically three (rather appropriately) different outcomes of triangulation: 1) convergence, 2) inconsistency, and 3) contraction (Mathison, 1988). Convergence is the conventional objective of triangulating processes where the researcher expects data from different sources to converge on the same narrative. Inconsistency is where the triangulating process shows that there are more than one single narrative and that these do not necessarily align with each other. Contradiction is finally where different narratives are present and where these narratives are mutually contradictory. As such, Mathison argues that triangulation often results in something more ‘messy’ than a neat, single narrative supported by data produced with different methods. It would therefore be a false assumption that the data itself always converges, since this in fact rarely seems to be true. Mathison’s perspective helps to qualify triangulation as an approach that provides the researcher with different sets of data generated by different methods and from different perspectives (Erzberger & Kelle, 2003). It is the task of the researcher to make sense of these differences in order to tell a coherent story. The effort of converging through triangulation, then, does not lie with the data itself, but rather with the researcher. To ethnographers adapting a conventionally framework of methods in order to triangulate as well as to readers of ethnographic studies, this point is critical. While one should expect a strong degree of complementarity between different methods and data types, one should not expect that the data will tell a single, neat story on its own. Rather, it will probably tell many different stories, emphasizing many different points, thereby making it very difficult for the ethnographer to pinpoint a single, salient story even though, paradoxically, it is one of the only ways for him or her to be able to appreciate the complexities and nuances of the stories which need to be told. In this way, the ambition of triangulating mirror the ambition of appreciating a holistic phenomenon — they share the dangerously seductive promise of discovering and unearthing some hidden truth, while often delivering little more than increasing complexity.

One of the primary virtues associated with organizational ethnography is, then, its focus on enabling the researcher to approach their field holistically and multi-dimensionally. It encourages the use of more than one method for constructing data and more than one method for organizing data with the objective of allowing nuance and complexity to be made salient. By accepting organizational ethnography as an empirical approach which requires personal involvement and numerous iterations in order to achieve this, and also as an approach which more often than not provides the researcher with more than a single neat narrative, the researcher becomes empowered to appreciate and experience important dimensions of their empirical phenomenon otherwise.
4.2. Methods for constructing data

Turning to the operational level of organizational ethnography, I needed a range of methods to enable the construction of data with which I would be able to appreciate the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative. The purpose of this section is to outline each of these specific methods which came to comprise the methodological framework of the project, the different dimensions they are oriented towards, as well as the data generated by them. Even though the overarching character of organizational ethnography is holistic, diffuse, and complex, its methods are just as tangible and concrete as those of any other empirical approach. With the previously mentioned observation in mind that ethnography needs clarity and transparency perhaps even more so than other approaches, this section will aim at providing a structured overview of each method used as well as an insight into their more practical application. In other words, what I did, why I did it, and what came out of it.

The methodological constellation of participant observation, document collection, and interviews is by no means new and used by many contemporary organizational ethnographers because of the strong complementary properties of the methods (e.g. Rix-Lièvre & Lièvre 2010; Nag & Gioia 2012; Jacobsen 2012). Participant observation enables the ethnographer to experience first-hand the practices of the field over an extended period of time. Document collection provides access to much of the different archival information often illustrating the formal dispositions and values of the field thereby helping to contextualize the experienced practices. Finally, the interviews create a communicative context with the people constituting the field and allow the ethnographer to engage them in dialogue in order to reflect on both experienced practices and formal dispositions. As such, these three methods target different dimensions in different ways and consequently produce different, but complementary types of data (Davenport & Prusak, 1998; Rix-Lièvre & Lièvre, 2010). The document collection targets the cultural artefact-level, the interviews targets the espoused values-level, and the participant observation targets the underlying assumptions-level (Schein, 2004). This is, of course, an overly simplified perspective, but it is not wholly without merit. It supports the argument that ethnographers need to spend a prolonged period of time in the field in order to be able to experience and appreciate the underlying assumptions of the organization in question. Furthermore, it is an indirect critique of ethnographers who only spend their time in interviews listening to reflections on practice rather than experiencing and co-creating that practice. Finally, it emphasizes the need for more than one method — for a set of complementary methods generating different types of data increasing the number of dimensions in the ethnographers experience (Beckman & Barry, 2007).

In the specific context of this project, the three methods were chosen to enable such a multi-dimensional appreciation of how the innovation practices of the Innovation Culture Initiative...
approached the concepts of knowledge and communication. Participant observation would situate me as a researcher in the middle of the field and let me experience the everyday dynamics of this phenomenon — the method was, as such, meant to allow me to experience how innovators worked with knowledge and communication in their innovation practices. Document collection, on the other hand, was important in as much as it allowed me to appreciate an entirely different dimension of the Innovation Culture Initiative — its espoused values, the ideals and principles according towards which it was aligned, and the many tools produced to help guide the innovation project teams. Collecting important documents would also give me access to project descriptions and presentations — to communicative snap shots of the practices so pivotal to the empirical approach. Finally, interviewing would enable me to create reflective spaces with selected members within or adjacent to the Innovation Culture Initiative in which both the enacted practices experienced through participation observation as well as the espoused values appreciated through document collection would provide the backdrop for discussion. I wanted a collection of methods which would enable me to appreciate and experience how the actors of the Innovation Culture Initiative approached knowledge and communication in their innovation practices.

Taking my cue from Van Maanen’s argument that it is particularly important for practitioners of ethnography to provide transparent and structured insights into their construction of ethnographic data (Van Maanen, 2011), the following sections aim to do just that. Each larger section will introduce the purpose of one specific method as well as my operationalization of that method before concluding with the type and amount of data constructed by it.

4.2.1. Participant observation

*Purpose*

Participant observation is fundamentally about two things: participating in practice while observing that same practice through reflective awareness (Spradley, 1980). As a participating observer, the researcher places him or herself in the middle of a field in which he or she is not accustomed to ‘how things are done’. This ensures that the practices and discourses that have perhaps long since become tacit and subsidiary to the members of that field have the potentially of appearing differently explicit to him or her:

> “Participant observation, then, is a research practice in which the investigator joins the group, community, or organization being studied, as either a full or partial member, and both participates in and observes activities, asks questions, takes part in conversations, and reads relevant documents.” (Watson, 2011: 206)

On the most immediate level, participant observation is a balancing act. The researcher continually has to decide how to adjust levels of participation and observation. Too much observation would result in too great an analytical distance to the field and would change the nature of the method to
resemble a more conventional sociological field or case study. On the other hand, too much participation would result in too limited analytical distance to the field and would change the nature of the method to resemble interventionism or action research in which the researcher becomes a completely integral part of the field being studied. In order to retain the characteristics of ethnographic participant observation, the researcher must always balance personal immersion and reflective, analytical distance. Such a balancing act seems fairly uncomplicated to achieve on a theoretical level, but is much more difficult to master on a practical level. The ‘participating’ dimension of participant observation is certainly riddled with complexities to the researcher. With the historical context and normative dimension of organizational ethnography in mind, some ethnographers have simply embraced interventionism and action research as it often transforms the nature of participant observation into participant experimentation (Yanow, 2012). This is by no means a critique of highly intervening methods, but merely an argument stating that such methods are inherently different from participant observation. There is certainly a fuzzy line between the interventionism, the integrated part of participant observation, and action research (Brix, 2012; Schein, 1995). This distinction becomes even more muddled by the complexities of the actual field (Yanow, 2012). Some ethnographers would even go as far as to call the relationship between participation and observation in its most characteristic method a paradox (Van Maanen, 2006). On the most immediate level it would certainly seem paradoxical: the simultaneous existence of complete immersion and distanced reflection. The paradox has its roots in ethnography’s positivistic beginnings where Malinowski’s famous ideal of ‘going native’ dominated (Van Maanen, 2006). From this perspective, ethnography was about accessing culture, and for that the researcher had to be immersed in his or her field. In this post-postmodern era of ethnography dominated by pragmatic constructivism, the 3.0 incarnation, the objective of the researcher has changed to being about participating in the practices and communicative events of the field in order to approximate an understanding of how meaning in that field is constructed. The focus of research thus becomes how people do things (practice), how they say they do things (reflection), and how both practice and reflection affect their social worlds (organization) (Gilliam, 2012).

The success of participant observation rests on the fundamental assumption that the ethnographer is able to fully immerse him or herself in the field by participating in the practices that he or she is observing. Malinowski’s ‘going native’ is certainly testament to this assumption. Like the paradox of simultaneous immersion and reflection, however, the complete immersion of the ethnographer is full of challenges and contradictions. Chief among these challenges is also the most intuitive one: the fact that the ethnographer is inherently a stranger in the field with the explicit purpose of observing and studying that field. Despite the most valiant attempts to ‘fit in’ and quickly become fully immersed and integrated, the ethnographer does inevitably have the role of researcher and therefore as someone different. The presence of an observer certainly does matter, as one recalls that one
cannot ‘observe the thing without changing the thing’. This comprises another among the many paradoxes of ethnography: striving to experience ‘what actually goes on’ without ever being able to do so. In his ethnographic study of a British bank, John Weeks reflects on this ‘impossibility’ of ethnography and attributes it largely to what he calls modern lay-ethnography (Weeks, 2004). According to Weeks, the people comprising his field definitely had an awareness of him as a sort of observer and themselves as the ones being observed. Such an awareness provoked a mixture of flatter and increased self-reflection — an awareness of a workplace all of a sudden transformed into a research environment, and also an awareness of self as an important and a central individual in that research environment. Participant observation changes practice just as light changes the thing it illuminates.

The purpose of using participant observation as a method in this project was to approach the practices of the different actors within the Innovation Culture Initiative. I wanted to work with the project teams and with the Innovation Strategy Office in order to appreciate and experience their perspectives on and approaches to knowledge and the communication of knowledge. By situating myself in the middle of their everyday work, I wanted to be a part of as many dimensions of that work as possible — from the most mundane to the most extraordinary — in order to gradually form a holistic and multi-dimensional perspective with which to understanding its nuances and complexities.

Approach

I began my fieldwork with the Innovation Culture Initiative during the autumn of 2012. Since my formal connection was with the centrally placed and coordinating Innovation Strategy Office, this was where I found my office space to be located. Seeing as my work there was certainly going to be full-time, and because my new work place now existed quite a long way from my home, I moved to Copenhagen for the duration — not only for the sake of convenience, but also in order to have the flexibility of following the working rhythms of the Innovation Culture Initiative as they inevitably changed with time. I quickly discovered that my desk and chair were placed rather optimally since the Innovation Strategy Office functioned as a pivotal point around which each of the projects developed and within which a significant reflection on the developments of the entire Innovation Culture Initiative. It came to be a type of nexus with its own gravitational pull and its own dynamic. For these reasons, as well as for a few practical ones, this location became my base of operations — where I began almost all of my days and where I spent countless hours reflecting on the multitude of different experiences in what seemed to be a very compressed period of time. From my desk, however, I also had to freedom to move around the entire Novo Nordisk complex as well as the many sites in and around Copenhagen. This not only eased matters of trust immensely as I was able to approach people in the comfort of their own environments, but it also made it possible for me to
experience people work where they normally worked. In other words, it meant that I was much more able to experience the everyday practices of people first hand instead of only getting people to reflect on those practices.

My days typically consisted of getting involved in as much as possible within the scope of the Innovation Culture Initiative – seminars, presentations, and project meetings, as well as lunches, walk-and-talks, and water-cooler chatter. Some days were full of interesting moments while others were not. Such variation of each day came to be highly characteristic of the field work mirroring the variation experienced by normal people working normal jobs. The practical implications of such variation were that some days required 12-16 hours of work, while others hardly required any. I was completely dependent on the ongoing processes of either the Innovation Strategy Office or one of the project teams and was thus at the mercy of their priorities. Seeing as there were six innovation project teams, however, I always had something to do and someone to talk to making the variation of everyday more a matter of prioritizing who and what to turn my attention to rather than of trying to find something interesting to engage with. I was there when the project managers needed coaching from the coordinators, when the project managers drafted their presentations to different stakeholder groups, when the coordinators reflected on how they could conceptualize their insights and experiences into standardized practices, when the next steps of a project were discussed, and so on. I kept a field journal and wrote as much as I could about whatever I found interesting — one of the most conventional and orthodox practices of any ethnographer. By taking note of every event that may or may not hold interesting information, my search for patterns in the everyday world of the Innovation Culture Initiative progressed. The field journal became an archive of the meaning-making processes that I undertook throughout my time there and as such, it provides an insight into my contemporary perspective as well as the consequent meaning-making exercise associated with it. It is a log of events as well as of reflections.

The balance between participating and observing during my time with Novo Nordisk shifted as my field work progressed. The first few weeks in particular were spent almost exclusively observing and asking questions, since almost everything was new to me. I also had to establish myself to the members of the Innovation Culture Initiative as a researcher and negotiate whatever that meant to them. Such negotiation was an important process for me and would be for any ethnographer as it becomes one of the most crucially influencing factors for the entire field work. It dictates matters of trust and control, it contextualizes and situates the researcher socially and culturally in relation to the field, and it completely determines access. As a new and mostly observing presence, such continuous negotiation helps to facilitate a shift in the balance between observing and participating, and after a short period of a few weeks, such a shift began to happen. With increased insight came increased trust and with that came better access to more people, to confidential documents, and to
personal and vulnerable processes, which would have otherwise remained personal and thereby off-limits. From being an alien observer, I eventually became more of a trusted colleague.

Data
From the participant observation method comes data in the form of field journal entries meant to function as an archive of sorts for the impressions, experiences, and reflections of the ethnographer while in the field. Each entry consists of meta-data (i.e. date, time, location) as well as two main sections of text: perceptions and reflections.

<table>
<thead>
<tr>
<th>02-10-12 12.12: A meeting room in 5A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceptions:</strong> Alice, Oliver, Jack, and I are doing a meeting regarding the status of innovation leadership approach. The memos should be aligned (structurally and visually), which they are not at the moment. The memo document is going to be moved from an Innovation Office Strategy only section of Globeshare to a section where the steering committee has access. The document is not yet finished, but close to being finished. Alice has changed the language in the latest version — all verbs have been changed from past tense to present to signal action. She goes on to talk about the language itself at the micro level — about moving sections back and forth, about the formatting of text, about the phrasing of specific arguments. Alice: “I know it’s a bit strategic, but I really think it matters”. This meeting is specifically on the memo and not the slides for the ExecMan meeting, which will be discussed at a later time.</td>
</tr>
<tr>
<td><strong>Reflections:</strong> The meeting was extremely detail-oriented. We discussed the tense of verbs and whether or not certain columns should be included or excluded in the more than ten excel-charts in the document. There seems to be a clear orientation towards strategic and reception focused communication.</td>
</tr>
</tbody>
</table>

Model 21: An example of a field journal entry

The perception section has the function of making the ethnographer describe what happened in any particularly interesting moment with as much attention to detail as possible. It is meant to force the ethnographer to limit his or her own conscious reflection or active socio-cultural sense-making and simply try to write down what happened at what time in which location. It is, of course, more of a fleeting ideal which the ethnographer can only try to approximate since completely leaving behind one’s sense-making is impossible, but striving towards writing with as much discipline, regularity, and detail as possible, makes for a much greater wealth of information. While the perception section of such a field journal entry should attempt to only contain information about what, who, when, and where, the final section — reflection — should contain something entirely different. This is a section dedicated to the personal reflections and thoughts of the ethnographer as he or she tries to make
sense of the impressions generated by the event in question. It makes room for immediate thoughts and superficial analyses directly connected to the more distanced impressions. When combined, the perceptions and reflections result in what Geertz famously called “thick descriptions” to connote the complexity, nuance, and informational wealth inherent to such data (Geertz, 1973).

Apart from these standardized sections and meta-data, field journal entries appear very differently. Some are very long (more than a page), while others are very short (only a few lines). Some days may include a lot of entries (perhaps 20), while others may not include any at all. Such variation simply mirror the variation of everyday life in the field and does, in fact, provide the researcher with information about the varying levels of activity and the perceived detail and complexity of certain events. Furthermore, entries provide an insight into the progression of the participant observation itself. During the first few weeks, for instance, entries tend to be shorter, but there tend to be more of them indicating that the ethnographer notices a multitude of immediacies ranging from office decoration to the number of people in a specific space. As time goes by, the ethnographer begins to pay less attention to such immediate observations and instead begins to pick up certain nuances and complexities that at first had been undetectable. This in turn equals fewer, but longer entries. As such, the field journal contains information about the what, who, when, and where of specific events, the personal and contemporary reflections of the ethnographer associated to those events, and finally a range of contextual information from the entries themselves (see appendix 4 for a full overview).

4.2.2. Document collection

Purpose
In the context of organizational ethnography, documents are labeled as standardized artefacts (with reference to Schein’s cultural layers) in the sense that they can typically be grouped into common formats such as memos, project presentations, marketing materials, newsletters, roll-ups, and logos (Prior, 2003). Due to their format, documents can be regarded as snapshots of specific communicative events and can, as such, provide invaluable information to the researcher. Most types of documents are often closely connected to the espoused values of an organization, such as internal articles or project presentation slide decks, and as such offer an insight into an often strategic and carefully considered projection of organizational values (Schein, 2004). By collecting these documents, the researcher is able not only to preserve snapshots of salient communicative events of the field, but also to form an understanding of the more formalized context of the field by appreciating its espoused values (Nag & Gioia, 2012).

Unlike the other two methods of a conventional ethnographic framework, participant observation and interviews, document collection is a very straightforward exercise in the field. It is important to note that document collection is the one method conventionally used by ethnographers which
generates a type of data that is not created by the researcher him or herself (Rix-Lièvre & Lièvre, 2010). Even though the researcher of course evaluates the artefacts according to relevance and salience, they do enable contextualizing analyses which can be invaluable to the methodological framework.

By using this method of document collection, I aimed to gain an insight into two specific dimensions of the Innovation Culture Initiative: on one hand the ideals, principles, and designs which were created to help the innovation project teams operationalize this new approach to a new type of innovation within Novo Nordisk, and on the other hand project presentations, process documentations, and memos produced by those very same innovation project teams throughout their process. With such different documents at hand, it would be able to appreciate how the process of operationalizing the innovation design introduced by the Innovation Project Model took place.

**Approach**

I focused exclusively on unsolicited documents seeing as the purpose of the document collection method in the larger framework was to provide information able to contextualize the practices and reflections of the members of the Innovation Culture Initiative (Flick, 2009). In other words, the documents had to approximate the same contextualizing information to myself as they had to the members of the field. Even so, it was somewhat challenging to gain access to the entire portfolio of pivotal documents as many of them were at first considered entirely closed or at least restricted. As the field work progressed, more and more trust between myself as an ethnographer and the members of the field was established and with that trust came increased access. It was not until the very end of the field work, however, that every document related to the Innovation Culture Initiative was made available emphasizing the importance of earning and building that very same trust. From public documents at first, such as annual reports or newspaper articles, to restricted documents, such as internal project presentations or executive reports, to finally closed documents, such as consultancy reports or minutes from executive meetings, the accessibility of documents changed over time. Each of these document were selected to be part of the corpus after an evaluation based on the criteria of 1) authenticity, 2) credibility, 3) representativeness, and 4) meaning (Flick, 2009). As such, the sampling of the documents adhered to this standardized approach in order to ensure that the final portfolio of documents only included the most relevant.

**Data**

The documents were collected throughout the period of the field work. They have been catalogued according to number, name, time stamp, format, and level of accessibility (see appendix 4 for a full overview).
4.2.3. Interviews

**Purpose**

Unfortunately, one cannot hope to encounter all the people of the field during day-to-day routines or by standing around the water cooler or coffee machine. For this reason, interviews often accompany participant observation as an ethnographic method as “asking a user to describe his or her daily routine, or tell about his or her life story, is a common approach to getting the user to share important insights” (Beckman & Barry, 2007). Ethnographic interviews are used to invite members of the field into a space for reflection and discussion in order to support and perhaps even bring new insights to the ethnographer’s experiences from participant observation (Yanow, 2012). Even though some ethnographers have been quoted arguing that the ‘manufactured data’ of interviews is somehow less authentic and therefore less valid that the ‘naturally occurring data’ of participant observation (e.g. Silverman 2007), I join Watson in saying that there “is great virtue in incorporating interviews within ethnographic work” (Watson, 2011). Unlike participant observation, the interview method enables the researcher to create a more private and closed social space with the interviewee in which reflection is encouraged. It becomes a matter of discussing some of the practices or perspectives which the ethnographer experiences in the field using participant observation. While this means that interviews are not used to directly appreciate the everyday practices of a field, they are necessary in order to engage the actors of that field in reflective discussion with the potential of providing important contextualizing information about those practices. Put more simply, people get a chance to talk about what they think. When viewed as a communicative event, the interview creates a complex situation during which the interviewer continuously has to make strategic choices in order to guide the direction of the interview as well as to maintain a methodological sensitivity to the unexpected (Kjeldsen, 2012). Examples of rhetorical strategies adapted to meet these requirements include the use of rhetorical questions, hypothetical scenarios, provoking statements, closed questions accompanied by complex follow-ups, and extended pauses (Kvale & Brinkmann, 2009). The interview setting thus establishes analytical and reflective distance from both interviewer and interviewee to the subject matter at hand. When functioning as a single method in a larger ethnographic framework, interviews can be used as a rich source of personal meaning-making — by inviting and sometimes even provoking members of the field to engage in hypotheticals and to position themselves reflectively according to those hypotheticals, the interviews begin to offer insights otherwise not accessible by any other method. The purpose of using semi-structured interviews was to create a space — an ‘aside’ — in which selected actors of the Innovation Culture Initiative were given pause and invited to explicitly reflect on both the espoused ideals of their work and on their operationalization of those ideals. In anticipating that few of these actors would share my own fixed perspective on knowledge and communication, the interview setting would enable me to introduce parts of that perspective or certain terminological aspects of it in order to accent the
interviews in a specific direction. This was to affect the way in which I would place particular emphasis on how the innovation project teams would experience the process learning — whether or not it was about reading, about interacting, about experiencing, or about something completely different. The interview setting enabled me to fix the analytical perspective on specifically interesting dimensions and the engage the interviewee in a following co-creation of meaning not otherwise possible in the same way using other methods.

**Approach**

Turning to the practical level of interviewing, I chose to use the semi-structured, individual interview with question guides developed on the basis of certain themes to which a number of specific questions were associated (Cassell & Symon, 2004; Crabtree & Miller, 1999; Geertz, 1973; Kvale & Brinkmann, 2009). This choice was motivation by the assumption that such a style and structure of interview would allow me to engage different people either directly involved with or closely adjacent to the Innovation Culture Initiative in a dialogue designed to encourage reflection on both experienced practice and espoused values. The themes were partly informed by my theoretical perspective and partly by my own observations and reflections from the field. Examples of such themes could be: “Concept of innovation”, “The innovation project model”, or “The innovation office and the rest of Novo Nordisk” (see appendix 4 for at full overview of the interview guides). Whereas the themes established and fixed the focus and direction of the interviews, the questions were meant as personal notes and guidelines more than accurately worded and rigidly structured questions as is often prescribed by advocates of the semi-structured interview (Kjeldsen, 2012; Kvale & Brinkmann, 2009). Examples of such questions could be: “From your policy documents, I can see that Novo Nordisk defines ‘innovation’ quite precisely. How would you say that Novo Nordisk defines the concept?” or “With lean being as integrated in Novo Nordisk as it is, change is often orchestrated through single loop learning (kaizen, incrementality). How open would you say that Novo Nordisk is to double loop learning?” The design of the interview guide deliberately alternated between short, direct questions prompting short, direct answers and longer, more complex questions perhaps including a specific premise. Some questions were answerable with a simple yes or no, while others were designed to make the interviewees object to a certain assumption inherent to the question. Depending on the flow of the interview, questions were shaped to fit the context — for instance as either highly provocative or enabling and reaffirming (Kjeldsen, 2012). The flexibility of the interview guide meant that while some themes were explored quite thoroughly, others became perhaps less relevant as the interview progressed. Such adaptable approach inherent to the semi-structured interview proved invaluable in terms of setting a relaxed, informal, and immediate setting focused on establishing and maintaining trust (Kvale & Brinkmann, 2009).
The rigidity of the interview structure changed throughout the period of field work from being less structured and more exploratory to being more structured and less exploratory — matching the shift experienced in terms of the method of participant observation. The interviews were, however, fundamentally different to the entire process of the field work in a number of ways. First of all, they all had to be actively initiated by me, which meant they simply did not happen out of their own volition as was the case with the everyday events at the center of participant observation. To the members of the Innovation Culture Initiative and to myself as well the interviews came to function as stage-gates — as pivotal brakes in an otherwise uninterrupted period of field work. I would initiate such breaks when I wanted to engage a specific group of people, such as all of the project managers or select members of certain steering committees, in a specifically themed dialogue in order to get them to reflect. Such reflection could revolve around the perception and conceptualization of innovation within the organization or around the ways in which the project teams worked directly with learning. During the period of field work, I initiated three rounds of interviews with different members of the Innovation Culture Initiative. Apart from these rounds, I interviewed vice presidents, internal consultants, and external consultants all either directly associated with or closely adjacent to the department. Since the sampling process was focused almost exclusively on the members of Innovation Culture Initiative and therefore followed the criterion-oriented sampling strategy (Creswell, 2013). Using interviews would allow me to appreciate a more reflective dimension of the actors within and adjacent to the Innovation Culture Initiative. Appearing to many of those actors as a traditional research method, it would also contribute with a sense of authority and a recognizable structure associated with ‘proper research’ — ultimately increasing the perceived authenticity of the project. The trust necessary to create an interview setting were to be established and sustained through participant observation and this meant that the closed space enabled by the interview would provide an optimal frame for transparent and honest reflection and discussion.

Data

Each interview was recorded on a proper dictaphone as well as on a dictaphone application for a smartphone in order to ensure sufficient quality of sound. I chose not to use a camera for the sake of ensuring trust and confidentiality, but insisted on using a dictaphone as a recording device in order to retain the auditory dynamics of the interviews (Kvale & Brinkmann, 2009). After having chosen the better version for each interview, a total of 24 sound files remained. Ranging from approximately 45 minutes to 1½ hours in length, each sound file was imported to the Express Scribe software. 17 of the 24 interviews were chosen for transcription based on criteria of relevance, saturation, and representation. The transcription process followed the standard transcription approach (Kvale & Brinkmann, 2009) in which the text is written grammatically correct even though the recorded dialogue may not be and in which every convention of transcription (e.g. showing emphasized voice
or noticeable pauses) is logged clearly before the process begins (see appendix 4 for a full overview).

<table>
<thead>
<tr>
<th>Method</th>
<th>Dimension targeted</th>
<th>Data type constructed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant observation</td>
<td>Experienced practices of the innovation project teams as well as of the Innovation Strategy Office</td>
<td>Thick descriptions, field journal entries</td>
</tr>
<tr>
<td>Document collection</td>
<td>Espoused values, ideals, and principles as well as the tools developed to guide the innovation process</td>
<td>Emails, powerpoint presentations, memos, reports, intranet articles, employee magazines, marketing material, project documentation</td>
</tr>
<tr>
<td>Interviews</td>
<td>Reflections on experienced practices and espoused values</td>
<td>Sound files, transcriptions</td>
</tr>
</tbody>
</table>

Table 3: Targeted dimensions and data output of the methodological framework

The three methods target different dimensions of the field in order to enable a holistic and multidimensional appreciation and experience of it. They were meant to construct different types of data with different focus in order to allow for a consequent organizing and sense making of that data with as much nuance and complexity as possible. As such, the methods had their function during the period of constructing ethnographic data – beginning with the first day of fieldwork and ending with the final interview.

4.3. Methods for organizing data

Following the completion of the data construction process comprised of participant observation, interview, and document collection methods, the empirical framework shifted focus to the process of organizing the constructed data. At this point in the project, I had completed the process of data construction and was therefore faced the process of analyzing that data. The amount of data generated by methods of organizational ethnography is often very extensive, and this project was not an exception. Before being able of make sense of it, and before being able to become sensitive of the salient narratives within the data, I needed to organize it in a transparent and structured manner.

Such organizing is key to the sense making processes at the core of any analysis. The organization of data can thus be taken as almost synonymous for the analysis of data. Analyzing is fundamentally a process of careful deconstruction and reconstruction — of breaking a certain phenomenon down into
its constitutive parts in order to better understand them and their relation to each other in order to be able to reconstruct them in a way that makes sense from the analytical perspective of the researcher (Bazeley, 2013). This makes analysis about something more than simply summarizing data or providing a detailed overview of empirical findings. It means that the analysis incorporates different and interdependent sense-making processes all oriented towards the exploration, identification, and contextualization of particularly salient themes, patterns, narratives, and connections within data illuminated by an analytical perspective while retaining the nuance and complexity of the phenomenon in question. It is thus a process highly characterized by the subjective perspective of the researcher as well as by his or her unique sense-making processes. It places greater emphasis on the need for transparency of structure and approach, for clarity in the meta-communication of research, and for explicitly articulated choices. This is the purpose of this introductory section of the analytical chapter — to provide a fully transparent overview of the strategically selected structures and approaches of each analytical process.

The considerations mentioned above are relevant to any type of research, but seem even more critical in the context of the methodological choice of organizational ethnography (Bazeley, 2013; LeCompte, 2012). Since the pivotal dynamics of organizational ethnography include continuous sense-making, analytical processes responsible for generating its empirical material, as well as the complete immersion of the researcher into complex, diffuse, multi-dimensional, and multi-sited fields, it already challenges the researcher to present data in clear, structured manner. Such data is famously difficult to manage (Bazeley, 2013). On the other hand, it is these very properties — difficult as they may be — which make ethnographic data so rich and valuable. With this in mind, it seems peculiar to discover that organizational ethnography is not commonly associated with any fixed analytical approach (Watson, 2011). Instead, it relies on the ethnographer to choose the analytical structure most appropriate for the phenomenon in question as well as for the methods chosen to study it. This challenge meant that the project needed a specific analytical approach which would allow the retention of all-important nuance and complexity while providing the structure and transparency necessary to engage it appropriately. It would need to acknowledge the strong empirical focus of organizational ethnography by placing a significant emphasis on maintaining a close proximity to the data itself throughout the entire analytical process thereby avoiding to move up into ivory towers (Brodkey, 1987; Veggel, 2005). Finally, it should allow, and perhaps even encourage, the type of iterative and recursive processes that lie at the heart of the overall pragmatic research design. Template analysis seemed to be the optimal candidate due to a matching alignment towards pragmatism and its way of enabling the use of both a priori and a posteriori themes in order to organize and make sense of different types of complex qualitative data. It was thus chosen to provide the structure and approach of the analytical process (Crabtree & Miller, 1999; King, 2004).
4.3.1. Template analysis

Template analysis is simply an analytical approach aimed at providing the researcher with the structure and the tools necessary for organizing qualitative data in a meaningful and useful manner (Crabtree & Miller, 1999). It involves the construction of a template made up of hierarchically ordered codes which identifies and arranges data according to the analytical perspective of the researcher. Codes can therefore range from broad themes, such as “Defining the value of projects”, to successively more specific ones, such as “Success vs. failure” or “KPIs” (see appendix 5 for a full overview of the coding template). The fundamental technique of template analysis is based on the following steps (King, 2004):

1. Define a priori codes from the process leading up to the analysis
2. Transcribe interviews and structure data (field notes, interviews, documents)
3. Carry out an initial coding (when a priori codes no longer seem sufficient, create a new code)
4. Produce an initial template by grouping the identified codes (a priori and a posteriori) into a smaller number of broader themes
5. Apply this initial template to the full body of data in order to reach saturation
6. Use the final template and the data coded accordingly to interpret and write up findings

The use of both a priori codes and a posteriori, or emergent, codes situates template analysis somewhere between the more conventional open and closed analytical approaches (Waring & Wainwright, 2008). Leaning towards the principles of contemporary grounded theory (e.g. Glaser & Strauss 1999), it allows the researcher to include codes into the template that emerge from data during the analytical process itself, because of the understanding of analysis as an iterative, recursive, and holistic process which rarely follows a strictly linear, sequential logic. As such, it adapts the principles of iteration and the mutually informing relationship between theoretical perspective and empirical material from pragmatism and grounded theory, while rejecting the notion of tabula rasa from the same theory. Legitimizing emergent codes is a natural consequence of such an understanding. On the other hand, template analysis also advocates for the use of a priori codes. This is in part based on a critical perspective on the before mentioned tabula rasa and in part on the assumption that qualitative data will always be constructed with a certain theoretical or conceptual perspective in mind — a perspective that will certainly continue to direct the attention of the research throughout the process of analyzing that data (Miles & Huberman, 1994). It aligns with contemporary organizational ethnography in the sense that it rejects the idea of the researcher as a blank canvas set out to discover hidden truths in some exotic field. The mix of a priori codes and emergent codes is also indicative of another of the fundamental principles of template analysis: the principle that template analysis should always be an iterative and recursive process.
The steps of the technique listed above hint at a certain sequence inherent to template analysis, but what perhaps remains somewhat unclear is this principle of iteration and recursivity. Until the researcher has developed the final template, every step of the technique is iterative: “The analysis process remains fluid in the same way that sampling/collecting evolves so that multiple organizing styles may be used in the overall analysis” (Crabtree & Miller 1999). Bazeley illustrates this with his introduction of three different flows which are mutually dependent and which tend to exist simultaneously in most analytical processes: data display (organizing data making informational content appear clearly), data reduction and retention (honing focus and selecting salient narratives), and drawing/verifying conclusions (Bazeley, 2013). It is a matter of structuring the different data types, labeling each file appropriately, maintaining an overview of the growing body of data, adjusting focus to support emerging ideas, and so on. By engaging the body of data in iterative processes of data display and data reduction, the researcher will ultimately arrive at a point at which he or she will feel a sense of analytical saturation. At some point, the researcher will not feel able to see any more salient connections or feel able to generate any new codes. Only at this point does template analysis stop being iterative and move on to its final step of drawing/verifying conclusions and write up findings. Until this point, however, the analytical process is a messy process of alternating between numerous read-throughs of data, developing the coding template, and keeping track of salient connections whenever they appear to the researcher. Whereas the challenges any ideal of neat and clean overviews of data construction and data organization processes, it does enable an exhaustive approach to analyzing which is strongly focused on not only retaining, but also highlighting nuance and complexity.

The principle of iteration and recursivity, the choice of allowing both a priori and emergent codes, and the technique itself are all tools provided to the researcher in order to reach the structure necessary for organizing qualitative data in a meaningful and useful manner. This organizing process is ultimately focused on making connections in data appear salient to the researcher. As such, template analysis becomes about exploring data and creating connections, narratives, and themes while doing so (Bazeley, 2013). This aligns the technique quite optimally with organizational ethnography and thereby makes it an obvious candidate for this project (Editors, 2011). Like organizational ethnography, template analysis focuses on immersing the researcher into his or her field in order to enable a holistic, nuanced, and complex perspective with which he or she is able to make sense of that field. Both techniques — methodological framework and analytical structure — is thus focused on enabling the researcher to explore and to sense make in a particularly nuanced and complex manner.
4.3.2. Coding data

The process of coding began even before I approach my field empirically. In fact, a priori codes were generated at three different stages of the project leading up the analytical process itself: 1) during the review of knowledge communication literature (section 2.1.), 2) during my empirical fieldwork at Novo Nordisk (section 4.6.1.), and 3) during the transcriptions of interview data (section 4.6.3.).

The first steps of the project were focused on establishing an overview of the field of knowledge communication in order to construct a conceptual framework to guide my perspective throughout the rest of the project. From this literature review, it became clear that certain theoretical concepts were particularly important to researchers of knowledge communication (section 2.4.). Examples of such concepts include ‘catalyzing knowledge asymmetries’, ‘personal knowledge construction’, and ‘communication as interactive negotiations of meaning’ (appendix 6). These concepts derived from literature became my first a priori codes. As soon as I approached the empirical field of Novo Nordisk, several more codes began to emerge — codes which were also a priori, simply because of the fact that they emerged before the analytical process itself. This reiterated the aspect of ongoing sense making and analysis inherent to organizational ethnography discussed in the methodological chapter. Simply by being situated in the field, the researcher cannot help but try to make sense of his or her impressions, which in itself constitutes a type of unstructured analysis. During my period of fieldwork, several more a priori codes were added to the template. Examples of these include ‘sites’, ‘changing old habits’, and ‘stakeholders (internal)’ (appendix 5). The final stage of the project during which a priori codes emerged was the transcription of interviews after the empirical fieldwork had been concluded. The simple process of spending an extensive period of time transcribing interview data enables the researcher to make sense of data in a different way than would otherwise be the case. As the researcher listens to few seconds of dialogue at a time and spends an extraordinary amount of focus on each word, a different kind of code and theme appear. Examples of such codes include ‘risk’, ‘uncertainty’, and ‘reflexive participants’ (appendix 5).

By the time, I began my analytical process, I had the beginning of a template consisting of these a priori codes which had emerged from these three different periods of time. I used the specialized analysis software of nVivo to structure my different data sources as well as my coding template as it allowed me to work fluently and recursively with the data according to the principles and techniques of template analysis. During the many read-throughs of data, field journal entries and interview transcriptions, I tried to expand my analytical perspective as much as possible in order to let new codes as well as new connections between codes emerge unexpectedly — once again emphasizing the explorative property of by method and analytical approach. Bazeley refers to this expansion of perspective as the braking free of “the imprisonment of the story” (Bazeley, 2013).
Throughout the analytical process, then, the coding template was developed, but it is important to note that while this means that emergent codes were added, it also means that some codes were changed. As such, codes were considered to be organizing principles, but not set in stone. Some codes were given new labels, some were merged with others, some were split in two, some were transformed to categories, while some categories were transformed to codes: “Analysis often starts with some a priori codes, which identify themes strongly expected to be relevant to the analysis. However, these codes may be modified or dispensed with if they do not prove to be useful or appropriate to the actual data examined.” (Bazeley 2013). Approaching the coding template in this dynamic manner ensures increasing robustness, but it does not prevent the template from including a number of codes which simply turn out to be less relevant or less salient that what might have been the case. The researcher does not know which impressions will turn out to be particularly interesting during the analysis itself and must as such accept that he or she will inevitably create codes which ends up being less important to the most salient narratives emerging from the final template.

When the coding template had reached the point of saturation, it included 8 categories and 87 codes. 20 separate data sources had been coded according to that template with 1,641 references. Codes could have as few references across data sources as 1 (e.g. 'ambidexterity’) and as many as 101 (e.g. ‘communicating with management’). With this final coding template and with the coded references in the data sources, the process of organizing and structuring data had been completed. This allowed the consequent interpretation of data to proceed — or, in order to return to the vocabulary of organization ethnography, the writing of ethnographic data.

4.3.3. Analytical format

In order to be able to provide an answer to both research questions at the core of the project, the level of the analysis will be process-oriented. The focus is fixed on the innovation process described in the Innovation Project Model and experienced by the different actors within the Innovation Culture Initiative of Novo Nordisk — the project teams, the project steering committees, the Innovation Strategy Office, and the Innovation Steering Committee (section 2.5.). Catalyzing the analysis and driving it forward are the six different innovation project teams responsible for realizing their innovation projects according to the process described by Innovation Project Model — from an initial explorative and holistic immersion into the domains of their innovation themes in order to learn as much as possible to a final hand over of a polished business development concept from the Innovation Culture Initiative to the core business of the company.
Chapter 4: Methods for constructing and organizing data

Model 6: The Innovation Project Model

<table>
<thead>
<tr>
<th>Exploration</th>
<th>Opportunities</th>
<th>Concepts</th>
<th>Proof of concepts</th>
<th>Hand over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reframing</td>
<td>2-3 months</td>
<td>Reframing</td>
<td>2-5 months</td>
<td>3-6 months</td>
</tr>
<tr>
<td>Reframing</td>
<td>2-3 months</td>
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<td>Reframing</td>
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<tr>
<td>Reframing</td>
<td>2-3 months</td>
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By applying an analytical perspective enabled by the conceptual framework of knowledge communication theory (section 2.4.), I will approach this innovation process as a process of knowledge communication in order to see what such a perspective will allow me to see. On a more operational level, this approach means that the analysis will adhere to a process-level structure approximating that of the innovation process itself and its phases of exploration, opportunities, concepts, proof of concepts, and hand over as they are described by the Innovation Project Model.

The process analysis will include data throughout in order to ensure a close proximity to the field in question and in order to emphasize the strong empirical focus of the project as introduced by the overall research design, the methodological framework, and the analytical structure (Jacobsen, 2012; J. K. Jensen, 2010). More specifically, it will include two different kinds of data: 1) direct quotes taken from field journal entries and from interview transcriptions in order to give a ‘voice’ and ‘presence’ to the actors of the field, and 2) specific impressions and reflections from the field taken directly from field journal entries in order to introduce the readers to some of the most characteristic situations experienced there. This second type of data will appear as vignettes throughout the chapter in order to maintain as close a proximity to the different ethnographic narratives as possible. Whenever data are used in these ways, they undergo a certain process before appearing in the analysis itself. This process is focused on two specific parameters: 1) ensuring the anonymity of the actors involved, and 2) ensuring that the data appears in English and that it is free of the many imperfections, which characterize verbal communication (e.g. false starts, listening sounds, etc.).

4.4. Synthesizing method

The overarching empirical approach of this research project adapts the highly exploratory and holistic ethnography as its framework. As a strong representative of interpretivist research, ethnography enables the research to approximate and appreciate the everyday practices of a specific
field as well the meaning-making interactions that constitute these practices. Unlike most other empirical approaches, it strives to minimize analytical distance as it situates the researcher in the middle of the phenomenon in question in order to experience firsthand the many different dimensions of that phenomenon. As such, the most central characteristic and challenge of ethnography is the balance between immediate, immersed participation and distanced, analytical observation with complex and holistic sense-making as the ultimately objective.

My methodological framework consisted of two specific processes: constructing data and of organizing data. I construct data using three distinct, but complementary methods designed to provide as much nuanced and complex information about as many dimensions of the Innovation Culture Initiative as possible. The first was participant observation aimed at situating me in the middle of the Innovation Culture Initiative in order to experience first-hand the practices of the field with field journal entries as data output. The second was document collection oriented towards mapping the espoused values, ideals, and principles of the Innovation Culture Initiative with different types of documents as data output. Finally, the third was interviews oriented towards creating closed spaces of reflection and discussion oriented towards both enacted and projected practices with standardized interview transcriptions as its data output. While these three methods were oriented towards different dimensions of the phenomenon in question, the information provided by them enable a holistic and multi-dimensional sense-making. This sense-making process is structured according to the organizing ideals and principles of template analysis. This choice of analytical structure is not only aligned with the three methods of the data construction process, but also with the overall ideals of the research design introduced in section 1.4. By using template analysis as an explorative and holistic method of organizing data, I am able to ensure a level of transparency required for it to meet conventional scientific requirements of robustness and validity of analysis.
Chapter 5

Analyzing the innovation process as knowledge communication
Following the process of using template analysis to organize the data constructed by the ethnographic methods of participant observation, document collection, and interviews, I turned to apply a more focused perspective on the knowledge-intensive innovation processes at the core of the Innovation Culture Initiative. The research objective of this project is to analyze those processes by using knowledge communication theory and with the data constructed and organized, the analytical process could begin. The purpose of this chapter is therefore to frame that pivotal analysis.

Before proceeding, however, I want to briefly reiterate the analytical perspective used to approach this task. The conceptual framework of knowledge communication theory concluding chapter two constitutes that analytical perspective and consists of six concepts, or principles if you will. These concepts were found to be at the core of this project’s perspective on knowledge communication theory (section 2.4.):

1. Knowledge is unique to its knower and always has a tacit property
2. Knowledge cannot exist independently of knowers
3. Knowledge is personal and social at the same time
4. The appreciation of knowledge asymmetries catalyzes communication of knowledge
5. Communication follows a transactional and meaning-centered dynamic
6. Communication is constitutive of knowledge

From them, it becomes clear that knowledge should be seen as a somewhat abstract concept, which is inherently personal, which will always have a tacit property, and which is contingent upon the interaction between knowers and the social discourses in which these knowers take part. As such, it is somewhat far removed from the conventional cognitivist perspective that views knowledge as a product of the mind, which can be made fully explicit, and which can exist outside of knowers. The communication of this abstract concept of knowledge follows a transactional dynamic in which communicators engage each other in ongoing processes of meaning-centered negotiations. Such communication requires a continuous back and forth until communicators approximate a shared meaning. The primary catalyst for such instances of knowledge communication is the perception and qualification of knowledge asymmetries. This communicative understanding is also somewhat far removed from the more conventional knowledge transfer perspective that views communication as the simple transfer of a message between a sender and a receiver. Finally, it is clear that the knowledge communication perspective argues for an all-important positioning of communication. It is through communication (interaction) that knowers construct knowledge, it is through communication that knowers engage each other, and it is through communication that knowledge can be used as a constructed and valuable resource for innovation.
Chapter 5: Analyzing the innovation process as knowledge communication

Viewing the innovation process of the Innovation Culture Initiative as a process of knowledge communication means that it will be viewed as a process of constructing knowledge, communicating knowledge, conceptualizing knowledge, and implementing knowledge. The consequences—merits, challenges, and complexities—of applying such a perspective will be discussed throughout the process analysis itself.
5.1. Phase 1: Constructing knowledge

The innovation process begins with a phase of extensive exploration. During this step, the Innovation Project Model encourages innovation teams to learn as much about the opportunities inherent to their designated innovation theme as possible. It begins as soon as the Innovation Steering Committee selects an innovation theme and concludes as soon as the project teams reach a sense of saturation—a sense that further exploration and learning would only contribute with little new insight into the domain defined by the respective innovation theme of the project. It is a phase described by the Innovation Project Model as open-minded, iterative, and interactive—oriented towards learning as much as possible about a certain innovation theme (document #26). The learning process will provide the foundation for creating a more explicit value to the core business later in the innovation process. Even at this early stage in the Innovation Project Model, the connection between this initial phase of explorative learning and an ideal process of knowledge construction as outlined by knowledge communication theory seems noticeably salient. A further inquiry into such a connection therefore seems promising. The following section will focus on how innovation teams used the earliest phase to construct personal knowledge through a holistic and immersive exploration within the domain of their innovation theme, which kind of structure they used to guide their exploration, and how they navigated through such a somewhat abstract phase of learning as the push from the core business of Novo Nordisk towards coming up with explicit and tangible products became greater and greater.

5.1.1. Constructing knowledge through holistic and immersive exploration

For the project teams, the exploration phase seemed to be founded on the fundamental assumption that they had to learn something that was worth something to Novo Nordisk:
“And then to say: ‘Alright, let us pursue this further. What do we find, what do we understand?’ In that way it has constantly been about pushing boundaries and getting to a realization that this as something new to understand.” (#1 Thomas, project manager)

The above is but one example of the most basic curious questions which catalyzing the project teams into taking their first explorative steps. The phase is based on the idea that open-minded approaches ultimately create better concepts and for the innovation process to be fully open-minded, the project teams have to immerse themselves in the whatever domain is prescribed by their innovation theme. The Bottom of the Pyramid project team (see section 2.4.1.), for instance, had to learn about distribution channels, value chains, the involvement of religious organizations in the distribution of insulin, cultural aspects associated with being a patient, national financial distribution, personal insurance policies, access to treatment, and many more aspects related to poor people suffering from diabetes in Kenya, India, and Nigeria. Thomas, a project manager from another of the six innovation projects, gave an outline of their initial exploration focus:

“This project is built on the idea that we should learn during this initial phase about the ways in which we can make our culture more virtual, and how we can build virtual management competences, right? And the next thing we should learn about is how globalization affects our workforce and how the increased generational diversity affects our workplace. Which aspects should we have in mind when launching new HR policies? Which aspects should we have in mind when the executive management team talks about the kind of company Novo Nordisk should strive to be in the future? […] Learning is key.” (#1 Thomas, project manager)

In short, each of the project teams was faced with the task of learning as much as possible about the domains within which they were situated. This focus on learning explicitly prescribed by the Innovation Project Model came to be almost synonymous with the entire innovation process itself:

“What we have not had in the past, and I think what the innovation agenda has brought to us, is this tool kit. You know, this idea of exploration. So what we typically did in innovation was we took it directly into project management rather than innovated. And maybe sometime it does not give you the time to reflect and to think
Exploration became learning to the project teams. This meant that the exploration phase was perceived more as a process characterized by meaning-making, understanding, and expanding perspectives and less as a process searching for ‘something out there’ hidden within the domain. It was experienced by the project teams as processual and as flow. As such, innovation teams did not initially limit their focus to specific and easily delimited ideas or concepts, but rather tried to remain in the open-minded process of exploring and learning as long as possible:

“Ideas and concepts aren’t fixed. They are never fixed. It’s not even about ideas – it’s about learning processes. Of generating knowledge and from that knowledge generate innovation concepts” (#Fieldnotes September George, external consultant)

The Innovation Project Model makes clear that project teams have two principles to guide them in this continuous and immersive process of learning: 1) they should get their hands dirty, and 2) they should do so themselves (document #61). These principles seem to be based on the notion that much of the complexity and nuance of any innovation domain can only be accessed by project teams as they situate themselves in it. The orientation of such principles towards action and direct engagement seems to be perfectly aligned with Novo Nordisk’s ‘way of doing things around here’. It is a distinctly hands on approach which emphasize the value of ‘doing something’ rather than merely ‘talking about doing something’. With these guiding principles, project teams left the safety of their office spaces in Bagsværd and as some kind of ethnographers of innovation ventured out into the world to get their hands dirty:

“When we originally established these innovation projects, we did so, because we felt the need for learning. And the way we learn in Novo Nordisk is by doing. We are very hands on. And I think that this has been the right way of doing it.” (#11 Emma, vice president)

From the Innovation Project Model it is clear to see a strong advocacy of that interaction with the domain of the innovation theme as key to learning about it. Interaction produces the insights necessary for creating impactful innovation. Based on this, project teams engaged their surroundings directly. They focused particularly on engaging key stakeholders in order to leverage the experience and perspective of people already involved in their domain — stakeholders situated both inside and outside Novo Nordisk itself. Seemingly well informed of contemporary stakeholder engagement theory (e.g. Cornelissen, 2011), project teams began a process of alternating between mapping and engaging external stakeholders, e.g. customers, retailers, doctors, patent interest organizations, healthcare professionals, or ministries, and internal stakeholders, e.g. project steering committees, line managers, the research library, doctors, or even the Innovation Strategy Office. By doing so,
project teams became involved in massive information gathering endeavors based on the idea that this process would eventually enable them to generate critical insights into the opportunities inherent to the innovation theme:

“And you can say that what it [the Innovation Project Model] has really taught us is that while the rest of the organization may be very quick to jump straight to a solution, we should perhaps spend more time learning in order to figure out what the right solution or the right problem is. And as we get better at doing that, we gain a deeper and more fundamental understanding of how the world looks where that problem actually is – by getting to know your stakeholders and by trying to see things from their perspective. I think we have been really good at doing that, and I also think that the innovation initiative has made us even more aware of how important it is to adopt a more anthropological approach to understanding problems as well as understanding our stakeholders – to figure out what the right solution could be.” (#11 Emma, vice president)

By directly and actively engaging stakeholders, the project teams seem to have assumed that they were able to learn from such an interaction. This assumption is perfectly aligned with the principle of knowledge communication theory that communication (interaction) is constitutive of knowledge and as such, project teams engaged key stakeholders in meaning-making communicative exercises (section 3.3.3.) Furthermore, they seemed well aware that these stakeholders had an important domain-specific knowledge that they themselves did not, and this asymmetry seems to have catalyzed communication between them. By recognizing that such domain-specific knowledge could not merely be written down in an email and forwarded to them, they knew that they had to engage these stakeholders in order to be able to better appreciate and understand their perspective as knowers:

"It is just like when George pointed out that he knew a bunch of people involved in our IT-projects and that they also spend half their time preparing and engaging their stakeholders with billions of hours of dialogue, but sometimes they just have to sell what they are doing in that way.” (#6 Henry, member of the Innovation Strategy Office)

This recognition of the importance of key stakeholders with domain-specific knowledge is, however, only one of the direct connections between this initial exploration phase and knowledge communication theory. Another can be found in the observation that the project teams themselves were encouraged to engage in this constitutive communication — something which emphasizes the personal dimension of such a knowledge construction process. The Innovation Project Model states that learning processes could only take place by getting directly and personally involved. As such, the project teams were the ones who had to immerse themselves, they were the ones who had to interact with their surrounding environment, because they were ultimately the ones who had to explore and learn:
"My biggest take, and I think that I have to thank Alice and Oliver for that, is that I began to talk – I began wanting to learn and to read myself again with this innovation project. I did not want to outsource anything until it is absolutely necessary to outsource. If we can – that is why I love the learning plan, because it requires you to go back to research and come back. It makes you a student again. That enthusiasm for learning, it just comes back, because you are trying so deep to solve a problem, and then you just want to read and read more.”

(#3 Elizabeth, project manager)

Rather than letting the core project team function as a pivot point around which the field work of consultants and assistants can be coordinated as is often characteristic of more conventional projects within Novo Nordisk, the Innovation Project Model strongly advocates for more a direct and personal approach. While this was experienced as somewhat strange to a few of the project managers, most seemed to thrive from it. Instead of merely relying on stock information accompanied by external perspectives, qualified as they can be, they chose to meet their domain face to face. Examples of this could be found in any of the six projects: the Future Field Force project team had to make numerous trips to the US in order to spend time with both sales representatives and the doctors they were trying to spend more time with, the Future Health project team engaged the Malaysian government in continuous dialogue in order to understand their perspective on the growing numbers early onset diabetes in their country, the Googling the Beta-Cell project team had to engage IT-specialists and pharmaceutical researchers from a number of different companies in order to find a new approach to creating an atlas of bioinformatics, and so on. It was a matter of interacting – of each member of the each project team standing face to face with their domains and interacting directly with them.

"It is the whole premise of the innovation office and the method. Emphasize early exploration in order to make sure that we will eventually pursue the right solution. In Novo Nordisk people are very quick to jump straight to a solution, but this is where we argue for a more careful consideration.”

(#7 Oliver, external consultant)

With this dimension, the Innovation Project Model indirectly acknowledges another of the most fundamental principles of knowledge communication theory – that knowledge unique to its knower and that knowledge is personal and social at the same time (see sections 2.3.1 and 2.3.2). It takes the assumption that project teams are able to perceive and appreciate that someone has some kind of domain-specific knowledge that they themselves do not. It also takes the assumption that there is such a thing a domain-specific knowledge – a kind of knowledge associated with a certain domain through social discourse. By engaging members of that discourse, project teams will be able to construct personal knowledge from it.
Viewing the exploration phase of the innovation project as completely direct and personal is, however, not without its problems. Most of the project teams made use of external consultation to help them with a number of different aspects of their exploration — providing quantitative data on certain demographics or assisting with the facilitation of a specific brainstorming workshop are but a few examples of this. The use of consultants was completely standard to any conventional Novo Nordisk project and little attention was given when some of the projects spent a portion of their budgets on such assistance. Consultants were primarily used to help project teams structure their otherwise diffuse and abstract exploration and learning process. They were brought in to assist with the one entirely new aspect to Novo Nordisk project management methodology — that which the innovation teams felt the most uncomfortable with:

“We became aware that it [a specific consultancy] was a critical source knowledge about these specific trends, because it brought these five forces and 33 trends to the table, which gave us some structure. And we needed that in order to figure out what Novo Nordisk should become in the future.” (#1 Thomas, project manager)

When certain project teams begin to bring in outside agents — not so much to assist or facilitate, but to actually handle the exploration for them — the projects move further away from the ideals of the Innovation Project Model. Exploration, and thereby knowledge construction, no longer becomes personal. For a few of the project teams, this was what happened. Motivated by a wish to validate and solidify the exploration process to the rest of Novo Nordisk, but perhaps in fact catalyzed by the insecurity of feeling completely immersed in something as diffuse, new, and abstract as an ongoing and completely iterative process of learning, some project teams delegated significant portions of the interactive process otherwise so critical for knowledge construction to take place:

“They did an analysis of the market as well as an anthropological study with actual anthropologists sitting with the actual doctors in their offices, walking their dogs, went to their homes for dinner — all in order to understand their world, what moved them, what made them want to work with us, and what made them want to work as doctors to begin with over there. Then we did a bunch of other studies as well, if you want to hear about those, and a lot of other research, internal and external, which we then began to churn.” (#9 Sophie, project manager)
At least six different consultancies were hired by the different project teams during this earliest phase of exploration making their involvement seem significant. The observation that some of the innovation project teams even used consultants to act as proxy for them in the learning process raises some immediate questions as to how they viewed the dynamic and mechanic of the exploration phase. From the observations above, it seems clear that there was a strong alignment towards the importance of the open approach and of the focus on learning. It also seems clear that the project teams wanted to get their fingers dirty from a very direct and immediate process since that was viewed as the Novo Nordisk way of doing things. Finally, it is clear that those principles of direct and personal engagement are included in the Innovation Project Model because of an assumption that the knowledge constructed through interactive exploration is ultimately personal and unique to its knower. With this in mind, it seems particularly interesting that certain project teams felt the need to outsource such an pivotal and crucial part of that knowledge construction process. Even though there does not seem to be any clear cut reason why some project teams outsourced some of the exploration process in the way, it seems to indicate a desire to make the otherwise abstract and alien process appear more valid and recognizable.

Despite such decisions to ‘outsource learning’, which certainly deserves further reflection, this earliest part of the innovation process shows a strong connection with the fundamental principles of knowledge communication theory (see the conceptual framework in section 2.4). As the innovation project teams left the comforts of their office spaces behind, they began to interact and communicate directly with the domain defined by their strategically selected innovation theme. This continuous communication knowledge enabled project teams to construct knowledge. They mapped key stakeholders and engaged them in relation to what they knew. The exploration phase was thus determined by an appreciation of knowledge asymmetries and catalyzed by an consequent evaluation and qualification of these. At its outset, it is a highly diffuse, iterative, and abstract process during which project teams are encouraged to maintain flow and not jump straight to any notion of solution or concept. They are to be immersed within their domains until they approximate a sense of saturation. Because these principles were experienced as so different than the highly regulated, sequentially linear, and often incremental approach of conventional Novo Nordisk project management methodology, project teams felt insecure. While this consequence might have seemed problematic, it was expected by the Innovation Steering Committee and by the centrally placed, coordinating Innovation Strategy Office. As such, they had made sure to include a number of tangible approaches to structuring the exploration phase as much as possible. These tools or techniques were on one hand meant to provide the project teams with a sense of normality and on another hand meant to ensure a certain degree of transparency among otherwise unique projects with unique explorative processes.
5.1.2. Imposing structure to the knowledge construction process

Based on the recognition that an holistic and immersive exploration focused on flow, iteration, and recursivity would quickly become too difficult to manage even for the most experienced innovator, the Innovation Project Model advocates the use of specific tools and techniques to ensure structure. Explorative innovation in the context of Novo Nordisk is obviously not going to be the same as merely ‘playing around without rules’, as some critics of less rigidly structured types innovation warn against (Chesbrough & Appleyard, 2007; Powell, Koput, & Smith-Doerr, 1996). Much like the empirical framework of this project, these tools and techniques can be grouped into two categories: 1) methods for constructing data, and 2) methods for organizing data:

“I think that it is a really good thing to impose formalized processes in the sense that you have to eventually come up with certain outcomes. Innovation should not be just playing around without rules. And I think that a lot of people in fact see it that way.” (#3 John, project manager)

Data construction methods are highly comparable to conventional academic methods in their focus on providing the project manager with valid, reliable, and robust data. All six project teams seem to have often favored a mixed methods approach (e.g. Creswell, 2009) as they made use of surveys, differently structured interviews, ethnographic participant observation, and workshops, while attending conferences and network meetings, and while creating extensive and systematic literature reviews of industry reports, internal memos, and academic research. No sources of information are deemed irrelevant by the Innovation Project Model. Anything that will enable the project teams to learn is important, and as a consequence a multitude of different methods to enable multi-dimensional insights are allowed:

“So we have done these workshops where we have tried to discuss these trends with some of our different centers of excellence. […] We also did some with product supply, research and development, and finance legal IT. Through those we found a range of themes which appeared stronger than the others.” (#1 Thomas, project manager)

Among the different methods of data construction is the actor-challenge map — a tool developed for the Innovation Culture Initiative by one of the associated consultancies. It creates the structure for the stakeholder mapping and engagement strategies of the project teams and helps them approach the task systematically. By initially considering which trends or themes seem immediately salient within the domain of the particular innovation theme, project teams are able to map them out visually and to consider which to focus on. After selecting key trends or themes, corresponding actors are associated and as such help to create an extensive visualization of the domain in question — what is going on and how knows something about it? Even though the actor-challenge map is but one of the many data construction methods of the Innovation Culture Initiative, it became one of the most
used and most recognized of them all — primarily because of its property as simultaneously catalyzing and structuring:

“We used a tool developed by the Innovation Strategy Office and this company, Value Leap, called the actor-challenge map. The point was to ask which trends existed and then to qualify them. We then typically chose one of the trends and asked: ‘which actors should we take in account? Which challenges will face us and how are going to respond to that?’.” (#1 Thomas, project manager)

Whereas these methods for construction data seem to be fairly conventional and without any particular challenges associated with their application, the methods for organizing data are another matter entirely. The primary method for such work is the learning plan (see documents #71 and #92 for examples of learning plans). It was adapted by each of the six projects indicating that such a tool was not only necessary, but also sought after. The purpose of the learning plan is to help the innovation project teams organize what they learn. It means that the project teams have a central, coordinating document to which they continually returned in order to keep track of their insights so that they can update their actor-challenge maps and revise their approach accordingly:

“We did our own learning, if you will. Learning in the context of a core group I had put together every 14 days. We asked: ‘how do things look now, what is status quo, and what is the most important thing we could do right now?’ In that regard we had a ridiculous amount of learning. We also tried to do a learning plan at one point in which the goal is to say: ‘what does it take for us to get to a certain point?’ and so on.” (#2 John, project manager)

The learning plan organized the exploration phase in such a way that project teams began approaching this otherwise abstract process as series of knowledge constructing interactions. They mapped key challenges and associated actors (or stakeholders), ventured out in their respective domains, engaged them in interactive and continuous communication, and tried to learn as much as possible before returning to reflect in their office spaces. To the project teams, the learning plan became a method of keeping these series of knowledge constructing interactions coordinated:

“The learning plan enables the project team, or someone you hire, to go out and do some fact finding. After that, you have to be able to churn it and make a new learning plan with new questions. You might go X number of rounds before you even get a feeling as to what you need to focus on, right?” (#6 Henry, member of the Innovation Strategy Office)

The structure provided by this method seems to make sense on an intuitive level. Project teams need a tool to keep track of their iterations, of key challenges and questions, of centrally placed stakeholders, and finally of the observations and insight that they generate throughout the exploration phase. It is a method designed to ensure transparency and structure:
“A lot of our learnings are concrete, but they were not like numbers. It was far from ‘if you do this, you are going to get this out of it’. It was more like ‘we can see that this is somehow important’.” (#9 Sophie, project manager)

The learning plan is, then, a method for structuring something which otherwise seems entirely unstructured. The Innovation Project Model emphasizes its importance because of its ability to help project teams maintain their inquisitive and explorative open-minded approach to their domains. As such, it is a method designed to make the project teams feel comfortable enough during the exploration phase so that they might maintain their holistic immersion longer and thereby learn more. From the experiences of the project teams, however, it became apparent that it might have had an unintended and almost paradoxical consequence to the process:

“Well, it is like working in a place where people understand some things while not understanding other things at all. And it is not even sure that this [innovation] will generate anything of value. That means that it is a very special group of people that thrives in this chaos and in the insecurity associated with it. […] Like I have said, Novo Nordisk is incredible at taking a project from A to B. It is amazingly good at doing so. The core business always runs smoothly. But just as soon as things begin to seem strange or new, we are not particularly great at dealing with that. And I think it is because we do not understand it. And because we cannot get a measurable understand of it.” (#2 John, project manager)

The above statement hints to a certain understanding of innovation, and especially the explorative learning process at the beginning of each project, as something at odds with the Novo Nordisk way of doing things. Despite the principles of the Innovation Project Model, it was clear to the project teams that by maintaining their holistic immersion in their domains and by refraining from immediately seeking solutions or project concepts, they positioned themselves and their projects further and further away from conventional project management methodology (#6, Henry, member of the Innovation Strategy Office). The uniqueness of this new way of understanding and talking about innovation continued to make evident that the project teams of the Innovation Culture Initiative worked differently than the project teams of the core business. The learning plan became a way for the project teams of bridging that gap. Even though it was originally meant to enable project teams to maintain their orientation towards the diffuse, holistic, and abstract for as long as possible, it turned out to drive project teams towards becoming explicit and concrete too quickly.

From the outset there might have been a challenge for the project teams to using tools such as the learning plan — a challenge directly linked to purpose of using them. They have the fundamental purpose of structuring the explorative learning of the project teams, but seeing as how this process is inherently abstract and diffuse and seeing as how it focuses on constructing knowledge inherently tacit in nature, the desire to impose structure is not without its problems. It is, in other words, a wish to impose structure on something entirely unstructured. Seeing as how no one within the Innovation
Chapter 5: Analyzing the innovation process as knowledge communication

Culture Initiative believed in innovation as playing around without rules, it does seem to make sense even on an immediate level. In the introductory remarks of the Innovation Project Model’s guide to the exploration phase, learning is compared to jazz (inspired by Barrett 2012) in that inexperienced musicians, much like the innovator, should not expect to be able to improvise before practicing rigorously and adhering to specific prescriptions and structure:

“The steps and process examples in this booklet are intended as inspiration for your own innovation projects. Initially it is a good idea to follow the steps diligently – even though you do not have to – in order to learn the moves. Working like this is comparable to jazz. When you initially learn to play you will not be able to improvise. You have to rephrase tunes, riffs and whole pieces over and over. It is only when you know your music by heart that you can be spontaneous and jam, seemingly without constraints. We hope this guide can help you learn the riffs relevant for innovation and someday become a free play master.” (document #61)

While this demonstrates a recognition that the innovation project team might not have been experienced innovators at the outset of their projects, it also states that by adhering to certain steps and being rehearsing over and over, the musician and the innovator will be able to play finer and finer music. Through the Innovation Project Model, then, it is communicated that the spontaneity, improvisation, and abstraction that characterized working with knowledge could only be attained through more structured approaches.

5.1.3. A strong, cultural push towards making knowledge explicit

Tools such as the learning plan can only work if project teams are able to write down what they know and what they plan to learn about. This most fundamental assumption behind the method of the learning plan means that project teams are forced to try and make their knowledge explicit so that they might – simply put – write it on a piece of paper. They are encouraged to formulate key insights or key observations in order to keep track of them. As an example, the learning plan of the Future Field Force project at one point included “Diabetes stakeholders increasingly use digital communication channels”, “Digital channels can contribute to enhanced HCP relationships”, and “Integrating digital & traditional channels improves communications effectiveness” (document #53), while the learning plan of the Bottom of the Pyramid project included “Ikorodu is a representative urban BoP population”, “A patient faces several geographic and financial barriers when going to a government health center”, and “There is inconsistent knowledge of the FBG standard level among stakeholders, especially nurses and pharmacists” (document #37). This push towards somehow making knowledge explicit meant that project teams could not help but orient their knowledge construction process towards creating ‘products’ of some kind. Rather than talking about flows, immersions, iterations, and processes, the vocabulary associated with the exploration phase changed to focus on ideas, insights, and observations. When members of the Innovation Culture Initiative talked about this earliest phase of the innovation process, they began focusing
their attention towards ‘learnings’ — changing semantics from the uncountable (mass) noun of ‘learning’ to a countable noun of ‘learnings’. This indicates that the project teams experienced some sort of push towards making the knowledge they had constructed through their explorative interactions tangible and explicit.

The push seems to have come from two different places within the larger context of the Innovation Culture Initiative — the more abstract cultural identity of Novo Nordisk and the different project steering committees. This especially became clear during the initial months of each project — a discrepancy between exploration as immersive flow and exploration as a structured production of explicit knowledge. By trying to maintain a diffuse and abstract flow of learning, the explorative process seemed to feel strange and alien to the project teams. From day one they had a feeling of diverging strongly from the Novo Nordisk way of doing things, and this feeling generated significant insecurities:

“You cannot just take anyone in this organization and place them here. Far from everyone thrives with this insecurity and this focus on learning. We also changed the way we talked about the project, because Camilla kept on asking: ‘Well, what are you getting at?’ to which George replied: ‘Well, we do not know yet’. ‘I am not going to give you a million if you do not know what you are getting at’.” (#1 Thomas, project manager)

Project teams simply did not feel that their focus on learning matched the Novo Nordisk way of doing things and even to a point where it may have felt to exist in direct opposition to it. They felt that they were simply doing the wrong thing by trying to focus on flow, process, and abstraction rather than deliverables, value, and impact. Furthermore, it is important to mention that it was in fact not a matter of a dyadic opposition between the Innovation Culture Initiative and the rest of Novo Nordisk — the project teams were, after all, constitutive members of the Novo Nordisk cultural identity and as such, they themselves struggled to see the connection between the principles of the Innovation Project Model and the principles of conventional corporate project management.

The feeling of chaos and the insecurity generated by it meant that project teams all too quickly and somewhat impatiently jumped from an orientation towards intangible processes to an orientation towards explicit products:

“Everyone thinks they need concepts. It is a flow of ideas, and of course people are going to get ideas, which will get better over time, but because they are not that good to begin with, people feel scared. They are especially scared, if they have not tried it before, and if they have not seen that it will eventually lead to something real. The steering committees have not experienced something real, the project teams have not experienced something real, because neither of them have tried it before. And then they get impatient. They stop generating ideas too early and begin to say ‘alright, at least we have got something, we have got these ideas, and this allows us to say that we have at least got something’. (#10 George, external consultant)
Even though the fundamental purpose of the methods for constructing and organizing data is to ensure that project teams only reach a number of explicit key learnings once they undertake a substantial and lengthy process of immersive and holistic learning, the result became that projects skipped ahead in order to disrupt feelings of risk, insecurity, and diversion. It drove them towards making the knowledge constructed by the teams during the earliest steps of the exploration process explicit and oriented towards countable products.

5.1.4. A condensed perspective on phase 1: construction

From only a few weeks of working alongside the project teams, it became clear to me that this earliest phase of the innovation process simultaneously presented the members of the Innovation Culture Initiative with an unprecedented freedom to fully dedicate themselves to understanding the complexities of their innovation themes while placing them in a paradoxical context in which the insecurities and risks generated by this very freedom seemed so alien to them that they almost felt forced to compromise it. It meant that the project teams made a range of compromises which could seem to challenge the fundamental rationale behind the Innovation Project Model and which therefore deserves a place in this synthesis of the exploration phase.

The first compromise addresses the immersive and holistic properties inherent to the exploration phase. These properties generated a feeling of insecurity and risk otherwise completely alien in the context of conventional Novo Nordisk project management. Because of this, some project teams hired external consultancies ‘to do the learning for them’. Even though this meant that projects were assisted by professional anthropologists and very experienced organizational consultants, it also meant that they interacted to a lesser extent with the domain of their innovation theme. The processes in which consultants were used therefore failed to result in a construction of personal knowledge, and instead resulted in various types of documentation containing information. Important information, but information none the less – not knowledge. The importance of such a terminological and conceptual distinction was discussed in section 3.3.1. when the theory of tripartite knowledge construction was introduced. While the use of consultants became commonplace for some of the project teams, it never fully replaced the exploration phase for any of them. It rather functioned as a supplement — as the hiring of authorities familiar with working in immersive and holistic manners and letting them produce a range of key insights or observations. It is still fair to say, then, that the project teams did work with exploration and that they themselves did interact with the domain of their innovation theme in order to construct knowledge based on the interactive communication that took place between them.

The second compromise experienced by the project teams came as a result of imposing a specifically oriented structure to the exploration phase. The use of actor-challenge maps and learning plans in
particular meant that project teams had to constantly articulate and write down what they knew at any given time and what they did not yet know. These methods meant that they had to become explicit about this most immersive and holistic process despite the observation that the knowledge they had constructed by interacting with the domains of their innovation themes was personal and inherently tacit in nature. This changed the focus of the exploration phase from constructing knowledge in a continuous flow to producing ideas, insights, and observations. The imposed structure effectively changed the orientation of the exploration from ‘learning’ to ‘learnings’ — from uncountable to countable — from flow to product:

“I think that people had a hard time, because everything was based on uncertainty and ambiguity. Where everything else — the entire core business — is based on answers. You would rather want to give an answer than you would want to be right. Or know that you are going to be right, when you are giving an answer. So in order to move on, you pretend like you know what you are talking about. That is my own interpretation, but it is just the culture that we have got. We are a serious group of impressive people, so to admit that you do not know a damn thing is really difficult.” (#12 Matthew, vice president)

This discrepancy between flow and product, between not even knowing which question to ask and being able to answer every question with absolute certainty was highly characteristic of the exploration phase as it was experienced by the project teams. It quickly became an uneven balancing act because of the push from the projected cultural identity of Novo Nordisk towards producing explicit, tangible results through hands on work. Project steering committees as well as the project teams themselves all wanted to push the projects in the direction of conventional project management methodology, because it aligned with this cultural identity to a far greater extent than that of the Innovation Project Model:

“It is easy to see that there is a pressure on innovation projects to make money and that this comes from the entire organization. There is of course a certain amount of money set aside for having fun and goofing around with exploration for a while, but there is a definitely a pressure to make sure that something actually happens and that it better be something you can make money from.” (#9 Sophie, project manager)

Despite these significant compromises to the principles of the Innovation Project Model generated by could be regarded as a clash between those principles and the conventional ‘way of doing things’ in Novo Nordisk, the exploration phase of the innovation process must be said to be highly comparable to the process of constructing knowledge as prescribed by knowledge communication theory (see section 2.4). It even seems reasonable to argue that the connection is so strong that they seem to indicate an inherent acknowledgement of these knowledge communication principles.

1. The entire exploration phase of the Innovation Project Model is based on the simple idea that project teams learn about the domains of their innovation themes. At the core of this
phase, then, is the construction of knowledge. The fundamental objective of it is to construct the domain-specific knowledge that will eventually lead to the construction of specific insights and observations carrying a certain value potential to the company.

2. This process of constructing knowledge is a personal one. It is the project teams themselves who should leave their desks and interact with their surroundings in order to learn. There is a strong recognition in the Innovation Project Model that documentation will never be sufficient — that it will inevitably be about personal knowledge construction through personal engagement and interaction.

3. The entire exercise of explorative learning is based on the recognition that someone somewhere knows something which could be of value to the company. By working with actor-challenge maps, the project teams were able to appreciate these asymmetries and qualify them to the extent that they catalyzed communicative engagements.

4. When engaging their domains, e.g. doctors, patient interest organizations, or local governmental agencies, they did so through ongoing interaction. It was less a matter of approaching key stakeholders in order to ask them a series of questions, and more a matter of spending time with them in order to learn more about the domains with which they were accustomed. Such an approach seems to be based on an appreciation of interaction and communication as being constitutive of knowledge and that this knowledge construction process is best structured by ongoing interactions.

5. Finally, the use of methods to structure the generation of data as well as the data itself indicated a push from the core business of the company towards making knowledge explicit. Such a push would only exist if there was an understanding, albeit an unarticulated one, of knowledge as inherently tacit — that project teams needed specific tools to help them transform or convert the tacit knowledge that they had constructed through their interactions to something specific, concrete, and tangible. From knowledge to pieces of knowledge, from learning to learnings. While one may discuss whether or not such an endeavor is at all possible, and whether or not these methods merely made sure that project teams created pieces of information based on their knowledge, it does seem clear that this push amplified the feelings of insecurity existing among the project teams to the extent where it simply cut short the actual knowledge construction process and forced project teams into a conceptualization phase prematurely.
5.2. Phase 2: Communicating knowledge

Addressing the communication of knowledge as the second separate phase of the innovation process as outlined by the Innovation Project Model is somewhat of a leap. Unlike the other phases, the communication phase cannot be seen explicitly in the original Innovation Project Model. Not only does this deserve pause, but it also poses a question as to the validity of this decision. Before moving on to the analytical sections themselves, it seems befitting, then, to frame this decision properly. From the initial introduction of the Innovation Project Model in the framing of the empirical setting of the project, it became clear that the model is founded on one fundamental assumption of innovation: that an initial phase of holistic and immersive exploration would enable project teams to generate a number of more tangible business opportunities, and that by selecting the most promising of these opportunities, project teams would be able to develop fully tested projects with proven value and finally implementing those projects into the core business. Nowhere in this fundamental assumption is communication explicit, but by taking a closer look at the illustration of the model itself, one can see a clear framing of it. The double-loops above each phase of the process with the labels ‘reframing’ associated with them illustrate, however indirectly, how the Innovation Project Model sees communication taking place.

Model 24: The symbol for ‘reframing’ in the Innovation Project Model
According to the model, communication should be seen as a recursive process during which project teams engage their steering committees in ongoing ‘touch base’ meeting in order to continually reframe and sharpen their focus. This is also substantiated in the project model illustration documents aimed at operationalizing the Innovation Project Model, in which the advocated communicative approach is made somewhat more explicit (documents #60 and #61). The reason for the special emphasis on the communication of knowledge in this analysis is that it was experienced by the innovation project teams, by the Innovation Strategy Office, and by many of the different project steering committees as one of the mayor challenges of the entire Innovation Culture Initiative — a perspective which is also present in the final external assessment performed by the Doblin consultancy (document #36). The assessment argues for a communicative misalignment between the Innovation Culture Initiative and the core business and attributes many of the most salient challenges to this misalignment. All of these factors indicate that the communication of knowledge between the project teams and the rest of the Innovation Culture Initiative which took place throughout the innovation process, but particularly at the end of the initial exploration phase, is worth analyzing specifically.

5.2.1. Practicing the communicative ideals of the Innovation Project Model

It seems that this communicative approach inherent to the Innovation Project Model is based on a specific assumption: since the Innovation Culture Initiative is an entirely new organizational context for innovation in Novo Nordisk, since it represents an entirely new approach to understanding innovation, and since the project management methodology created to structure each project is new, the communicative setup of each project should also be new:

“People do not want to think out of the box. I would just prefer to go to a 9-5 job, and why do I need to do that extra bit, if I am not [rewarded for it]… So I think in terms of communicating, I think the message to be given is that we as a company encourage innovative ideas and have room and space for innovative ideas. And I think that in this part of the organization, let us be honest, we have no bottom-line responsibilities, so we need to be innovative about how we can add value to the business. So I would say, if anything we need to a lot more innovative than others, because you do not have the pressures of delivering quarterly, you do not have any sales targets, so you have the liberty and the freedom to think out of the box. (#3 Elizabeth, project manager)

Without any bottom-line responsibilities, any tangible deliverables, or any sales targets, project teams are free to pursue whatever could lead them to a greater understanding of the domain defined by their innovation theme. Whereas this gives them an unprecedented degree of freedom, it also means that the structures and principles of more conventional project management methodologies (e.g. stage-gate or PMM) are non-existing. Instead of adhering to a conventional structure of stage-gates at which project teams are to present their steering committees with a brief project status in
order to outline a number of critical areas of decision-making, the innovation project teams and their respective steering committees have to adhere to a different kind of logic. The idea behind the Innovation Project Model is to enable to project teams to engage their steering committees in an entirely different way so as to make them integral parts of the pivotal learning process. It becomes a matter of ongoing co-creation. Instead of adhering to a few, short decision-making meetings, communication should flow in more informal and transparent processes:

“This is where Paul’s line manager has to be involved in defining the problems and the questions themselves. I mean, it is a journey of learning, and the line manager is a part that journey. Which means that Paul will not be the only one defining everything.” (#10 George, external consultant)

Even though such a different way of understanding how communication between project teams and steering committees should function may not seem particularly radical at first glance, it fundamentally changes the function and purpose of the steering committees. They are transformed from pure decision-making teams established because of their abilities to make decisions based on experience and skill to co-explorers and co-creators of the innovation projects. By being fully engaged throughout the innovation process, they are meant to learn alongside the project teams in order to ensure complete alignment and synergy between the two. The implementation of such a transformation was, as one might expect from such new ideas, not without its problems as steering committees struggled to find their footing in this new setup:

“Well, you need to get the steering committee’s frame of mind just right, so the first couple of meetings are going to be tricky, because they will say: ‘what do you mean, are we not going to make any decisions?’. They now have to show up at meetings and say: ‘Alright, what are we going to decide? We are not going to decide anything? We are just going to sit and listen?’ So that will take quite an effort from the Innovation Strategy Office, as I see it, to get that frame of mind right. […] In this way it is important that they are working on the same set of premises.” (#7 Oliver, external consultant)
Despite the disruption of the conventional way of structuring communication introduced by the Innovation Project Model, there initially seemed to be a willingness to make it work. Every part of the company involved with the Innovation Culture Initiative were aware of the fact that it represented a range of new perspectives and approaches, and that their involvement was conditional on their attitude towards these changes.

This change to the communicative structure involving the steering committees also means that project teams do not have to be as strategic about their communicative approach as would otherwise be the case. Because of the continuous nature of the interaction between project teams and steering committees, the relationship between the two units are meant to become more informal and more transparent. It is a matter of letting the uninterrupted flow of learning — of constructing knowledge — dictate the structure necessary for this flow to function optimally. This means that project teams do not have to brake their explorative and holistically immersive process of knowledge construction down into neatly and sequentially linear phases in order to be able to report and present project updates in the conventional manner, but that they instead would be able to engage the steering committees in a continuous flow of communication:

“The project was not yet completely developed, Camilla’s ability to supervise the project as project owner was not yet completely developed, and my own understanding of how this type of innovation project was to work was not completely developed either. So there were a lot of insecurities there making it important to constantly navigate and to constantly touch base with her and with the steering committee: ‘alright, this is where I am now, do we agree to continue along this route?’” (#1 Thomas, project manager)

This connection between a continuous flow of communication and the informality of the process is meant to reduce the distance between project teams and steering committees, which in turn is meant to support the perspective that both teams are integral in the process of knowledge construction. It becomes an informal back and forth as project teams try to involve their steering committees as transparently as possible in their own process of exploration and learning — to bring the steering committees some of the way into their immersion so that they themselves can experience at least some of what helped construct the project:

“In 2011 I did the math and found that we had a stakeholder presentation every three weeks here and there. Either to line managers, governance supervisors, project teams, management boards, or steering committees, and this was also situated on the level of international managers and directors, so we have addressed all kinds of management levels.” (#2 John, project manager)

When one lets the conceptual framework of knowledge communication theory play a more direct role in the understanding of these communicative ideals prescribed by the Innovation Project Model, the connections seem strong. In the model, communication is first and foremost illustrated
by the double-loop figure underlining the perspective on communication as an ongoing, recursive process during which project teams and steering committees frequently touch base in an informal and transparent manner in order to engage each other in a co-creation of knowledge and a constant reframing and scoping of the entire project. This perspective seems to align almost perfectly with the principles of Dance’s helix-model of communication (1967) and Kincaid’s convergence-model of knowledge communication (1979) in that they also argue for a continuous negotiation of meaning through processes of interaction between communicators. As such, the Innovation Project Model indicates a move away from the more conventional status presentations where project teams provide steering committees with information in a one-way transmission (see section 2.2.2. on the communicative dimension of knowledge transfer theory) and towards a communicative flow in which the co-creation of meaning and knowledge is at the core (see section 2.3.3. on the communicative dimension of knowledge communication theory). The Innovation Project Model even states this point quite explicitly:

*Make sure to facilitate the reframing workshop as a creative process with focus on discussions, exploration and learning rather than as a traditional meeting focusing on passing on information and making decisions.*

(document #61)

Even though this perspective was introduced in this dissertation as early as the framing of the empirical setting, the consequences of it experienced especially by the project teams and their steering committees only now become clear. It seems to have been an incredibly significant shift in the way projects were managed. Simply stating that the Innovation Culture Initiative uses a new project management methodology does not begin to capture the cultural and mental shift that is needed to accommodate this new approach to communication within the framework of the innovation projects. As members of the steering committees, vice presidents have to leave behind their experience and their tried-and-tested skills in project supervision in order to let themselves be parts of the innovation process in a completely new way. They have to communicate with the project teams on a frequent basis, they have to let themselves be engaged in the process of holistic and immersive exploration, and they themselves have to refrain from jumping straight to answers, products, or deliverables. The role of the co-creator was as new to the members of these steering committees as the role of the innovator was new to the members of the project teams. It therefore seems almost unavoidable that the implementation of such a new structure for communicating between these two units would be challenging at best.

As the primary proponent for the new communicative structure, the Innovation Strategy Office constantly tried to coach project teams and steering committees in their negotiation of their newly found communicative positions and orientations towards each other. Despite their best efforts, it quickly seemed to be a difficult battle:
“Both Alice and Henry [members of the Innovation Strategy Office], are the type if people who are a creative, right? They have to convince some extremely cynical hardliners. That is not an easy job at all. It is no problem for them to inspire people like me, who look like they do, but I think that the main problem is that they have to gain personal credibility. I think that what Alice has created is really great. Considering what I initially thought about it, it has also become much, much better, but I still think that they will have a hard time selling it. […] They are going to face the attitude: ‘here comes another piece of naïve bullshit that we cannot use’. (#12 Matthew, vice president)

During the first period of the Innovation Culture Initiative, project teams and steering committees struggled to make sense of this new communicative setup and to find their place in it. Some projects adhered to the communicative ideals and prescriptions introduced by the Innovation Project Model and set up a series of frequent and informal meetings, just like some steering committees did their best to approach this new way of supervising projects without any of the conventional structures in place. One example of this is the Future Workplace project, which brought its steering committee into its actual workspace and took the committee through the exploration and learning process as they themselves had experienced it. They showed them the messiness of whiteboards filled to the brim with post-its of ideas, they showed them sketchy stakeholder maps, and they tried to be transparent about their failures from which they had learned. As such, projects like the Future Workplace project tried to strictly adhere to these communicative ideals, because they accepted the assumptions at their core, and because they wanted to experience the consequences from working with them. After only a brief period into the existence of the Innovation Culture Initiative, however, more and more project teams began to face more and more frustrated steering committees. Even though the communicative ideals and principles of the Innovation Project Model were clear and explicit, both project teams and steering committees began to experience them as clashing with the cultural identity of Novo Nordisk — a clash which at first could be ignored in the name of innovation, but which in time began to demand attention:

“A general experience I have had with all the projects that we have worked with through the Innovation Strategy Office was that when we were very fundamentalist with our model, and when we had taken people through it rigorously, people just died because of it. Even though it did bring results in the end. The same thing happened in R&D Device – as soon as you begin to arrive at something, the decision-makers that you face begin dumbing things down and begin making decisions. You will not believe how quickly the exciting and the innovative stuff get thrown away, because we have simply got an immune system against these things. That is why I have learned that you have to be pragmatic towards the situation that you are facing.” (#6 Henry, member of the Innovation Strategy Office)

The way that project teams thus experienced the consequences of the communicative ideals and principles of the Innovation Project Model was not a positive one. Instead, the new structure simply generated a number of significant problems between the project teams and their steering
committees. By trying to be transparent and by trying to engage the steering committees in a completely different way than was convention within the company, project teams were faced with increasingly frustrated superiors. The communicative ideals and principles did not seem to be completely aligned with both perspectives then:

“I think the presentations tend to become picturesque. It is all very neatly framed. The project teams spend an incredible amount of resources preparing for those meetings in order to make everything look great, but that only introduces a very real and practical problem: they have no way of capturing their work-in-progress.” (#10 George, external consultant)

Even though the Innovation Project Model does advocate for a mutually engaging and co-creating approach in which project teams should place their holistic and immersive exploration front and center – something that seems perfectly aligned with the prescriptions of knowledge communication theory – steering committees began to experience the communicative instances between them and projects as too vague, abstract, and indecisive. In the Innovation Project Mode, project teams are advised to refrain from directly addressing value potential too early in the explorative phase out of fear of limiting the potential of it. Once again, however, design ideals and user experience did not match perfectly. Steering committees experienced this new communicative orientation as an inability to address the one thing which mattered the company as a whole: what can we get out of it? Even though this approach towards addressing value in an explicit manner may seem entirely intuitive and commonsensical, it simply clashed with the ideals and prescriptions of the Innovation Project Model:

“Well, if they could just continue doing their fun stuff within that framework. I mean… In my division we always need to be able to tell what we are doing in eight bullet points. How are we making a difference? That is what we need to do, that is what we are hired to do. If we move away from that, we forget what we are hired to do, which means that the company loses out. They [innovation project teams] seem to position themselves a

05-10-12 09.10: James’ desk in 6A

Perceptions:
Alice just spoke to Emma’s executive assistant. She asked her if it would be possible to reschedule an upcoming meeting between Emma and Alice. While Alice was accommodating in that she agreed to pushing back the meeting, she also made sure to underline to me that this was beginning to happen quite a lot: “It is almost coming to a point where we are only having one in three meetings. The rest just get rescheduled or canceled.”.

Reflections:
Emma is Alice’s line manager, and they are both highly invested in the innovation agenda, but contact between the two does not seem to be that frequent. Maybe because she is very busy, or because there is no need. Alice seemed frustrated, however. Frequent meetings are perhaps more an ideal than anything else.
At its outset, the communicative ideals and principles prescribed by the Innovation Project Model emphasize an interactive understanding of communication and one that places this type of communication at the core of a knowledge-centered co-creation. Project teams are to engage steering committees in an continuous, mutual, and recursive process of communication. This process is meant to take the holistic and immersive exploration at the heart of the entire Innovation Culture Initiative as its pivotal point just like it is meant to enable project teams to be completely transparent in their communication with their project teams. The underlying assumption of this new approach seems to be that the knowledge constructed by the project cannot simply be transferred, but that it instead should be co-created through transactive and constitutive communication. As such, the double-loops illustrated by the Innovation Project Model matches the spiral and helix-models of communication central to knowledge communication theory (section 3.3.3). From the experiences of both project teams and steering committees, however, it seems that this approach to communication was not embraced without significant difficulties. Rather than merely bringing about a new way of communicating within a new way of structuring the communicative dimension of innovation projects, the Innovation Project Model effectively introduced a new ‘voice’ to Novo Nordisk and one that did not align itself with any other voice present. In order to speak with this new voice, project teams and steering committees were required to adapt an entirely new vocabulary to match its underlying assumptions, and whereas some project teams attempted full-heartedly to do so, no one seemed to remain completely clear of the significant challenges and issues with such a disruptive change to the conventional Novo Nordisk way of doing things.

5.2.2. Increasingly complex stakeholder communication

From even the most immediate observations, it quickly became clear that the implementation of the new and unique voice of the Innovation Culture Initiative along with its communicative ideals and principles was far from problem-free. The most salient reason for this seemed to be the difference between it and the more ‘monotonous’ voice of the core business – the strong and dominant cultural identity of Novo Nordisk. This difference seems to have resulted in the problematic communicative relationship between the project teams and the steering committees as they tried to adapt to this new communicative dimension so far removed from that which they were accustomed. At this point, it is important to emphasize that this particular issue was experienced as being far more complex to the project teams that what could be explained with a few stubborn or conservative steering committee members. The communicative challenges experienced by project teams were significantly more complex than that and in order to better understand why both project teams and steering committees struggled with the adaptation of the unique voice and
communicative structure prescribed by the Innovation Project Model, it is important to better understand the context in which it existed — who were the actors, what was the organizational context, and what did the task of communication seem like? In other words, in order to understand why this challenge appeared, it is important to understand how, when, and with whom the project teams were meant to communicate.

The first task in this endeavor seems to be an expansion of the term ‘steering committee’, which I have been using up until this point for the sake of simplicity in order to signify the important duality of project teams and steering committees. In fact, this duality is a simplification of something entirely more complex. As discussed in the introduction of Novo Nordisk as the empirical setting of the project, the organizational context of the project teams certainly did include a project steering committee, but this was far from the only key stakeholder. The list of directly connected internal stakeholders to each project included, but was not limited to the Innovation Steering Committee, the Innovation Strategy Office, the other five project teams, their line managers, as well as the line of business responsible for ultimately taking over the project. Apart from these internal stakeholders, each project team were also connected to a significant range of external stakeholders contingent on the type of project:

06-11-12 13.09: The ISO office

Perceptions:
There is meeting on the “King’s Health Partners” project. Participants are Alice, Henry, Oliver, Peter, Niels, and myself. Peter introduces a communication plan aimed at the interface between the project and its internal stakeholders. Henry interjects: “I think it is really important to be completely honest about the status and progress of the project. I mean, I think it is so important that we tell everyone how things really are rather than just how we want things to look.”. Oliver quickly jumps in and suggests which meetings to plan relating the presentation and discussion of the findings from stage one – the exploration and data collection. Peter responds by trying to establish an overview of the most critical internal stakeholders: “So I suppose there is three venues of communicating, really. The first is with the project steering committee. The second is conferences or a single one-day conference for all other stakeholders within Novo. And the third would be the King’s Health Partner groups”. When turning to the communication with the project steering committee, things quickly get very micro and very detail-oriented. Alice begin talking about modes of communication, whether or not the process should be controlled strategically, and who will be sitting on the opposite side of the table at these meetings: “It needs to be a controlled process, because we can’t just do slides. If we just let insights flow freely, it is really not good. We want some kind of control.”. The discussion turns to the characteristics of the individuals comprising the different steering committees, the joint board, and the reference board: “The last thing we want it to have six sigma and lean representatives to steer the process and to say that we need to do this and this and this: ‘show me your learnings and your results’. We need someone to advocate innovation.”.

Reflections:
Even though Peter wanted to talk about governance, project team composition, and so on, we really only focused on the communicative aspect of her project. Everything quickly came to focus on who sat where, which people made up which committee, how each committee should be approached, making sure not to speak in front of too many ‘lean’ people.
Chapter 5: Analyzing the innovation process as knowledge communication

“We have a steering committee, consisting of Emma [a vice president in Novo Nordisk], Jesper, the head of International Operations, and Neil Capour, the head of the World Diabetes Foundation, so we have got a very good steering committee. We have also got an advisory board. We have got internal and external people supporting this project, which makes it quite complex in terms of partnership management.” (#3 Elizabeth, project manager)

The different organizational positions and orientations meant that each of them required a unique approach, and because of the sheer number of stakeholders, project teams were faced with a significant challenge. Not only did they have work in a completely different way than what they were used to in order to help develop and apply a new approach to a new type of innovation, they also had to figure out ways in which to maintain an overview of this range of stakeholders — in no way an easy task:

“They have also had to report to their own line managers, to their own steering committee, and also to the Innovation Steering Committee — and you know what? Sometimes also to the executive management team. So I know that this is one of the things that they have had a hard time with.” (#5 Alice, member of the Innovation Strategy Office)

It is important to bear in mind that the extensive stakeholder map connected to each innovation project was not so much a result of particularly interested people within and beyond the company, but more a result of the initial phase of the innovation process itself. Project teams engaged as much of their domain as they could and mapping out people with domain-specific knowledge within the company itself was an intuitive first step in this process of exploration. As they progressed, their stakeholder map expanded and in this way, it became more of a by-product of exploration. Project teams were learning from their stakeholders, they were persuading them of the validity and potential of their projects, and they were gaining political and cultural capital while doing so:

“It is so important that you are able to identity as early as possible which elements and parts of the organization that you have to engage. And then spend time doing just that. That is what we did in the US. We spent an incredible amount of time meeting so many more or less influential people over there, even though at the time we did not even know what the project would end up as. We spoke to people from Market Access, we spoke to people from the line of business, we spoke to someone from Sales, we spoke to everyone. That made us visible and recognizable there. […] But this is also where we are strong with the innovation agenda. We are able to engage people across organizational boundaries and silos, because we are free from those usual limitations.” (#9 Sophie, project manager)

On an operational level, project teams had to talk about their projects and about innovation every time they engaged a stakeholder. In this way, the communicative dimension of the Innovation Culture Initiative signified more than what went on in steering committee meetings. It became a matter of navigating through a significant number of stakeholders. Even though most project teams
referred to this exercise of mapping and engaging stakeholders as the ‘actor-challenge map’, it seems to have a strong resemblance to conventional stakeholder engagement theory (Cornelissen, 2011; Mitchell, Agle, & Wood, 1997). Each project had a unique actor-challenge map, but most projects seemed to have had many of the same types of stakeholders. When illustrated as a basic radial, the overwhelming task of managing such stakeholder complexity experienced by many of the project teams seems more easily recognizable:

![Diagram of internal stakeholders of most innovation project teams](image)

*Model 25: A sample map of the internal stakeholders of most innovation project teams*

After having mapped out and analyzed critical stakeholders, project teams devised different engagement strategies for them. Such strategies ranged from the macro, e.g. the overall agenda or the modality of the communication, to the micro, e.g. what clothes to wear, the length of the pre-read material, or the which tense would be most appropriate for the verbs of a certain presentation. This level of attention to detail as well as this overall focus on stakeholder management as integral to the communicative dimension of each project meant that project teams spent extraordinary amounts of time maintaining it. It was a complex agenda, and with the abstract and holistic properties of the innovation projects in mind, adapting one’s communicative strategies became increasingly difficult:
“Right now I am in the middle of writing a memo, and I am getting two pieces of contradictory input from the people, who in fact should be helping me do it. […] It is about writing one single memo, which the Innovation Strategy Office has to take on to the executive management team. But because the memo is about the outcome of the project, Camilla [Thomas’ line manager] also has to take the memo to the executive management team, because it is a part of her project portfolio. So both the Innovation Strategy Office and Camilla feel that they need a say in this, but they just have completely different input regarding the message of the memo. […] I basically need to write a single memo to capture contradictory pieces of input from the Innovation Strategy Office and from Camilla and I have to navigate through that.” (#1 Thomas, project manager)

This example of Thomas’ challenge to draft a single memo that was going to travel through two very differently oriented stakeholders in order to finally arrive at a third stakeholder captures some of the complexity experienced by the project teams in terms of stakeholder management. When even the most basic task of figuring out which words to use when talking about innovation in this new context was difficult, writing such a memo to three different stakeholders with their own unique focus and orientation required great skill and careful planning. Because of the scope of this complex stakeholder management, some project teams even went as far as to dedicate specific members of their teams exclusively to mapping, maintaining, and engaging their internal and external stakeholders. The task and complexity of communication was simply that time consuming:

“In our internal organizational diagram within the project, there is the project manager and me at the top. Co-project managers. […] Then we have got two project directors, an external consultant, and someone from the local line of business. That person is called Peter, and he has just chosen to hire a person to handle the communication instead of hiring someone to do innovation. That is some priority, right?” (#6 Henry, member of the Innovation Strategy Office)

The fact that some projects hired people exclusively for the task of stakeholder management seems to indicate that it reached a scope where it was no longer integral to or constructive for the purpose of learning. It became a matter of touching base with a wide range of internal and external stakeholders all with different kinds of interest in the projects as well as different perspectives on them. From mapping out key actors as a part of the holistic and immersive exploration of knowledge construction, project teams eventually ended up with ever expanding and increasingly complex stakeholder maps requiring more resources to simply maintain an overview of than the projects could do themselves. The scope and frequency of these stakeholder engagements — meetings with different types of steering groups and with advisory boards, memo production, project show-casings to different areas in different lines of business, workshops with local organizations in different countries, and so on — meant that the communicative dimension of the Innovation Culture Initiative changed. From initially being about a project team touching base with a steering committee, and about that same project team mapping key actors within the domain of their innovation theme in
order to engage them within the frame of constructing knowledge, communication came to represent presentations, memo-drafting, and show-casings — all oriented towards different complex stakeholders. The communicative dimension was almost never about co-creation any longer, but rather about maintaining relations.

It meant that project teams were often faced with people who were not accustomed to the unique voice and vocabulary of the Innovation Culture Initiative. Each time they had to engage a stakeholder, they knew that they had to start from scratch, and they knew that they were going to keep encountering skepticism, because they were speaking in a different voice. They were defining innovation differently, they were challenging the conceptual framework of the dominant perspective on innovation, they were trying to argue for the merits of such alien concepts to Novo Nordisk as holistic immersion, recursive iterations, and learning, and they were doing so throughout the entire innovation process. They were constantly faced with the monotonous voice of the dominant cultural identity of the company.

Eventually, it became clear to the project teams and to the coordinating Innovation Strategy Office that holding on to the communicative ideals and principles of the Innovation Project Model was becoming too difficult to maintain. The reasons for this may be many, but it seems clear that one particularly salient reason was the push from the cultural identity of Novo Nordisk and from the many stakeholders towards the more conventional way of doing things — and, perhaps more importantly, towards the more conventional way of communicating. When push came to shove, the project teams felt that they were simply not able to communicate about their projects or about their new approach to innovation in the way expected by their stakeholders just like they felt unable to explicitly and

**02-10-12 15.12: A meeting room in 5A**

**Perceptions:**
Alice, Oliver, Jack, and I are having a meeting regarding the status of “innovation leadership document”. The memos should be aligned (structurally and visually), which they are not at the moment. The document is going to be moved from an Innovation Strategy Office-only section of Globeshare [intranet] to a section where the Innovation Steering Committee also has access. The document is not yet finished, but close to being finished. Alice has changed the language in the latest version — all verbs have been changed from past tense to present to signal action. She goes on to talk about the language itself at the micro level — about moving sections back and forth, about the formatting of text, about the phrasing of specific arguments: “I know it is a bit strategic, but I really think it matters.”. The entire meeting turns out to be specifically on micro-level stuff of the memo and not the slides for the meeting with the executive management team.

**Reflections:**
The meeting was extremely detail-oriented. We discussed the tense of verbs and whether or not certain columns should be included or excluded in the more than ten excel-charts in the document. There seems to be a clear orientation towards strategic and reception focused communication.
unequivocally address the business value of their projects — an all-important element to the monotonous voice of the company.

It quickly became clear that those project teams, who had tried to adhere to the communicative ideals and principles of the Innovation Project Model, began to move back towards the cultural identity of Novo Nordisk and towards their own idea of how things should work around here. The Innovation Culture Initiative reduced its distance to the core business of the company when it began to abandon the new and unique voice introduced by the Innovation Project Model. With this reduced distance and with this change of voice, project teams and steering committees also adjusted their communicative strategies and structures to better match what they viewed as their organizational context. In other words, the project teams began to abandon their unique transaction-based approach to communication in order to adapt a more conventional transmission-based approach.

5.2.3. Changing the voice and the communicative structure of innovation

It is difficult to estimate a specific stage at which the project teams changed their communicative approach as they did so at different stages of their projects and also in different ways. The Googling the Beta Cell project was, for instance, one of the first to change, while the Future Workplace project was one of the last. What does remain clear, though, is that all project teams eventually abandoned the ideals and principles of the Innovation Project Model and adapted a more conventional approach to the interaction between themselves and their steering committees. What becomes particularly interesting within the analytical perspective of knowledge communication is how that change took place and how the consequences of it changed the communicative dimension inherent to the Innovation Culture Initiative. It is interesting, because such a change indicates the presence of dimensions which challenged the ideals and principles of the Innovation Project Model. In order to approximate this, it seems important to examine the change of communicative approach further.

The analysis of the communicative ideals and principles outlined by the Innovation Project Model showed a number of challenges to these very same ideals and principles experienced by both project teams and steering committees. If these challenges were to be condensed, the most salient could read as follows: 1) the project teams could not explicitly address the tangible value of their projects, 2) there was too great an emphasis placed on the flow of holistic and immersive exploration, 3) there was a highly unconventional demand for complete transparency regarding messy processes and salient failures, and finally 4) neither project teams nor steering committees felt that they had the time or the resources to touch base as frequently as they were required to. All of these challenges seem to be connected to the new and unique voice designed for the Innovation Culture Initiative — the innovative way in which innovators should communicate about innovation, and the new
vocabulary which should be associated with it. From the experiences of the project teams and the steering committees it seems, however, that this new voice was experienced as simply too different and too distanced from what was otherwise perceived to be the ‘monotonous’ or ‘unified’ voice of the Novo Nordisk core business. The challenges to this new voice were so significant that the project teams began to abandon it in favor of a more conventional one.

It is important to emphasize that this change was less a matter of reinventing a new voice to take the place of a discarded one and more a matter of simply reverting to a tried and tested one. Seeing as all members of the project teams were already highly skilled and experienced project managers from different other places within the company and within other companies, they were well aware of the more conventional communicative setups of project management methodologies. In this more conventional approach, meetings between project teams and steering committees are not at all about co-creation, learning, or mutually engaging interaction, but rather about effective, action-oriented, focused, and condensed decision-making:

“I think we have a meeting once every three months. […] It is enough for us to show progress. I mean, the idea of the steering committee is also that they make decisions. They do not do the work. So they just come, attend the meetings, they listen to what we have to say, and then they make decisions. […] It becomes decision-making meetings, progress meetings, which last around an hour and a half. So we tell them what we have done. We ask them which decisions we need, and we move ahead. It is pretty effective. […] It depends on what you want from them, because you can fill them with a lot of details, but what is relevant for them to know? What are the key critical decision points? I think that is what we keep it to. The rest of the details, we can spare them with. And if you are asked, we tell them, but if we do not, we just move ahead.” (#3 Elizabeth, project manager)

From the above quote it becomes particularly clear what kind of a change was experienced by the project teams in particular. The principles of transparency, co-creation, learning, holistic immersion, and flow were abandoned in favor of conventional project presentations. Meetings became

29-11-12 08.54: The ISO office

Perceptions:
Paul and his new line manager are having a meeting in the Innovation Strategy Office. Henry and I are the only other people working in the room. Paul is briefing his new line manager and introducing her to a framework of his project, his organization, and to innovation in general. When outlining the unique aspects of the Innovation Culture Initiative projects compared to traditional projects, Paul said: “It ends up focusing on stuff like learning processes… [laughing slightly]. I know – it sounds a bit…”. To this, she replied: “Yes, it sounds difficult and complicated, which is why I am particularly interested in it.”.

Reflections:
It was very clear that Paul didn’t want to commit too strongly to the innovation language. The only time he used the innovation vocabulary was when he used the word ‘learning’, and even when he said that, he even laughed slightly.
strategically designed presentations of the projects’ status quo as well as a range of critical decision points. The first tangible consequence of this transformation was a change in the frequency of meetings. From touching base once every few weeks, project teams and steering committees met once every month or once every three months. If meetings were about making decisions, they would only be held once a critical number of decisions were amassed:

“If we have a project team with a handful of people which meets with the steering committees once a month for an hour that would be much better. [...] And this group should meet for decision-making.” (#Fieldnotes November, Alice and Henry, members of the Innovation Strategy Office)

The new format of the exclusive decision-making and the reduced frequency of meetings meant that the project teams could change their message completely. No longer would they have to refrain from explicitly addressing value just like they no longer had to spend time talking about their failures. They experienced a much more comfortable, recognizable, and approachable set of expectations as to how they should communicate with their steering committees. Not only were they now allowed to address the conventional KPIs of Novo Nordisk project management methodology, but they were also faced with steering committees who began to expect it of them. The transformation from the uncountable (mass) noun ‘learning’ to the countable noun ‘learnings’ was fully realized:

“A value for R&D is to deliver a project to a certain milestone. You cannot do that with these kinds of innovation projects. And for that specific reason, you have to define another kind of value. If you do not understand that value, if you cannot measure it, or if you are unable to establish ‘learning’ as some sort of KPI within the company, it is going to be difficult. In that case you just have to make a milestone plan. We chose to establish 13 KPIs. Initially, we did not mention them to the steering committees – I mean, we showed them in the name of transparency, but we just focused our attention elsewhere. I think that I am quite pragmatic in that regard. I mean, navigating in this is just an insane task for poor project managers. (#3 John, project manager)

With the introduction of measurable deliverables into the communicative dimension, project teams began to approach their meetings with steering committees completely differently. The ideals and principles of the Innovation Project Model, which had stated that project teams should refrain from merely “passing on information and making decisions” (document #61), were abandoned as project teams began to do just that. Meetings began to consist of conventional one-way presentations using pre-reads and slide decks as the only supplement to the spoken mode. It was no longer a matter of co-creation and multi-modal, transparent communication, but rather a sending of information from the project teams to the steering committees followed by a number of decisions flowing the opposite way. Transaction became transmission, because it simply seemed more straightforward and more recognizable.
Initially, project teams had to immerse themselves in an explorative and holistic flow of learning during which they were to refrain from addressing value or adhering to conventional KPIs, but at least some project managers had a difficult time doing so. They felt like they desperately needed some sort of structure to help them navigate in this abstract flow, and therefore many of them chose to establish their own KPIs and chose to address value in their own way. When it began to become clear to the project teams that the expectations to the communicative dimension within the Innovation Culture Initiative changed, it was no problem for them to simply follow that change. As such, it came as a welcomed transformation. Until then, most project teams had experienced a hard time trying to adapt the communicative ideals and principles of the new and unique voice of innovation—a voice and a corresponding vocabulary which many project teams and almost all steering committees early on had regarded as somewhat academic, idealistic, and nice-to-have:

“To me, this is simply about creating a new product, which we are able to continue within the core. [...] Otherwise, we should all just go to Tibet and begin meditating.” (#4 Paul, project manager)

The fact that this voice was abandoned meant that project teams experienced a new option to communicate their messages in a far more concise manner. They were no longer forced to co-create their messages through a transactional approach to communication, but were instead able to produce and deliver another kind of polished communicative products:

“We made sure that what we wrote was very concrete. This relates a lot to what some of the other projects are struggling with— the inability to make things concrete and to boil them down. It is not like it is The New York Times you are writing here. It is just a leave behind— it is not a PhD, basically. [...] I think the steering committees begin to worry otherwise, because they doubt whether or not they are even able to produce something real, if they are unable to describe where they are at, where they are going, and what they can get out it.” (#9 Sophie, project manager)

What was perhaps the most welcomed element in this change of communicative approach was the ability to communicate explicit value and thereby achievement in a far more tangible way than otherwise. Within the framework of conventional Novo Nordisk project management methodology
it is important to clearly state a range of KPIs, a series of milestones or stage gates, and perhaps a number of value hypotheses to be tested (see section 2.2. on conventional Novo Nordisk project management). Such tools enable project teams to clearly state whether or not their project has met the initial expectations of the project and whether or not they have realized the KPIs established. It becomes a matter of ‘either or’ — a matter of stating if a value indicator is green or red. Until the change to the communicative dimension of the Innovation Culture Initiative, project teams could not explicitly address such value indicators and were therefore unable to say without a doubt that they had produced something of value or that they had achieved a tangible goal. This changed. Project teams began to shift their focus from flow, risk, uncertainty, failure, and learning towards what they had accomplished, achieved, created of value, and brought to the table. They wanted the chance to show case their projects with a voice that permitted such a focus, because it was experienced as so integral to conventional Novo Nordisk project management methodology, and because it was such an integral part of the cultural identity of the company:

“It is that ‘green wave’ all over again. Novo Nordisk simply has a culture in which things must be just so. You need to have done a good job. Among all the projects you will probably not find any who says: ‘whops, we missed that KPI’ or ‘I guess that one did not turn out green’, will you? When you have to give a project presentation according to these project models, you have got a range of parameter that you need to report on to your manager and to your steering committee. And in that situation, everything is in principle on the table. Are you on time, do you need some money, and so on. In this company, everything must always be green. You will never present anything that is not green. And that is a really poor mentality.” (#7 Oliver, external consultant)

The 'green wave' culture mentioned here by Oliver was a label used somewhat casually within the company and it seems to have been used to signify one of two things: 1) the strong confidence in the expertise of project managers who always got the job done and who always met their targets, and 2) the cultural rejection and dismissal of failure that drove all project managers to always make sure only to present ‘things done right’ instead of simply ‘things done’. Whereas such an approach to the communicative dimension between project teams and their steering committees — such an exclusive focus on achievement and success — may at first glance seem constructive and positive, it seemed to generate a somewhat peculiar result: a discrepancy between what was done and what was said. Project managers were still engaged in holistic and immersive exploration in order to learn as much as possible about the domain of their innovation theme, and this process was still characterized by iterations, dead-ends, vague potentials, failures, and abstract ideas. The transformation of the communicative dimension between the project teams and their steering committees ‘merely’ meant that they were now encouraged to be less transparent and less open in favor of seeming more polished, more explicit, and more show-casing. They began to arrive at a point where the manner in which they were communicating did not match the way they were working. Neither project teams nor steering committees seemed to have ever felt comfortable with the unique voice of the
Innovation Culture Initiative, and now they could revert to a more conventional one. A conventional voice, however, which did not match the actual work of the innovation projects:

“We made our presentations quirky and oriented towards learning as soon as we spoke with the innovation steering group, but definitely not when we spoke to anyone else. No one in the core business cares about that. It becomes a question of what you can deliver and when you can deliver it. [...] We just made two completely different presentations for every time we needed to communicate about the project.” (#2 John, project manager)

This discrepancy or misalignment between what they did and what they said was, however, not perceived as an issue in any way, and this point may be of far greater importance than what it may appear. Whereas an orthodox proponent of the ideals of the Innovation Project Model would perhaps always argue that any deviation from what was designed to be a fully transparent, mutually engaging, and co-creating approach to communication would be a reduction of the value of the entire Innovation Culture Initiative – a compromise to the integrity of the entire endeavor – project teams, who were placed in the middle of a complex organizational and communicative context, saw this deviation and compromise as a completely necessary one. If they were to have any chance of framing their work in the innovation project portfolio as worthwhile and as successful, they felt like they had to use a completely different voice to do so. The project teams simply perceived this voice as one which enabled them to appear far more professional and polished and that this was necessary in order to convince otherwise skeptical steering committees of the value of this new type of business development-oriented innovation:

“We have talked about the results and the progress of the projects, and not at all about the way in which we have actually worked.” (#4 Paul, project manager)

The transformation of the voice of the Innovation Culture Initiative ultimately resulted in a misalignment between what was done and what was said that was so profound, but also so accepted that project teams were free to adapt a completely strategic and not at all transparent communicative approach:

“Well, yes, they are simply saying something and doing something else.” (#6 Henry, member of the Innovation Strategy Office)

This somewhat poignant statement from one of the members of the Innovation Strategy Office seems to quite clearly state that the project teams eventually arrived at a point where their communicative strategy had become detached from the way in which they worked with innovation. By adapting the monotonous voice of Novo Nordisk core business, they had been able to communicate with greater ease to the many stakeholders connected to their projects, but they were doing so in way that was far removed from the ideals and principles of the Innovation Project Model:
“How we define whether or not projects are successful? That’s a good question. If we are communicating our learnings and insights to the steering committee members, we are going to have to speak their language, which is not really focused on learning or insight.” (#Fieldnotes November, Alice, member of the Innovation Strategy Office)

5.2.4. A condensed perspective on phase 2: communication

At this point, it seems appropriate to perform a more condensed reading of the communicative transformation of the Innovation Culture Initiative — of the experience of working with the ideals and principles of the Innovation Project Model.

1. One of the most fundamental elements of the entire Innovation Culture Initiative is its unique voice. It is matter of establishing a communicative approach to align with a new way of working with a new kind of innovation. The voice is constituted by a unique vocabulary and a unique structure for facilitating communication between project teams and steering committees.

2. This structure advocates for a series of frequent, informal meetings during which project teams invite steering committees into their actual workspace and share their experiences with in the name of co-construction.

3. The purpose of these meetings is a mutual commitment and engagement in order to enable participants to co-create of knowledge rather than a more conventional transfer of information. Such an objective is explicitly aligned with the tripartition of knowledge communication as discussed in the conceptual synthesis of the analytical perspective.

4. During these meetings, it is important not to focus on explicit value or on tangible achievements, but rather to focus on flow, recursivity, and learning. This choice is founded on an expectation that projects would be unable to maintain an open approach, if they begin to focus on explicit value too early in their exploration phase. It is a highly unconventional choice for the company.

5. The Innovation Project Model illustrates its communicative approach with double loops emphasizing its focus on iteration and recursivity and the connection between communicating and double-loop learning.

6. It seems reasonably plausible to argue that this double-loop illustration as well as the communicative ideals and principles signified by it aligns almost perfectly with the helix and spiral models of transactive communication outlined in the conceptual synthesis of knowledge communication theory. In this perspective, project teams and steering groups are communicators engaging each other in a continuous process of meaning-centered negotiation catalyzed by the initial appreciation and consequent qualification of knowledge asymmetries.
7. When applying the communicative ideals and principles, however, both project teams and steering committees experienced frustration. The most immediate reaction came from the impression that the new and unique voice of the Innovation Culture Initiative was simply too far removed from the more conventional and monotonous voice of the core business and therefore alien in the context of the cultural identity of Novo Nordisk. It came to represent a vague, abstract, and pie-in-the-sky approach to innovation.

8. This frustration resulted in a gradual, but consistent rejection of this voice in favor of a more conventional one with a far more conventional structure to match.

9. Project teams reversed their communicative approach and began to speak of explicit value, deliverables, and products without mentioning failures, iterations, or recursivity. From touching base once every few weeks, meetings between project teams and steering committees were held once every month or every three months, and purpose of these meetings changed from co-creation to show-casing following by decision-making. Transaction to transmission.

10. This more conventional voice and communicative structure was radically different from the ideals and principles of the Innovation Project Model, and eventually it resulted in a significant misalignment between what they project teams did and what the project teams said. This was in no way perceived to be an issue, but rather a far more professional and strategic approach to communication.
5.3. Phase 3 — Conceptualizing knowledge

When project teams brought their projects to the concepts phase, they all seemed to give a sigh of relief. To them, it signaled the end not only of the holistic and immersive exploration that had been at the heart of their exploration phase, but also of the new and unique voice of the Innovation Culture Initiative with a vocabulary and a conceptual focus that seemed to be directed exclusively on abstract and vague ‘learning’. The concepts phase was to them the first time that this new project management methodology resembled something they were already familiar with. At its core, the phase is a matter of churning out a number of viable, tangible, and concrete business concepts from the knowledge constructed during the initial exploration phase. Projects all had significant bodies of data and all had domain-specific experience and insight, and the concepts phase is about mustering all of that into a list of business concepts — of possible new business development projects, which might later advance the core business significantly through impactful change. It is a matter of asking: “now that we know what we know, what can we do with it?” Once the list of viable concepts has been developed, the project teams are to test the most promising one in a real-world setting in order to generate a proof of concept before simply handing everything over to the line of business within the core, which later are to implement it. Because the two phases of the Innovation Project Model called ‘concepts’ and ‘proof of concepts’ are so closely aligned and were, in fact, experienced as a single conceptualization phase to most projects, I have chosen to merge the two. It begins as soon as the project teams have completed their holistic and immersive exploration and as soon as they are able to communicate the progress and value of their project to their steering committees. It ends as soon as the project teams have a fully developed business concept, which they have tried and tested in a real-world setting, and which they are ready to hand over to the line of business. In this way, the knowledge conceptualization phase is a matter of creating tangible business concepts from knowledge.
5.3.1. Trying to transform knowledge into tangible concepts

This way of framing the conceptualization phase might not, however, be entirely accurate. It was, at least, not the way that most of the project teams experienced it. The initial phases of knowledge construction and knowledge communication had meant that project teams felt the need to turn their knowledge into deliverables of some kind — from uncountable mass nouns to countable ones — from learnings to learning. In their perspective, the initial phase of holistic and immersive exploration had enabled them to create a number of learnings — of knowledge ‘products’, if you will. They often referred to these with commonplace labels such as ‘ideas’, ‘insights’, ‘learnings’, or ‘opportunities’. Project teams felt that they had constructed pieces of knowledge, but that these pieces were as yet too undeveloped to test in real-world settings. In this perspective, the conceptualization phase was not about the creation of tangible business concepts on the basis of knowledge, but rather a matter of transforming pieces of knowledge into tangible business concepts:

“We have got a workshop coming up where we are going to transform our knowledge, before taking it to concept development. There are some very clear steps to follow and each of these are logically connected, which you come to fully understand when you have done it a couple of times.” (#10 George, external consultant)

For the project teams, then, conceptualization became a matter of transformation. They had something inside their heads and this thing needed to be matured and transformed into a business concept. Whereas it was not entirely about creating something from nothing, it did come close, as project teams felt that these business concepts were the first tangible and concrete evidence of the value of their projects that they had been able to produce. Until then, some felt that they had just been talking about doing something — now they were actually doing something:

“But anyway, back to stakeholder presentations. They do want to talk about the Innovation Project Model, and they do want to talk about learning process in order to underline the importance of innovation. But if I had to explain why I believe the project is a success, it will not be because of a bunch of learning or because I have been testing a bunch of hypotheses and brought a bunch of ideas to the table. It will be because we were able to seek out new knowledge, transform that knowledge into concepts, get the right people convinced that these concepts were the right ones, and finally get them implemented in the line of business. And the innovation of this lies with the fact that we able to take something, which nobody really believed in, transform it into a good idea, execute it, and create awareness from it. That is innovation.” (#9 Sophie, project manager)

The quote above emphasizes the perspective that the concepts phase was perceived as being all about producing a tangible and realizable concept. It was about transforming a piece of tacit and abstract knowledge into an explicit and tangible concept. Whereas such an approach to the conceptualization phase seems somewhat removed from the theoretical perspective of knowledge communication, it does seem highly comparable to Nonaka’s SECI-model, one of the most fundamental analytical tools of knowledge management. As discussed in the section on the
unarticulated, ineffable, and tacit properties of knowledge (section 3.3.2.), the SECI-model argues for the conversion of knowledge between tacit and explicit formats. In this context of transforming tacit knowledge into explicit concepts, the SECI-model argues for a process of externalization during which knowers put their knowledge into words and images so as to be enable explicit communication of that knowledge.

Throughout the initial exploration phase, project teams have constructed tacit knowledge by engaging the domains of their innovation themes and interacting with the agents of that domain. During this conceptualization phase, project teams should then initiate a process of externalization in order to convert or transform that tacit knowledge into explicit knowledge — or, in order to use the vocabulary of the project teams, transform ideas, insights, and observations into products, deliverables, and results. It is important at this point to emphasize that this understanding of knowledge conceptualization is highly unlike that inherent to knowledge communication theory. It assumes that project teams were able to transform a piece of tacit knowledge into a piece of explicit knowledge through a conceptualization process much like that of the externalization process introduced by Nonaka’s SECI-model. Regardless, it remains the underlying assumption behind the concepts phase and for that reason, it will be the cue of the following section throughout which it will discussed critically.

The perspective that the conceptualization phase was primarily focused on making something tangible out of something abstract was not only held by the project teams, but also by the Innovation Strategy Office and most, if not all, of the steering committees. There was a highly explicit recognition of the fact that the initial phase of exploration had resulted in some important insights, but that the concepts phase was were the ‘real’ work was. It was time to roll up your sleeves and get your hands dirty:

“I think I’m at a stage where I feel very confident about the idea. And now I need to operationalize it, because you know: 1 percent is idea, 99 percent is implementation. I am now at a stage where I have had bad a lot of critics around me, but there is no better joy than putting critics down and proving to be successful. And that is the thrill of the journey that I want to be in. (#3 Elizabeth, project manager)

“I am not really too happy about the word ‘innovation’. To me it is a load of fluffy bullshit. You tend to associate it with creativity and that kind of thing. To me innovation is 1 percent inspiration and 99 percent perspiration. You know, sweating. Everyone has a dream of being creative and innovative and all of that, but we have surprisingly little need for it.” (#12 Matthew, vice president)

The concepts phase was perceived as creating products through hard work — products with the ability to impact the core business in an innovative and valuable way. To project teams and steering committees alike, it was a process aimed at transforming or converting the until then abstract, vague,
and tacit knowledge constructed during the exploration phase into some tangible and more ‘real’ in order to make it useful and valuable. This may seem like a simplification of what must have been a complex process, but that was the dominant perspective within the entire Innovation Culture Initiative:

“You have to develop the project into a product, and you have to ask yourself whether or not that is possible. In the case of the Bottom of the Pyramid project, for instance, they should be able to say ‘ alright, we have done Kenya, now let us do Tanzania’. That would require a product called the Bottom of the Pyramid. If they have that, they could go to the head of African Operations and say ‘if you want this product, it is going to cost you two million and one fulltime employee, but for that you will get a revenue increase of 25% and it will not affect your business negatively – do you want to acquire that product?’.” (#4 Paul, project manager)

It quickly became clear that the concepts phase came highly anticipated and was perceived as the first recognizable and somewhat conventional phase of the Innovation Project Model. It was a chance for the project teams to create something ‘real’ and to finally show-case the value and relevance of their projects. Rather than work on the logic of creating tangible concepts on the basis of intangible knowledge, it adhered to the logic of creating tangible concepts by transforming or converting intangible knowledge into concepts. This was the perspective of not only the project teams, but of most, if not all of the members of Innovation Culture Initiative.

5.3.2. The process of conceptualization

In the light of this perspective of the process of knowledge conceptualization highly comparable to that prescribed by theories within the field of knowledge management, it seems particularly interesting to examine further how this conceptualization took place.

Coming into this phase, project teams had created different kinds of documents with a number of key insights or observations derived from the initial phase of holistic and immersive exploration — documents labeled ‘key opportunities’ (document #61). They contained anywhere from eight ‘key opportunities’ to more than a hundred depending on the particular project. Each opportunity was not necessarily formulated as a business potential or as an idea for a project, as they were meant to function on a more immediate and less strategic level. The Innovation Project Model once again emphasizes that project teams should refrain from getting too specific too quickly. In this way, each ‘key opportunity’ becomes an attempt to communicate insights on the basis of specific experiences which might or might not be of any specific value in the further innovation process. Examples of such opportunities could include “Integrating digital & traditional channels improves communications effectiveness” (document #53), or “A patient faces several geographic and financial barriers when going to a government health center” (document #37). They were often adapted directly from the learning plans utilized by the project teams during their initial exploration. Based
on this list of key opportunities, project teams are tasked with qualifying them to gradually discard opportunities with too low a potential for positive, relevant, and impactful change, in order to finally arrive at the single most promising and most viable business development concept:

“Right now we are moving after having completed the opportunities phase [exploration]. Last Friday we had a meeting with our management about eight projects — a long list of eight projects, which we believe fit the bill. In about a month’s time we will be able to do a short list of a few projects. Then they have to choose. We did sense that a specific couple of projects caught their attention last Friday, and those two make good sense. I will be really pleased if we decide to continue with those two. So now we are spending our time preparing for their decision so that we can take elements of scrapped concepts and retain them for further projects. […] It is all about moving from the exploration phase and into the pilot. It is the concepts phase during which we design our business solutions with a bit more attention to detail. Visualize them, describe them, the works. All of that in order to be able to say ‘alright, let us do a proof of concept’. X number of pilots.” (#6 Henry, member of the Innovation Strategy Office)

The project teams, then, moved towards producing a long list, then a short list, and finally one or two concepts to test in a real-world setting in order to produce a proof of concept (document #92). It was a matter of qualifying opportunities to reach the most promising one. It was not only, however, a simple matter of weeding out the bad ideas from the good ones. To the project teams this distinction between ‘simply coming up with good ideas’ and ‘rigorously qualifying opportunities’ became a matter of some focus during the conceptualization phase. In their perspective, everyone was always able to come up with good ideas regardless of experience or expertise — the conceptualization phase was about a structured and disciplined process of honing in on a particular concept that would meet a specific range of parameters: it should be valuable, it should be realizable, it should be impactful, and it should be innovative. As such, skill was required. Simply coming up with good ideas was simply not a specially difficult challenge — coming up with the right one and qualifying it to the point where it could meet all of these significant requirements was:

“The problem is not that we lack good ideas. We have so many good ideas. The problem is that we have to structure these ideas.” (#Fieldnotes November, Alice, member of the Innovation Strategy Office)

This structuring of ideas — or of key opportunities, if the terminology of the Innovation Project Model is to be retained — was achieved by using different methodologies. To some project teams, the simplicity of an office setting with little more than a single, large whiteboard, four differently colored marker pens, and numerous hours of brainstorms and discussions seemed to be the most appropriate way of imposing structure:

“After three months, we created a single hypothesis. We had created a poster the size of that large whiteboard over there, we had mapped out all of our concepts in order to categorize them, and all of that lead us to this networked concept of patient barriers, health system barriers, supply chain barriers, and macro barriers. From
19-11-12 08.11: The ISO office

Perceptions:
Paul and I were the only ones in the office. As I walked in, I saw that he was drawing out a concept map on the whiteboard next to his desk. He seemed focused, but also somewhat frustrated over the whole thing. As I started asking him what he was doing, he explained to me that he had to get an overview of the status of the heat stability issue of the Bottom of the Pyramid-project. On the basis of two tests, the team had been able to indicate that another of the Novo drugs works in temperatures above the 40 degrees needed to resist Africa’s heat, but they can’t seem to figure out why. They need the help of R&D, and Paul has booked a meeting with a director from that division on Wednesday. He plans to bring the two researchers from his own division with him who have helped him do these preliminary experiments. […] As I saw the mind map becoming more and more complex, I asked Paul which kind of background enabled him to simultaneously navigate the organizational structure and make sense of all of his concepts. He said none whatsoever. Apart from being an engineer and therefore being used to breaking down complex challenges, there was a lot of improvisation involved.

Reflections:
The process Paul and his project is going through, even if one were to just focus on the heat stability issue, is incredibly complex. Organizationally, communicatively, practically. He has to get so many stakeholders, directors and vice-presidents to sign off on each step of the project, and whenever he has to solicit the help of someone (e.g. the two researchers), he has to convince their line managers of the worthiness of the project. Now he faces the challenge of ‘convincing’ the R&D director so that he will allocate researchers to the trials necessary for the drug. This concepts stage is a very large and very complex task, and he even says that he is not particularly qualified for it – not that most people would be.

Other project teams favored a more holistic and multi-modal approach, which could involve leaving behind these everyday office spaces and going to a specific off-site location — e.g. a hotel, a vacation home, or a conference center. It could involve engaging different kinds of process or facilitation consultants, taking long walk-and-talks, and staying up in the long hours of the night drinking red wine and letting the imagination run wild. To some, the conceptualization phase began with such a disruption of the everyday rhythm and routine in order to be able to approach these many opportunities from as many different angles as possible in order to qualify them as effectively as possible:

“We had an off-site day with the entire project team, where we were accompanied by a graphic artist who was tasked with facilitating and summarizing throughout the day. This is one of the strengths of that method — the constant need for clarification. He kept asking ‘what do you mean?’ so that he could illustrate what we talked about. He ended up drawing the entire progress of the project including the concepts we were trying to focus on, and in the end we had around 25 things listed. That whole thing was excellent communicatively. From those 25 things we created four themes, which of course ended up overlapping constantly, but it was fine none the less, because they enabled us to dedicate
specific team members to each theme and to bring out the many project ideas that we had been working through millions of iterations. [...] It meant that we had 36 ideas which became 15 and which are now down to eight. Which can easily be reduced further to only a few.” (#6 Henry, member of the Innovation Strategy Office)

Regardless of this choice of methodology, project teams were faced with a qualifying process. As such, conceptualization became another process of discussion, iteration, and recursivity as project teams tried not to lock on a specific ‘darling’ too early in the process. Based on this assumption that a complete open approach would ultimately lead to a better concept, project teams experienced a conceptualization process which would eventually lead to a single viable business development concept, but which would also take a challenging route to get there:

“We had a lot of posters with a lot of post-its in different colors, and they were all over the place. [...] In fact, I have got a bunch of them still lying around, because I was told by the Innovation Strategy Office that it had been a fascinating process. I think we arrived at 98 ideas or something, so we got around to a lot of things, even though I had a hard time seeing how we were going to realize all of them. I sent a photo to the Innovation Strategy Office of a bunch of post-its in different colors, which they apparently use from time to time to illustrate this phase. I mean, it is really difficult to get any tangible output out of a process like this [laughing]. We have to get better at that. We have to stay focused on our learning objectives and our realizable concepts. It is no good just to end up with post-its going in 17 different directions. I mean, we were very good at being open during this process, but not that good at bringing it together into fully tangible, usable concepts.” (#1 Thomas, project manager)

The Innovation Project Model states that even though the concepts phase is ultimately about producing a single explicit and tangible concept, the process of getting there requires a less tangible approach. It is a process characterized by fact-finding and by touching base with many of the project’s stakeholders as well as the line of business that will ultimately be taking over the project. As such, the final concept should be the product of a process of negotiation and co-creation:

“Until now, we have been able to do all of this within a tiny vacuum with only a few decision makers and a small project team. Now we have to begin a massive stakeholder dialogue. That is something I have learned regarding the concepts phase – co-production, co-innovation, co-creation, whatever. First of all, you have to co-create with the people responsible for doing the actual pilot project. Until now, they have not been particularly involved. Second of all, you have to co-create with the patients, who have only been partly involved. All of that means that this next phase – ideally speaking – will be an entirely different type of process. A process involving concrete design, coming up with a solution, and pinpointing every single step. And communicating all of it to all relevant stakeholders.” (#6 Henry, member of the Innovation Strategy Office)

This reaction to the open and iterative properties of the conceptualization process deserves pause. In the Innovation Project Model it is clear to see a strong advocacy towards retaining much of the same perspective on and understanding of the conceptualization phase that on the exploration phase
(document #62). In this way, project teams are encouraged to engage the process as another holistic and immersive exercise. Rather than immersing themselves in the domain of their innovation theme, project teams are to immerse themselves in the vast bodies of data and the considerable personal experiences associated with this data in order to navigate through the many viable paths for the project to continue along. It emphasizes recursivity and iteration so project teams might openly and intuitively discuss different implications connected to different concepts. As such, the ideals and principles of the Innovation Project Model once again argue for approaching the one of the innovation phases as ongoing interaction — as a continuous negotiation of meaning through which a qualified concept could emerge. Using multi-modal approaches, process illustrations, different physical settings, and accepting post-its that go in 17 different directions are parts of that perspective. The connection between the two phases of exploration and conceptualization thus seems strong. It therefore seems less of a surprise that the reactions from some of the project teams towards these comparable ideals and principles were also highly comparable. Rather than embrace them as prescribed, some project teams had already felt frustrated because of these very ideals and principles for some time by the time they arrived at the conceptualization phase. As discussed previously, project teams had faced stakeholders — internal and external — frustrated due to the lacking ability to address value in a tangible, specific, and explicit manner. By the time these project teams had completed their initial phase of holistic and immersive exploration and had arrived at the conceptualization phase, they had long since begun to focus on a specific concept with a tangible value. To these project teams, the iterative and recursive process of gradually qualifying a long list of opportunities simply seemed superfluous:

“So we already had found the concept we wanted to pursue. I remember, we came up with a quite a few concepts – maybe around 10 or so that I wrote down. […] We just came up with them right then and there. We when arrived at the concepts phase, it was clear to see that the first concept we wanted to pursue was still at the top of the list. I supposed that is alright. Looking at it from a business perspective, it could seem difficult to understand. If we were to pitch it to Cathrine [one of only four executive vice presidents] and say ‘We actually had the concept from the beginning,’ he would probably reply ‘Then why the hell did not you just begin back then’.

(9 Sophie, project manager)

Even though the concepts phase are designed to help every project qualify the list of key opportunities generated by their exploration phase, some project teams simply did not feel they needed it. This was a clear consequence of a very strong pressure towards being specific, tangible, and explicit about not only the innovation process itself, but also about the project and the project results.

By the end of the conceptualization phase, all project teams had come up with viable concepts, which they believed to meet the requirements imposed upon them. They believed that each concept
would be valuable enough, realistic enough, impactful enough, and innovative enough for it to become a success in a real-world setting. One example of such a concept could be taking from the Future Workplace-project:

“It is important for us working with HR to recognize that we have got different types of employees. What we are trying to do is to look at our employees through a certain range of parameters – age, for instance. We could look at the different generations at Novo Nordisk and their different motivations for commitment. That is highly relevant when we are creating our performance management policies – we should be able to take different parameters, such as age, into account. Or family life. Whether or not it is possible for young employees to have a career, while taking care of a family. We have never been particularly good at recognizing such diversity and our performance management, and a concept of personas could help to change that.” (#1 Thomas, project manager)

Another example of a concept could come from the Future Field Force-project which had focused on developing a new kind of communicative interface between sales representatives and doctors:

“We did a lot research, internally and externally, and we did a lot analysis, and from that we were able to define a range of concepts together with the line of business in order to make them as relevant and impactful as possible. At the end we chose – our steering committee chose nGage [a digital solution consisting of hardware and software to enable multi-modal, virtual communication between sales representatives and doctors] as our concept, and that is what we spent 2011 working with. Structuring a proof of concept, executing that proof of concept, and then finally evaluating that proof of concept - nGage. (#9 Sophie, project manager)

The process of conceptualization, then, is designed to be an iterative and recursive phase during which project teams should immerse themselves into all of the data, all of the experience, and all of the knowledge constructed through exploration in order to find the most salient and viable business opportunities for Novo Nordisk. The ultimate objective of this phase is to generate a single concept and to test it in a real-world setting in order to qualify its value, relevance, impact, and level of innovation. The concepts phase was based on the fundamental assumption that project teams are able to transform or convert the until then abstract and tacit knowledge of their exploration into a tangible and explicit concept. This focus on producing something tangible during this phase was experienced by every innovation project as a welcomed change from the otherwise highly unsure and complex phases preceding it.
5.3.3. The push to create something tangible

Since the earliest steps of the innovation process, each project teams had felt a pressure to quickly ‘come up with something’. It had been a pressure to create something tangible — a product of sorts. It was, paradoxically, first catalyzed by the Innovation Project Model and its advocacy to refrain from explicitly addressing value and product due to the orientation towards the open, iterative, and recursive process. This seemed to greatly contrast the pressure to create something tangible, so from this most early phase, project teams felt a certain discrepancy. As soon as they began to communicate with their expanding network of internal and external stakeholders, this discrepancy only became amplified.

The project steering committees in particular began pushing for tangible results, products, deliverables — anything that could qualify as a ‘thing’. The exclusive focus on flow and learning was contrasted with this push every time project teams touched base with stakeholders.

The concepts phase is the first phase in the innovation process that had the objective of being explicit. As such, it came as a welcomed change for the project teams to the abstract flow and holistic immersion of the exploration phase. They approached it with renewed energy — probably because of the significant pressure from stakeholders, and probably because it was a recognizable process that seemed comparable to conventional project management methodologies:

“We spent a lot of time listening to our own line of business say ‘just get on with it – just get on with it’. Get on with producing something tangible. And if you take a look at the innovation literature, you will see that you have to be careful spending too long just looking for things to do.” (#9 Sophie, project manager)
This comparability to the conventional Novo Nordisk project management methodology, its way of doing things, meant project teams could begin to not only work in a far more recognizable way, but also communicate accordingly. They experienced it as a significant change:

“Since I came to Novo Nordisk, we have become far better at structuring our work as concepts. That is innovative in itself. Creating concepts which are deeply rooted in the company and which catalyze our activities. That has become part of the Novo Nordisk way.” (#11 Emma, vice president)

This corporate wide focus on developing and adhering to explicit concepts seemed to be completely aligned with the dominant cultural identity of Novo Nordisk. For the innovation project teams, it meant that they had to quickly produce a single concept in order to be able to communicate any sense of value. Until then, they had been instructed by the Innovation Strategy Office to communicate on the basis of learning, knowledge, and insight – all of which seem to fall short with this strict focus on explicit concepts in mind. In other words, the innovation projects did not seem to have any value to Novo Nordisk unless they would be able to explicitly create a tangle concept and test that concept in a real-world setting in order to prove its value to the core business of the company:

“I believe that our top management has a basic empirical skepticism. Empirically speaking, every piece of experience from the past 12 years tells us one thing: ‘We have no way of knowing whether something is going to work or not ahead of time’. A lot of things can sound promising, but we just do not know. And even the most promising things have shown to fail, so we become fairly conservative with our investments. Merely getting excited about early results or promises has resulted in us getting our fingers burnt, and you do not want to that more than once. That has become the general mindset of not only us, but in the pharmaceutical industry as a whole: ‘Until you show me it works, I do not believe it. It may sound promising, but show me it works’. […] Within Novo Nordisk you will never get anywhere unless you are able to create real results.” (#12 Matthew, vice president)
The concepts phase, then, came to represent the pressure for explicity and proof experienced by the project teams through the entire innovation process. They had not felt that the advocacy of the Innovation Project Model to communicate learning itself as a value had been able to match this pressure, and as such, they welcomed the chance to produce something.

“The work now consists of operationalizing learnings into business opportunities. Well, we tend to use the term ‘business case’. When we deliver anything to our steering committee, we deliver a business case. We can feel the pressure constantly from Novo Nordisk to answer the question as to what this project actually delivers. It is easy to answer that question to the others members of the project — to them, every one of us can easily say that in three bullets. But we have to become even more tangible to others. We ultimately have to be able to answer: ‘Are we making more money because of this project?’. (#6 Henry, member of the Innovation Strategy Office)

Even though this had been integral to the Innovation Project Model, it also seemed to challenge its initial assumption regarding the inherent value of knowledge. The entire innovation process has learning at its core — it is about engaging certain domains in continuous interaction in order to construct as much knowledge as possible. On the basis of this knowledge, project teams can create more tangible business development projects. Such an orientation and focus meant that knowledge is the primary source of value to the innovation projects, but the concepts phase seems to indicate something not entirely aligned with that. It signals a change for every innovation project from the abstract to the concrete — from the tacit to the explicit. It was a phase for ‘getting things done’ and for finally producing something real that project teams will be able to test and prove. It shifts the focus of the entire Innovation Culture Initiative away from knowledge and towards elements more often associate with the conventional Novo Nordisk project management methodology.

Despite this experience of the project teams, some within the Innovation Steering Committee and the Innovation Strategy Office still tried to make sense of this changing focus:

“I believe you should be able to address specific value. You might not be able to address it precisely, but you must be able to address it. Projects go out into the world and learn. They have to learn how to get inspired in order to create real solutions. They have to be able to address timing, value, and relevance. So you have to be able to talk about both things. I mean, you cannot refrain from talking about learning, but you just a more sophisticated way of doing it. And as your project progresses, you have to become more and more precise concerning the value proposition of your business case.” (#5 Alice, member of the Innovation Strategy Office)

To the project teams, however, things were experienced a somewhat more black and white. Until they arrived at the concepts phase, they had been unable to tell the story about their project that they had wanted to tell. Instead, it had become a matter of struggling to convince internal and external stakeholders of the inherent value of knowledge even though that knowledge was yet to have any apparent and explicit value. Until the concepts phase, they had felt forced to compromise.
their projects in that they had cut the exploration phase short and in that they had long since abandoned the unique voice and vocabulary of the Innovation Project Model. Now, however, they felt back in control, and they felt aligned with the core business of Novo Nordisk once again. The discrepancy between what was said and what was done no longer seemed to be present.

5.3.4. A condensed perspective on phase 3: conceptualization

With the concepts phase, the innovation process changes profoundly. It is transformed from a focus on knowledge to a focus on concepts. This change seems to establish a contrast between a ‘then’ and a ‘now’ – ‘then’ represented the vague and abstract processes of exploration, while the ‘now’ represented tangible and professional processes of project management – of actual work:

“We are ultimately evaluated on two criteria: have we created anything of value and does it work.” (#Fieldnotes November, Alice, member of the Innovation Strategy Office)

In order to establish an overview of the connections between the design and experienced effects of the conceptualization process, a concluding synthesis is appropriate.

1. The concepts phase begins as soon as the project teams are able to produce a list of key opportunities from the exploration phase. This list is the first attempt at making the insights of this exploration explicit.
2. The ultimate objective of the concepts is to qualify these key opportunities through a iterative and recursive process.
3. During this qualification process, project teams are to undertake an extensive fact-finding and stakeholder dialogue in order to get as much input for their conceptualization as possible.
4. Reducing the list from the initial key opportunities to a long list, a short list, and finally a single concept was approached with different methodologies from different project teams. While some thought it adequate to brainstorm using a whiteboard and differently colored marker pens, others chose a more holistic and immerse structure with off-site workshops involving process consultants and different process facilitation techniques.
5. Project teams viewed the process of conceptualization as the conversion or transformation of abstract, tacit knowledge into concrete, explicit knowledge.
6. The process of generating concepts was a highly anticipated and welcomed one for the project teams, as it enabled them to once again align what they said with what they did – communication and action.
7. The pressure from internal and external stakeholders to create something tangible culminated with the concepts phase and resulted in the fundamental change of what was regarded as valuable in the context of the Innovation Culture Initiative – from learning to
concepts. Even though such a shift had been experienced gradually by the project teams throughout the innovation process, the concepts phase made it somewhat finite.

8. It introduces a ‘before’ and an ‘after’ to the innovation process. Before the concepts phase, project teams experience an inability to explicitly address the value that they were able to after the concepts phase. Discursively, this establishes the exploration phase as somewhat unprofessional, while establishing the concepts phase as professional.

9. The shift also meant that project teams and steering committees no longer utilized the vocabulary of the Innovation Project Model, and so ‘learning’ and ‘knowledge’ were replaced by ‘concepts’ and ‘products’.
5.4. Phase 4 — implementing knowledge

The final phase of the innovation process is the handover of the key concept from the Innovation Culture Initiative to the appropriate line of business within Novo Nordisk. Immediately before this phase, each project team has developed and tested the most promising concept of their innovation theme and is now ready to hand that concept over to whichever project team will be responsible for implementing that concept. As such, the phase formally ends as soon as the concept has been brought out of the Innovation Culture Initiative portfolio regardless of how the consequent implementation would take place. From the Innovation Project Model it seems clear to see that the handover phase is not regarded as particularly integral to the innovation process itself, but perhaps more as a quick, simple final step needed to conclude an otherwise complex process. Much like the initial exploration is formally regarded by the model as the responsibility of the Innovation Culture Initiative and as such treated as a quick, initial ‘pre-innovation’ step, the handover phase will primarily be handled by the line of business as a ‘post-innovation’ step. In more concrete terms, this means that the Innovation Project Model does not explicitly address the dynamics of the handover phase — it does not provide the project teams with any guidelines or prescriptions on how they should carry out this phase. Whereas this certainly seems to underline the perspective inherent to the Innovation Project Model that the handover phase is regarded as a simple, quick final step, it also means that no one in the Innovation Culture Initiative associated this step with any particular challenges or complexities necessary to address explicitly.

The handover phase is thus based on the assumption that each project team will be able to give a fully explicit and comprehensively described business development concept to a corresponding project team from the appropriate line of business. This meant, for instance, that the Future Field Force-project was to hand over its concept of ‘nGage’ as the new virtual interface between sales representatives and doctors to a dedicated project team within the Novo Nordisk US sales force, and
that the Future Workplace-project was to hand over its concept of ‘Lync’ as the new in-house multimodal communication tool to a dedicated project team within the Novo Nordisk IT development department. As such, project teams are required to have a concept which corresponds to an actual product. They can no longer work with iterations or recursivity as they are expected to hand over a fully developed ‘package’ or ‘product’, which is fully comprehensible in its own right — a polished product, so to speak.

The logic behind the Innovation Culture Initiative is thus fully developed with the hand over phase. With the innovation theme initially being defined and provided by the potentials inherent to the core business and consequently transferred to the Innovation Culture Initiative, they were explored, conceptualized, and tested before finally being transferred back to the core business. This new type of innovation is thus given space to exist outside of, but adjacent to the core business. The hand over phase is the final step in this process and is simply founded on the assumption that the business development concepts devised and tested by the project teams will be as transferrable as the innovation themes initially are.

5.4.1. Alignment between the hand over design and knowledge transfer theory
By applying the analytical perspective of knowledge communication theory previously developed, the hand over phase immediately seems problematic, but equally interesting. It is particularly interesting, because of how the changed epistemological perspective of the project teams — from a constructivist exploration phase to a cognitivist conceptualization phase — will affect the approach
Chapter 5: Analyzing the innovation process as knowledge communication

to the hand over phase. It is particularly problematic, because it seems at its outset to assume a
dynamic of transferring ‘knowledge products’ from one place in the company to another. This
dynamic seems to be perfectly aligned with knowledge transfer theory which was discussed rather
critically in chapter three.

With the conceptualization phases of the innovation process, the orientation of the innovation
project teams changes from the abstract, tacit knowledge constructed during the exploration phase
to the tangible, explicit concepts derived from it. The fundamental logic behind this
conceptualization is that project teams are to transform the until then ‘useless’ knowledge into useful
concepts — the intangible into something tangible. This distinction between useful and useless
seems to follow Brown and Duguid’s critique of conventional epistemological research in that
knowledge is often treated as an object of study too heavy to handle because of its crippling
abstraction (Brown & Duguid, 2000). To the project teams, knowledge only became useful when
they could see an explicit value derived from it (#5 Alice, member of the Innovation Strategy Office).
This process is experienced as a process of creating explicitly valuable business development
concepts, which can easily be communicated to internal and external stakeholders. Project teams
began seeing their projects as products — as the results of their conceptualization efforts. This change
was as fundamental to the conceptualization phase as it was to the hand over phase. Instead of seeing
the innovation projects as complex constructs of personal learning processes, they saw them as neat
products fully described and comprehensively tested in real-world settings. The Future Field Force-
project, for instance, became known as simply ‘nGage’ and the Future Workplace-project as ‘Lync’.
This strong focusing, or simplification if you will, of each project emphasized the perspective of the
hand over phase as something entirely unproblematic and straightforward. It was simply a matter
of ‘sending’ the fully described concept to someone else, who would then be able to ‘open’ it,
understand it, and implement it into their line of business:

“We developed a business case, which we presented to the executive team in the US — the top management in
our American division. They decided to go with it and to implement it in a larger setting. So now they are
implementing it in the US at full speed. They have a couple of different priorities than we might wish for, but
the fact of the matter is that is on track. And we are helping them out implementing it.” (#9 Sophie, project
manager)

These concepts, or ‘business cases’ as they were also labeled, came to consist of pure information.
They typically had the format of .pdf-files or .ppt-files and the structure of a conventional business
Since every member of every project team was an experienced project manager before coming to
work in the Innovation Culture Initiative, this process of describing concepts and making them
aligned with conventional business case structures was experienced as entirely unproblematic:
Such a product-oriented perspective on the handover phase of the innovation process seems to align perfectly with the conceptual understanding of knowledge transfer theory as introduced and discussed in section 3.2. Following the cognitivist perspective inherent to this theory, knowledge should be seen as “explicit, capable of being coded and stored, and easy to transmit to others” (von Krogh, 1998). Following this logic, the project teams conceptualized knowledge and by doing so, made knowledge coded and explicit. They transformed it into the cognitive products that are the focal points of knowledge transfer theory — cognitive products, which are easily delimited and easily codified. Following this perspective, the transfer of cognitive products between people is entirely unproblematic and simple. By adhering to a logic of linear transmission (e.g. Lasswell, 1948), such transfer is seen as sending and receiving: “We treat knowledge as a good that moves in a knowledge market […]” (Lin et al., 2005). The handover phase was, then, seen as entirely unproblematic, because it is, perhaps inadvertently, based on the assumptions and arguments of knowledge transfer theory. Project teams transform their intangible knowledge into cognitive products and are now faced with the simple task of transferring those products through processes of linear transmission.

5.4.2. Transferring concepts over variable structural distances

Inherent to the understanding of the relationship between the Innovation Culture Initiative and the core business illustrated in the previous section is a certain structural distance between the two. In order to be able to transfer innovation themes from the core and consequently transfer polished concepts back to the core, the two have to be situated with a certain distance to each other. While this understanding was introduced and discussed in greater detail in section 2.3.2. of the chapter on the empirical setting, it does have a direct effect on the handover phase and will, as such, be discussed here in this new context. The fundamental understanding of this structural setup is based on the assumption that the Innovation Culture Initiative needs ‘space and quiet’ to develop its new way of working with a new type of innovation. It was situated outside of the core business, because of a concern for the suppressing and perhaps even destructive effects of letting it compete directly with the two otherwise dominant streams of innovation within the core business of lean/kaizen and product-oriented R&D. The distance would also ensure that no one within the core business would have to engage in the abstract and holistically immersive processes prescribed by the Innovation Project Model, and this meant that they would be able to maintain their strong focus on the core competences as prescribed by the lean philosophy. It was important, however, that the distance between the Innovation Culture Initiative and the core business should never become too great, as a relatively close proximity would ensure that the innovation projects themselves would always be
relevant for and tailored to the lines of business which they were designed to impact. For this reason, the Innovation Culture Initiative was placed ‘adjacent’ to the core business thereby signaling distance, but proximity:

“We do not want to let innovation projects become spin-offs themselves, like General Electrics for instance does, even though that would be an alternative. We do not want to be too far from the organization – we need to be adjacent to the it.” (#Fieldnotes November, Alice, member of the Innovation Strategy Office)

This structural understanding greatly affected the design of the hand over phase because of the idea of transfer. As project teams were faced with the task of transferring the cognitive products of their concepts to the core business, they perceived themselves as either close to the core or far away from it. The further away the project teams were perceived to be, the more time and space they were given to maintain their holistic and immersive exploration – the more time they were allowed without being able to communicate any explicit value. A significant distance to the core also meant that the projects were perceived to be less directly relevant to the core and perhaps even more ‘pie-in-the-sky’. They were considered less conventional, less business-oriented, and less hardcore. One example of such projects could be the Early Origins of Health-project which focused on developing a better understanding of how early onset diabetes could be prevented in developing countries through a stronger coordinated effort from governmental agencies, NGOs, and private companies. Even though the project was incredibly important to many, it was not directly associated with any of the conventional revenue generating activities of Novo Nordisk and was, as such, challenged to communicate any tangible, explicit value. On the other end of the scale, there were a number of innovation projects with very limited distance to the core business. Those projects often did not spend any significant amount of
time exploring and were often capable of communicating an explicit value very early on in their process. They were recognizable in the context of conventional Novo Nordisk cultural identity, and they were considered to be directly relevant. An example of such a project could be the Future Field Force-project, which very quickly began to focus on the specific concept of nGage — a hardware-software combination that would directly affect the everyday work of American sales representatives and that would therefore have a measurable outcome.

Perceived distance between innovation projects and the core business thus became associated directly with alignment to the core. When project teams brought their concepts to the hand over phase, then, they were faced with somewhat different tasks. Some distanced projects were to transfer their project across a greater distance requiring a larger effort than those more adjacent projects. Regardless of distance to the core business, however, the process of transferring the cognitive products of the concepts were perceived to be a simple process of sending and receiving. Any mention of personal knowledge, flow, or holistic immersion had been abandoned when project teams moved out of the exploration phase, and so the hand over phase became a matter of ‘bridging the gap’ between the projects and the core business.

The almost metaphorical understanding of the transfer dynamic as sending something across variable structural distances was, of course, a construct contingent on the context in which the Innovation Culture Initiative was situated. As such, it had no inherent function and did not appear in any formal documentation. Nevertheless, it underlined the dominant way of understanding the task facing the project teams: they were faced with transferring a cognitive product across a variable structural distance. Such a perspective was highly mechanic and in itself, approachable and straightforward. The actual hand over process turned out, however, to be anything but straightforward.

5.4.3. Challenging the notion of transfer

After having approached the task expecting a simple and straightforward process, project teams began to realize that their concepts were simply not transferred the way that they wanted to them to. The receiving lines of business seemed to place the concepts in different contexts than what the project teams had prepared for — they perceived the concepts differently from the project teams, they talked about them differently, and they prioritized them differently:

“Where things are not going according to plan is where the line of business is taking over. We now know that if we have to do a hand over to the core business again, we have to handle that process differently in order to make sure that the concept is implemented in the right way. […] Bottom line is that they have to take the project and that they have to fund it themselves, which means that they will only do what they can afford to do. […] That basically means that the concept changes. We may have a bunch of abstract and idealistic ideas
about how things ought to be, but as soon they say ‘That is fine, but we have a lot of other priorities, which makes this concept number 10 on our list, which in turn means that it will only get about 10% of the attention that you would have given it.’ We just do not have the same gut feeling about the hand over that we used to.”

(#9 Sophie, project manager)

The concepts changed as soon as their contexts changed. For many of the project teams, this was entirely unexpected and became a source of some frustration. They had a difficult time understanding why the lines of business did not see the innovation concepts as they did and why they felt the need to contextualize them so differently from what the project teams had imagined. This frustration began to show itself in connection to the hand over sessions themselves during which the innovation project teams met with their counterparts from the appropriate line of business. At these meetings, project teams began to feel an inability to fully communicate what their concepts were about, why they had a specific value potential, and how they should be implemented in order to fully realize that potential. Bringing a concept consisting of 50 slides and transferring those slides in a matter of two to three hours simply did not seem to be enough to ‘capture’ the entirety of the innovation projects:

“That is precisely what is so interesting and frustrating about this talk of learning. We had put together a workshop with a lot of key managers, and at the outset things were looking great. But all of our work leading up to that workshop – all of the insight that we had generated – you cannot just transfer that to 20 people during a three-hour workshop if they time to understand and to work with it. How are they ever going to take it all in? We just end up talking about a bunch of things that they already know about and they end up saying ‘That is really clever, we had not seen it like that before’, but there is just so much more to the project than that. We could have done so much more by spending a lot more time on it. […] They just did not seem to want to put in the hours required or pay for an extensive process.” (#7 Oliver, external consultant)

Project teams began to realize that in order to fully be able to communicate the complexity of their projects, they had to talk about so much more than the concept or the product which this complexity had ultimately generated. The hand over phase was, however, not designed for such an extensive process of communication and this became a significant problem for the entire Innovation Culture Initiative. As soon as projects left the portfolio, they changed. They became simplified, re-contextualized, and prioritized differently. This problem demanded the full attention of the Innovation Strategy Office which had until then been the main proponent for the Innovation Project Model and the design of the hand over phase. They began analyzing concluded and ongoing hand over processes, talking to project teams, and talking to representatives of the relevant lines of business in order to better understand the dynamic experienced during the hand over phase and how that dynamic was different from what they had envisioned. They seemed to quickly focus on the variable of learning, or knowledge. They began to argue that the hand over phase had not been
designed to ensure a communication of knowledge, but instead a transfer of a business development concept. Many of the problems experienced with the hand over phase were, according to the Innovation Strategy Office, associated with the fact that project teams were unable to transfer the knowledge that was needed to understand and contextualize the concept properly:

“I think that the primary weakness of our current setup is that the knowledge that I have – my personal knowledge – has not been materialized. There just does not seem to be any interest in acquiring it. My knowledge and that of the project teams are not being transferred, because no one seems to feel the need for it.”

(#5 Alice, member of the Innovation Strategy Office)

Just like they had done during the exploration phase, the Innovation Strategy Office began perceiving knowledge as something inherently personal and as something personally constructed. By transferring a business development concept from the Innovation Culture Initiative across a structural distance to a line of business, project teams did not transfer the knowledge that was the entire foundation and primary catalyst of that concept. Learning and knowledge thus became reintroduced to the vocabulary of the Innovation Culture Initiative, as people began analyzing the problems associated with the hand over phase:

“We have some challenge with bringing the concepts back to the core business. Primarily because the innovation project teams out here [points to a drawing of the Innovation Culture Initiative as adjacent to the core] have a lot of learning, but how do we bring that back here [points to the core business]?”

(#Fieldnotes November, Alice, member of the Innovation Strategy Office)

The members of the Innovation Culture Initiative thus began to reflect on the properties and qualities of the learning and knowledge at the core of the innovation projects and on the observation that this knowledge was somehow situated with the respective people making up the Innovation Culture Initiative. It was both personal (connected to the people of the Innovation Culture Initiative) and social (to the Innovation Culture Initiative itself as a unique community). Knowledge seemed to be directly connected to the people who had initially interacted with the domains of the innovation themes and who had generated so much experience and so many insights from that interaction. By only transferring the concepts produced during the conceptualization phase, project teams failed to communicate the knowledge essential for those concepts to make sense:

“We see the same problems appear as soon as the projects are fully developed. When the line of business takes over, the project changed completely. And then the learning goes out the window.”

(#Fieldnotes October, Alice, member of the Innovation Strategy Office)

Since the members of the steering committees, who had been so crucial for the success of the projects through the innovation process, had not participated in the holistic and immersive exploration of the initial innovation phase, they had not interacted with the domains of the innovation themes in the
same way as the project teams had. The same could be said for the lines of business. Suddenly, the project teams were situated in a situation where they were the only ones who had the knowledge necessary to make sense of the concepts that they had generated:

“I simply went about things too quickly. All the stuff about the learning loops and the reframing processes was not something that was realized at the time. You need to take that seriously, because you will otherwise end up with a steering committee, who has not undergone the same learning process as you have. That means that you have to extremely carefully bring them up to speed, but I just did not take that seriously enough so they began saying ‘I have already heard all about the bullshit that he is bringing to the table – he just talks about the weirdest things’.” (#6 Henry, member of the Innovation Strategy Office)

During the hand over phase — the final phase of the Innovation Project Model — the project teams experienced a set of significant and yet unexpected challenges associated with the planned transfer of the business development concepts from each innovation project team to a corresponding project team in the appropriate line of business. The design of the phase was founded on the assumption that the hand over process would be a simple and straightforward transfer of the cognitive product that was the concept of each project across a structural distance dependent on the level of adjacency between each project and the core business. It soon became apparent, however, that this dynamic only ensured a transfer of the concept from each project, but not of the knowledge required to fully understand and appropriately contextualize that concept. As such, the hand over phase greatly contrasted the observation that innovation projects consisted of more than the concepts — they also consisted on the personal experiences, insights, and observations of the project teams — as well as the observation that none of this knowledge was transferred during the hand over process. This resulted in noticeable frustration from both the Innovation Culture Initiative and from the line of business.

5.4.4. A closer look at The Bottom of the Pyramid project

Despite these significant challenges associated with the hand over phase experienced not only by the project teams, but also by the Innovation Strategy Office, one of the six projects in the portfolio of the Innovation Strategy Office seemed to have an entirely different experience. This was first made clear to me the first time I returned to Novo Nordisk to do a series of follow-up interviews after my field study. One project team, the Bottom of the Pyramid-project, seemed to have a radically different appreciation of the hand over phase and had simply not faced any of the challenges experienced by the other projects. This impression was made stronger by supporting perspectives from other project teams as well as from the Innovation Strategy Office — the Bottom of the Pyramid-project had managed to undergo a seemingly successful hand over and was thus perceived as the prime example of how things could go if they were to go right. This made the project
particularly interesting based on the possibility that it might somehow shed light on some of the variables responsible for the significant challenges that had faced the other project teams.

Based on the immediate feedback from the project team after having completed the first steps of its hand over phase, the transfer of the project to the corresponding project team from the line of business had completed with no problems at all:

“Things are going great. Last week I went down to the BAGIA region [Business Area Governing India Africa] and handed the project over. The BoP-project will be theirs from Christmas, so we handed over last week by helping them prepare for the next phase. We had done a report, which we presented to the local management group, who thought that it was really good, and who wanted to take over the project. So we have been sponsoring learning, training, and education, and have been facilitating the process for the next one and half years. All of this means that it has been transferred to the line of business. The hand over phase itself did not even take that long – about three weeks or so.” (#4 Paul, project manager)

After further inquiry, it became clear that the hand over phase had taken far longer than three weeks and that it had also been far more complex that what the above quote signals. It had in fact begun as soon as the conceptualization phase was underway and been made a part of the interaction between the project team and all relevant stakeholders. In this way, the project team had approached the line of business responsible for ultimately taking over their project in the same way that they had approached all other critical stakeholders. They had made sure to interact with them on a continuous basis, they had involved them in some of the conceptualization processes during which the ‘product’ of the project began to take shape, and they had tried to be as transparent about their process as possible. What seems even more unique to their approach, however, is the fact that they had engaged the line of business — i.e. project team and local management group — in a process resembling the initial exploration phase of the project itself:

“The area in which we have done the most work with the people in BAGIA has been on the conceptual level. I have had Kasper’s manager [Mark] on a field tour in July in order to get him directly involved in the whole concept and in order to lay everything out on the table and say ‘I believe that this is our strength and this is our weakness.’. This was all done before the actual hand over. As soon as it was decided that BAGIA was the department responsible for taking over the project, I initiated a continuous correspondence with Mark, who will be the business development manager in charge. We have been discussing good things and bad things, what we should be focusing on, and which KPIs we have got.” (#4 Paul, project manager)

The innovation project team had as such made sure to involve the local project team as well as the key members of the local management group as soon as they were able to. They had engaged them in discussions on the strengths and weaknesses of the project, on the conceptualization process of the project, and of the KPIs of the project — which could all be considered as fundamental elements. Furthermore, they had made sure to bring one of the members of the local management group on a
fieldtrip in order to show him some of the domain at the core of the project and to let him interact with some of the external stakeholders of the project. Such a communicative strategy seems to draw on some of the ideals and principles prescribed by the Innovation Project Model for the earlier innovation phases. The continuous touching base between project teams and their critical stakeholders was emphasized as important for any co-creation to take place during the initial exploration phase, and this principle seems to be mirrored in the communicative approach of the Bottom of the Pyramid project team.

The direct engagement of the local management was, however, far from the only variable unique to the hand over phase of the project. Something far less strategic, but critically important none the less, was the composition of the local line of business project team responsible for implementing the project. By some strange chance, this local project team seemed to include a former member of the original Bottom of the Pyramid project team:

“Kasper has been my graduate students for eight months, and he was really good. The very first time we went to Kenya to initiate the project about two years ago, he was there with us. So for the first eight months of the project, he was part of it, and he did produced all sort of things – memorandums of understanding, partner communication, and so on. He was integral to the entire creation process, and he was good. So handing the project over to him has been really easy. […] He began as project manager, and as soon as he did, we handed everything over to him” (#4 Paul, project manager)

This meant that one of the members of the local line of business project team had been on the same process of knowledge construction inherent to the initial innovation phase of holistic and immersive exploration. He had interacted with internal and external stakeholders, and he had been an integral part of the fundamental formation of the project. For the Bottom of the Pyramid project team, this unique variable seems to have made the hand over phase much easier than what the other...
innovation project teams experienced, since Kasper – the project manager in question – already knew so much about the project.

From the above it becomes clear that the Bottom of the Pyramid-project had at least three unique variables which made them experience their hand over phase as unproblematic and successful. Firstly, the hand over phase was initiated during the previous conceptualization phase and was, as such, much longer and much more extensive than what the Innovation Project Model illustrated. Secondly, the project team directly engaged the local management of their associated line of business and brought them face to face with the domain of the innovation project so that they might experience some of what the project was founded on. Thirdly, the corresponding line of business project team was headed by a former member of the original innovation project team, who had been part of the initial phase of knowledge construction, and who – as a consequence of this – already had the experiences, insights, and observations necessary for the concept to be placed in its proper context.

5.4.5. A condensed perspective on phase 4: implementation

With the unique variables of the Bottom of the Pyramid-project to contrast the hand over phase as prescribed by the Innovation Project Model in mind, it now seems appropriate to synthesize the final phase of the innovation process.

1. The hand over phase is designed to be a quick, straightforward process during which innovation project teams transfer their business development concepts to a corresponding project team within an appropriate line of business.

2. It seems to be founded on the assumption that the preceding conceptualization phase enables the project teams to transform their abstract, tacit knowledge constructed during the initial exploration phase into tangible, explicit cognitive products and that these products can be fully described.

3. The transfer of such concepts is designed to adhere to a dynamic of linear transmission. Each concept is sent over a variable structural distance contingent on the perceived distance between each innovation project and the core business of Novo Nordisk. More conventional business oriented projects are more adjacent to the core than the more abstract ones.

4. As the project teams began the hand over phase, it quickly became clear, however, that the process did not match that prescribed by the Innovation Project Model. The transfer of the concepts themselves did not seem sufficient for the project teams – these concepts simply did not seem to be adequate ‘representations’ of the innovation projects and particularly lacked the proper contexts necessary for the concepts to make sense in the right way.
5. The project teams experienced receiving lines of business, who immediately defined, contextualized, and prioritized the innovation concepts very different than they themselves had, which prompted them to see the hand over phase as anything but simple and straightforward.

6. Whereas most project teams experienced frustration connected to the hand over phase, the Bottom of the Pyramid project team did not. They themselves, along with other members of the Innovation Culture Initiative, saw the process as completely successful.

7. There seems to have been three unique variables associated with the Bottom of the Pyramid-project relevant for this differently experienced hand over phase: 1) a much longer and more complex process, 2) a continuous and direct engagement of the local management groups with the aim of co-creating the final concept with them, and 3) the fact that a former member of the innovation project team headed the line of business project team responsible for final implementation.

8. These unique variables seem to suggest a strong connection between the role and presence of the knowledge constructed during the initial exploration phase and the success of the hand over phase.
5.5. Synthesizing the process-level analysis

The purpose of the process-level analysis above was to apply the conceptual framework of knowledge communication theory as an analytical perspective on the innovation practices of the Innovation Culture Initiative of Novo Nordisk as it was initially designed and consequently operationalized in order to see which themes such an analytical perspective would make particularly salient. It allowed me to perceive the Innovation Project Model as a knowledge-intensive process and to structure it according to the dimensions of the analytical perspective — effectively changing the terminology, labels, and superficial structure of the model. By approaching the design and operationalization of the Innovation Project Model in this way, it made the knowledge and learning-intensive focus of the entire Innovation Culture Initiative salient to a point where the alignment between how the project teams operationalized the model and how knowledge communication theory approaches such processes seems very strong. In other words, it is not only reasonable to see this alignment or connection, but perhaps even clear cut. The Innovation Project Model is strongly and explicitly oriented towards an initial learning through domain-specific interaction, towards a consequent conceptualization of said learning, and finally towards a transfer or hand over of learning from the Innovation Culture Initiative to the core business. Approaching this innovation process as knowledge-intensive therefore seems evident. To the Innovation Culture Initiative, then, knowledge and learning were seen as key and the entire innovation process was designed around such an observation.

The analysis also showed, however, that the project teams’ operationalization of the innovation process design was far from unproblematic. More specifically, the project teams diverged — epistemologically and communicatively — from the ideals and principles of the Innovation Project Model on several occasions. ‘Learning’ changed to ‘learnings’, the unique voice, terminology, and communicative structure of the Innovation Culture Initiative were abandoned, more conventional performance measurement tools were implemented, and the holistic and immersion exploration otherwise at the core of the innovation process design was reduced to somewhat of a pre-project phase — a period of time during which project teams were given room to ‘play around’. As such, the different units of the Innovation Culture Initiative — project teams, steering committees, coordinating units — all changed their orientation, focus, and purpose with the changing discourses experienced within, among, and from outside the department. For this reason, it would seem to be a false deduction to argue that the Innovation Culture Initiative operated with the ideals and principles of knowledge communication theory in mind, but perhaps merely that the design of the Innovation Project Model seems to have been aligned.

Following these observations from the process-level analysis, it is clear that a certain few of these challenges — these epistemological and communicative changes, these discrepancies between design
and user experience — remain particularly salient. Recognizing that structuring such salient themes ultimately rests on somewhat arbitrary judgment contingent on the analytical perspective applied, I have chosen to structure my observations according to three interdependent, but analytically and structurally separate themes in order to be able to examine these in further detail and to discuss them critically. The first of these themes is labeled ‘approaching knowledge as an explicit and valuable resource’ and aims to discuss the contextual, organizational, and discursive reasons for perceiving knowledge as a tangible product. The second theme is labeled ‘changing the organizational voice of the Innovation Culture Initiative’ and aims to discuss the catalysts for and consequences of reverting the communicative structure and the terminology of the Innovation Culture Initiative. The third and final theme is labeled ‘asymmetrical negotiation of epistemologies’ and aims to discuss how the conceptualization of knowledge changed throughout the innovation process and which constitutive effects that epistemological change catalyzed. These three themes will be subject to further exploration in the following chapter, but what is perhaps more relevant is that these themes encourage a critical reflection of not only the empirical phenomena themselves, but also of the theories that brought them in to the perspective of the analysis.
Chapter 6

Discussing the dynamics of knowledge, communication, and organization
This final chapter takes its cue from what became the most salient theme of the analytical process: that the project teams of the Innovation Culture Initiative experienced an unequivocal discursive push from a wide range of stakeholders towards seeing innovation not as a knowledge-intensive process in a constructivist sense, but rather as a production of explicitly measurable concepts that would ultimately be transferred back to the core business of Novo Nordisk. It seemed as though these stakeholders needed the innovation process to churn out products tangible enough to integrate into conventional and recognizable frameworks and structures. The original focus on explorative and iterative learning did not seem to meet that need. This theme seems to have been present throughout the different phases of the innovation process. It first appeared during the exploration and opportunities phases where project teams were expected to structure and display their knowledge as a number of ‘learnings’, ‘insights’, or ‘key observations’ so that explicit, numbered lists could be made and so that some sense of delivering measurable results could be maintained (section 5.1). It then appeared at the different stage gates between the innovation process phases as the increasingly complex stakeholder communication contrasted the uniqueness and novelty of the organizational voice and communicative approach of the Innovation Culture Initiative to a point where the project teams had no choice but to abandon it and revert to a more conventional communicative structure (section 5.2). During the concepts and proof of concepts phases were the project teams for the first time able meet this need with a process of developing and testing tangible concepts. They approached that process as a transformation or a conversion of an until then intangible knowledge to an explicit knowledge product, which resonated well with their internal stakeholders (section 5.3). Finally, the hand over phase was operationalized as a process of transmitting tangible concepts over a variable structural distance; an ultimate result of the strong and unequivocal discursive push towards this perception of knowledge as a product (section 5.4). Throughout the entire innovation process, then, the project teams experienced an organizational context comprised of a wide range of internal and external stakeholders expecting a certain operationalization of the Innovation Project Model – an operationalization that was aligned with their conventional practices and one which perceived innovation to be as simple as accessing the right knowledge in the right place, transforming it, testing it, and transferring to the line of business where it would have the most value. This fundamental shift in perspective remains as the perhaps most salient theme of the innovation process. Through the analytical perspective of knowledge communication theory, it becomes both salient and interesting. The push for producing such valuable knowledge products quickly and effectively experienced by the project teams throughout the innovation process came to greatly affect their approach to and perspectives on innovation. It effectively changed how they defined innovation, how they viewed learning, in what way they valued knowledge, how quickly they skipped iterations order to jump to a real-world testing of tangible concepts, and how they expected the hand over phase to function. In other words, the
discursive push towards seeing innovation as a production of explicitly valuable and measurable knowledge products catalyzed a significant change to the way that the project teams perceived and understood even the most fundamental concepts of the innovation process.

I want to approach this discursive push — this significant change to several of the most fundamental dimensions inherent to the Innovation Culture Initiative — through knowledge communication theory. First, the discursive push from the organizational context of the Innovation Culture Initiative which catalyzed the fundamental changes to both concepts of knowledge and communication will be discussed with particular emphasis on discursive legitimacy and different kinds of discursive harmonies. Secondly, the shift of voice and communicative structure which began as early in the innovation process as the very first phase of holistic and immersive exploration will be discussed with particular emphasis on the constitutive effects generated by the change from a transaction-based design to a transmission-based practice. Thirdly and finally, the social dimension of knowledge established between the project teams and their many stakeholders that defined and redefined what knowledge is, how knowledge should be evaluated and qualified, how to achieve value from knowledge, and how knowledge-intensive processes function will be discussed with particular emphasis on knowledge as the pivotal and constitutive aspect of the innovation process. It is a chapter aimed at exploring the complexities of these concepts as well as their relationships with the objective of critically discussing them in their theoretical and empirical contexts while critically reflecting on their significance.

6.1. Competing innovation discourses and organizational polyphony

From the process-level analysis of the previous chapter, it became clear that many, if not all, of the innovation project teams experienced a clear dyadic relationship between themselves and their steering committees. They felt situated in an organizational context which not only affected them, but which directly determined what they could do and how they could do it. It was a matter of all-important expectation and legitimacy, a matter of constantly relating the innovation process to the Novo Nordisk ‘way of doing things around here’. The project teams felt as explorers and entrepreneurs surrounded by a discourse that had little tolerance for new and disruptive ways. This experienced dyadic relationship had significant effects on the operationalization of the Innovation Project Model and therefore deserves pause and critical discussion.

6.1.1. A discourse of knowledge products in knowledge economies

One of the most fundamental assumptions of the Innovation Culture Initiative is the idea of knowledge as a strategically valuable resource. It is the expectation that new knowledge will ultimately contribute to the value of Novo Nordisk by enabling the company to advance the exploitation of its existing product portfolio and market position, while at the same advancing the
exploration of new opportunities, technologies, and markets (March, 1991; O’Reilly & Tushman, 2008; Teece, 2007). The link between knowledge and such a strategically important position is in no way new itself. The numerous ‘theories of the firm’ capitalized on the emerging field of knowledge management as early as the 1990’s (e.g. Nonaka, 1991; Spender, 1989) with Grant coining the term ‘the knowledge-based view of the firm’ in 1996. This theory is founded on the logic behind the previously developed ‘resource-based view of the firm’ (Barney, 1991) and states that organizations are essentially knowledge-intensive entities with the purpose of acquiring, generating, combining, and re-combining knowledge to gain competitive advantages (Quintane, Casselman, Reiche, & Nylund, 2011; Zheng et al., 2011). It argues that knowledge — and especially the generation of new knowledge through innovation — is what has made great companies great in the past, while it is the lack of knowledge and the lack of innovation which makes companies fail. The knowledge-based view of the firm assumes a Schumpeterian perspective on market dynamics introduced in section 2.2. in that companies are seen as entities inherently occupied with maintaining their market positions by exploiting their existing products and assets (Sledzik, 2013a; Sweezy, 1943). If this focus on re-production, copy, and incremental improvement is exclusive, it will inevitably cause companies to lose their competitive advantages over time as the profit margins of their products and assets decrease — it is inherently an entropic and unsustainable state (Sledzik, 2013b). In order to maintain the competitive advantage and follow natural market growth, then, companies must discover new ideas and consequently utilize those ideas through processes of innovation, which effectively disrupts the entropic state of the re-producing status quo: creative destruction (Hoque, 2013). The Schumpeterian dynamic thus informs the knowledge-based view of the firm and introduces a particular understanding of the connection between knowledge and corporate strategy. Knowledge is seen as the pivotal dimension of successful companies simultaneously enabling them to perform incremental innovations to their exploitive efforts, while catalyzing performative leaps of radical or disruptive innovation. While this perspective was initially introduced to the specific context of this project as early as chapter two, it can now be informed by critical empirical findings and analyses.

Novo Nordisk founded the Innovation Culture Initiative based on a recognition that while the company had developed excellent capabilities to exploit and incrementally improve its existing products and assets, it needed a strategy and a method for exploring and generating new knowledge required for radical and disruptive innovations outside of its product portfolio (document #35; Keeley, Pikkel, Quinn, & Walters, 2013). The explicitly central role of ‘learning’ in most of the policy documents produced by the Innovation Culture Initiative is certainly testament to that recognition. Adhering to the dynamic introduced by the knowledge-based view of the firm, the innovation project teams were tasked with generating, conceptualizing, testing, and implementing new, difficult-to-imitate, and unique knowledge which would secure and expand the competitive
advantage of the company (document #7). As such, the Innovation Culture Initiative had the objective of developing and testing a new knowledge-intensive type of explorative innovation which would complete Novo Nordisk’s ambidextrous strategy while firmly establishing the company as a nexus of valuable knowledge and expertise (Kogut & Zander, 1992; Moustaghfir & Schiuma, 2013).

Even though the knowledge-based view of the firm must be credited for introducing the otherwise abstract and difficult to understand concept of knowledge to the more practical and applied context of corporate strategy, numerous researchers of knowledge and knowledge-intensive processes have used this perspective to argue for a type of commodification of knowledge in which the complexity of knowledge is reduced to a point where it can be seen as little more than any other valuable product (e.g. Blanc & Bouillon, 2012; Kankanhalli, Tan, & Wei, 2005; Purvis, Sambamurthy, & Zmud, 2001). In the name of approachability, operationalization, and managerialism, the concept of knowledge is transformed from an abstraction to a product. In the context of this project, the epistemological transformation was introduced in section 2.2 as the epistemological and communicative consequences of the somewhat simplifying knowledge transfer theory were discussed (e.g. Lin, Geng, & Whinston, 2005). At the extreme end of this perspective, knowledge is viewed a thing, which should be discovered and unearthed within the domain of an innovation theme, brought back to the company and converted into a viable business concept, and finally implemented full-scale in order to achieve maximum impact and value. Such a straightforward and highly operational approach to knowledge within the context of innovation is often welcomed by managers and advocators of managerially oriented literature as it reduces what is seen as an otherwise paralyzing complexity and abstraction (Alvesson, 2004). It is within this larger discourse of managerially oriented, operationally focused, and value-centric knowledge that the Innovation Culture Initiative was created, and because of this context, there was a set of expectations as to what knowledge was, and which objective knowledge-intensive work had.

With the specific perspective developed and discussed above, the discourse connected to the knowledge-intensive innovation processes of the Novo Nordisk core business seems clear: the Innovation Culture Initiative was tasked with exploring and finding new, difficult-to-imitate, and unique knowledge within a domain strategically selected by the core business, develop that knowledge into a tested and polished concept, and finally transfer it to the core business so that impact and value may be realized through full-scale implementation. In this way, innovation becomes linearly sequential, straightforward, and very tangible. It outlines innovation as a short, controlled process with clear stage gates and with clear and measurable deliverables — much like more conventional project management methodologies which is far more recognizable and standard in the context of Novo Nordisk. It paves the way for conventional measurement tools (e.g. ROI analyses), and it empowers the organization ‘to act’ and to do so effectively. It aligns directly with
the idea of “1% inspiration and 99% perspiration” shared by many members of the Novo Nordisk core business (e.g. #12, Matthew, vice president). It is a discourse of action and empowerment, and one which favors the reduction of complexity and abstraction in order to enable that very same action and empowerment. This discourse of reducing the complexity of innovation and innovation processes to a point where it simply resembles conventional project-based structures and approaches meant that project teams and steering committees alike began to apply the same set of expectations to the innovation process as they were used to. If the process is fully recognizable and predictable, it becomes a matter of simply controlling every known variable as effectively as possible as the project teams progress without failure and with as little noise as possible in order to achieve as much impact and value as possible. Such a focus on control, efficiency, and risk is clearly a testament to lean philosophy dictating a constant reduction of organizational slack, noise, and unwanted variation (Richtnér et al., 2013). It is perceived to be ‘the way we do things around here’, it is the cultural identity, and, perhaps more importantly, it is the ‘monotonous’ voice of the company.

Even though the discourse outlined above may appear oversimplified, it was experienced as such by most actors within Novo Nordisk associated with the Innovation Culture Initiative regardless of their structural and hierarchical positions and regardless of whether they worked directly with the innovation projects or not. Many of the interview statements included in the analysis from project managers, directors, consultants, and vice-presidents alike are testament to this observation. Before reflecting critically on this experienced dyadic relationship between the innovators and the cultural identity of Novo Nordisk, however, it is necessary to discuss the other end of the dyad, the discourse of the Innovation Culture Initiative, in order to complete the perspective.

6.1.2. A discourse of exploration and multidimensional knowledge

From the very first meetings of the Innovation Steering Committee, it was made clear that the Innovation Culture Initiative as a whole was to approach innovation differently than Novo Nordisk had previously been doing (documents #63, #64, and #65). Aligning their perspective with March’s theory of exploitation and exploration (March, 1991) and O’Reilly and Tushman’s theory of organizational ambidexterity (O’Reilly & Tushman, 2008), the Innovation Steering Committee argued for a strategy of leaving behind those specific core competences of the company, which they believed had become core rigidities (document #63, #Fieldnotes November). Such rigidities included, but were not limited to a strict product-oriented focus on innovation initiatives, an evaluation of project success or failure based on ROI analyses, and working according to tried-and-tested project management methodologies based on the lean philosophy. The Innovation Culture Initiative was to try something new. It was meant to develop and test a new explorative innovation strategy, and it was meant to do so in a completely new and different way than was conventional within the company. The consequence of this can be seen as early as the first design and policy
documents developed by the Innovation Strategy Office (e.g. document #66: the portfolio of innovation themes, document #68: the innovation leadership approach, or document #62: the Innovation Project Model). The understanding of innovation was changed, the approach to innovation was changed, and the terminology of innovation was changed. This new type of non-R&D, non-lean innovation became defined as learning-focused, as holistic and multidimensional, as iterative and pragmatic, and finally as risk-intensive. It was truly explorative in the sense that while the innovation project teams might have had strategically selected innovation themes to orient their focus, they began their projects without any clear expectation of end-result, impact, or value. It was a matter of exploring and learning what could be done within a certain innovation theme and within a certain domain. Unlike the incredibly controlled and regulated innovation processes of R&D, this new type of innovation did not seem to have any fixed set of rules or any set of hard targets to reach. Since it was focused on processes of holistic and immersive exploration through which to construct new knowledge, it was difficult to impose any conventional structure on the projects. It also meant that there was no way of telling how long particular innovation phases would last for or whether or not any tangible and valuable business opportunities would ever be produced. In this sense, it was an uncertain innovation process with a high risk of failure. While none of these properties — being explorative, holistic, immersive, multidimensional, learning-focused, risk-intensive — are out of the ordinary within the context of the innovation theories introduced earlier, it was completely different to what Novo Nordisk previously had identified as innovation and to what it had viewed as ‘the way we do things around here’.

The new innovation discourse introduced by the Innovation Culture Initiative was almost perfectly aligned with the ideals and prescriptions of numerous prominent innovation scholars (e.g. Christianson, 1997; Keeley et al., 2013; March, 1991; O’Reilly & Tushman, 2008; Sweezy, 1943; Teece, 2009), but it was at odds with the already existing innovation discourse of the Novo Nordisk core business. It was explorative, non-product oriented, cross-boundary, structurally adjacent, and risk-intensive innovation without any fixed KPIs or projected deliverables. It argued for a different kind of value and impact than ROI and placed something as abstract as knowledge and learning at its core. While such a focus and such a perspective may seem intuitively appealing to explorative innovators frustrated with the rigidities of conventional structure, it immediately becomes challenged by any one of many principles of the lean philosophy. There is no clear idea of a tangible value to the consumer, the process is characterized by a significant inefficiency due to its iterative nature, it requires organizational slack which is inherently characterized as unwanted noise, and it deliberately tries to widen the perspective of the organization’s ‘performance engine’ (Richtnér, 2004).
Even though the analysis of the previous chapter already introduced and discussed the more tangible consequences of this new exploration and learning-focused approach to innovation, it did so while adhering strictly to the structure of the innovation process. This ensured an analytical flow aligned with the experienced sequentiaity of the project teams, but it did not allow particularly in-depth or critical discussions of specific themes such as this shift of discourse. The new approach to innovation designed by the Innovation Culture Initiative did, however, catalyze a significant struggle within the company, which ultimately determined the fate of the entire initiative and for this reason in particular it seems appropriate to pause and reflect critically on what this new discourse meant to the core business of the company.

6.1.3. Organizational voices as polyphony or homophony

Even though a clear cut dyadic or dichotomist relationship between a dominant, ‘monotonous’ cultural identity and a disruptive, experimental innovation initiative is straightforward and easily understood, it does seem peculiar that a large, modern, and complex organization such as Novo Nordisk would allow such a significant discursive struggle. To me as a researcher, it provokes further and critical inquiry because of its apparent simplicity due to the observation that most complex, social phenomena are just that — complex.

It seems clear from the process-level analysis and from the discussion above that despite the appearance of two different discourses struggling for dominance, the dyad in no way means that both discourses were competing on an equal footing. In fact, none of the actors associated with the Innovation Culture Initiative — including the most idealistic — seemed to have any doubt that the discourse of Novo Nordisk’s core business was dominant. This introduces a dimension to the relationship between the two discourses which is often discussed in sociological terms with the use of labels like ‘hegemony’ and ‘interpellation’ or simply ‘power’ and ‘authority’ (e.g. Fairelough, 1985; Foucault, 1969; Laclau & Mouffe, 2002). The analytical perspective of this project is, however, not sociological, but rather made up of theories from knowledge communication theory, which makes the use of such sociological concepts somewhat out of place — despite the overall principles of pragmatist research design. The concept of discourse is, in itself, highly sociological and still tends to signify the use of power in the context of political or certainly authoritative oppression or submission despite being re-contextualized by numerous researchers into other settings than its original political one (e.g. Schmeltz, 2012; Schultze & Leidner, 2002). In the context of this specific discussion, it is in this way important not to assume the existence of any predetermined oppressive discourse in a traditional ‘employer vs. employee’ context since this is simply not within the scope of the analytical perspective. It is rather more significant to examine and discuss how these different perspectives on and understandings of innovation came to affect the entire Innovation Culture Initiative and, perhaps more importantly, how their knowledge-intensive practices were affected by
them. Within the discipline of knowledge communication there is a strong focus on role of communication rather than discourse as the constituting and catalyzing force of meaning and knowledge. For this reason, it seems appropriate to modify the terminology with which to discuss the dyadic relationship above. In order to achieve this, I go to a specific theoretical perspective outlined elegantly by Christensen, Morsing, and Cheney in 2008, which enables the researcher to perceive these discourses as ‘organizational voices’ engaging one another in different kinds of dialogue in order to create a certain kind of music. While such a perspective might have originated from outside of the discipline of knowledge communication, it certainly resonates with many of its own conceptual aspects.

The concept of organizational voices in a context of knowledge communication theory enables a perspective on the dyadic relationship which displays the competing or struggling discourses as voices communicating with each other. These voices are created discursively and culturally and should therefore be understood as abstract analytical entities rather than concrete and tangible ones. Even so, there did not seem to be any doubt to any of the actors associated with the Innovation Culture Initiative as to what the voice of the core business sounded like, just like they were well aware of what the voice of the innovators sounded like. Such voices use particular terminologies, associate particular meaning to those terminologies, and use them to resonate in their organizational contexts — they seek to engage other voices in dialogue. From the analysis of the previous chapter it became clear that such a dialogue took place throughout the entire innovation processes of each project and also that the consequences of this dialogue were significant. In order to qualify the nature of this pivotal dialogue between the steering committees of the core business and the project teams of the Innovation Culture Initiative, Christensen, Morsing, and Cheney speak of different kinds of harmonies (Christensen et al., 2008). When only a single voice is present, the term ‘monophony’ is used. Such a term would be appropriate when referring to a strictly monolithic discourse. When two or more voices sing the same melody, the term ‘unity’ is used. While ‘unity’ conveys coordination and togetherness, it also requires each voice to sound identical to each other thereby making it an ill fit to describe the discursive differences inherent to the dyadic relationship in question. The two final kinds of harmony described by Christensen, Morsing, and Cheney are ‘polyphony’ and ‘homophony’, and it is these two harmonies which might offer some way of appreciating the discursive struggle of the Innovation Culture Initiative context from a communicative perspective.

Homophony is used when three conditions are met: two or more voices must be present, one of those voices must be the dominant one, and all other voices must accompany that dominant one even though they do not sound alike. This means that homophony is an appropriate label to use if a single dominating voice and multiple accompanying voices reach harmony. Whether or not the dyadic relationship between the discourses of the core business and the innovators can be described as
homophonic is certainly worth critical reflection. It would have to mean that the organizational voice of the core business would not engage the voice of the innovators in any kind of dialogue, but rather that the voice of the innovators would align itself to the dominance of the core business in order to reach harmony. One may certainly argue that such a homophony was reached at a certain point during the existence of the Innovation Culture Initiative as the uniqueness of its voice and terminology was abandoned in favor of more conventional communicative approaches. I will, however, not yet conclude that homophony is the best way of describing the communicative and discursive dyad, since the Innovation Culture Initiative was in fact founded on the premise of being different than the innovation practices and discourses of the core business. This makes me introduce the term of ‘polyphony’. Polyphony may be used when two or more voices reach harmony while retaining their uniqueness and their differences: “The distinctive quality of polyphonic music is its utilization of diversity and complexity within a coherent unit” (Christensen et al., 2008: 108).

Characterizing the discursive dyad as polyphonic would mean that the two organizational voices actively engage each other in order to achieve harmony through contrast and relief. It would be a matter of seeing the Innovation Culture Initiative as the main proponent for strategic exploration and the core business as the main proponent for strategic exploitation — only by letting such two strategies retain their unique focus, would organizations be able to be fully ambidextrous and thus agile in rapidly and turbulently changing markets. I believe that there is little doubt as to whether this polyphony was the original strategic objective of the Innovation Culture Initiative, but I also believe that it is not an accurate or valid characterization of the discursive dyad. By being different than the core business and by having a unique organizational voice with its own unique terminology, I believe that the Innovation Culture Initiative was perceived to introduce ambiguity, variation, range, and even fragmentation into an otherwise streamlined company. Rather than complementing an already strong discourse of innovation, it was seen as disrupting or disturbing it — going against otherwise strong lean principles of unity, consistency, clarity, and efficiency. The discursive dyad between the organizational voices of the core business and of the innovators therefore seems more complex than conventional, politically-oriented discourse would argue. It is not a matter of ‘us vs. them’ or of straightforward hegemonic oppression, but rather of different organizational voices struggling to negotiate meaning.

I will argue that the design of the Innovation Culture Initiative, its original objective, and its organizational structure all point towards an ambition of greater polyphony within Novo Nordisk’s innovation strategy. As the innovation projects were initiated and as they began to drive their projects through the different phases of the Innovation Project Model, however, this ambition of polyphony was challenged. The organizational voice of the core business was simply perceived as dominant, and there were doubts among the actors of the Innovation Culture Initiative whether there had ever been any chance of a mutually engaging dialogue (e.g. #2 John, project manager; #9
Sophie, project manager; or #12 Matthew, vice president). As such, the uniqueness of the innovators voice was abandoned as it began to accompany the voice of the core business — of the way we do things around here, of the ‘monotonous’ cultural identity — in homophony.

The concepts of polyphony and homophony thus enable a discussion of the more abstractly discursive and the communicative dimensions of the Innovation Culture Initiative. It allows me to argue that the relationship between the discourse of the core business and that of the innovators may have been imagined as a polyphonic dialogue between two unique and complementary innovation strategies, but that its operationalization resulted in a discursive state more precisely described as homophony. This significant change to the organizational role of the Innovation Culture Initiative is interesting as it catalyzed a number of modifications and changes to the original design and approach of the innovation projects themselves. It effectively transformed the understanding of innovation and knowledge, construction and communication, conceptualization and transmission.

The shift in the discursive melody of Novo Nordisk strategic innovation from polyphony to homophony catalyzed equally significant changes to both communicative structure and to epistemological perspective. For this reason in particular, it becomes interesting to discuss the nature of these communicative changes and how they constituted a fundamental shift in how the Innovation Culture Initiative approach explorative innovation.

6.2. Changing communicative approaches

Even though the order of the larger sections of this chapter indicate a certain sequentiality of events regarding the three pivotal aspects of this discussion — knowledge, communication, and organization — it would be premature to assume this to be the case. The argument can certainly be made that the discursive shift of the organizational voice of the Innovation Culture Initiative from being a part of a polyphony to being a part of a homophony came first and consequently catalyzed a number of direct changes to the communicative and epistemological dimensions of the project teams. I will, however, argue that it seems just as valid to perceive the sequentiality of these events in different order — that the discursive shift itself was, for instance, catalyzed by initial changes to the communicative and epistemological dimensions. Regardless, it remains clear from the analysis of the previous chapter that the communication taking place between the project teams and their numerous internal and external stakeholders was essential and that it had significant effects on the entire Innovation Culture Initiative. The project teams abandoned the uniqueness of their organizational voice, they changed the communicative structure outlined by the Innovation Project Model, and they began to utilize a different terminology when talking about innovation, knowledge, and learning. Whether these changes came as a consequence of a changed organizational voice or not, will be a matter of critical reflection at the final section of this chapter. What remains clear at this point, however, is that it was not a matter of proactively amending the innovation design and
implementing changes strategically to all parts of the Innovation Culture Initiative. It was rather a matter of each project team reacting and adjusting the approach according to their own experiences with the communicative dimension of their project. It was not a matter of “how would we _like_ communication to be?”, but rather a matter of “what do we _need_ communication to be?”. As such, the changes to the communicative dimension of the Innovation Culture Initiative were emergent.

6.2.1. Stakeholder engagement strategies as constitutive of knowledge

From the organizational structure of the Innovation Culture Initiative itself, introduced in chapter two, it is valid to assume that the number of internal stakeholders—the project steering committees, the Innovation Steering Committee, the Innovation Strategy Office, the line managers, and the other project teams—was rather substantial. The experiences of the project teams as they began to practice innovation and began to engage these stakeholders communicatively, analyzed in chapter five, supported this assumption. The project teams had to engage a significant number of different stakeholders, internal and external, and communicate about innovation, knowledge, and learning. Furthermore, it is warranted to assume that it was the practice of this engagement—of this communicative dimension—which made it clear to the project teams that they needed to change their approach. They were not met with an understanding of their new organizational voice, which instead appeared to seem disruptive and unaligned to many of their stakeholders. As such, the project teams began to reflect on their unique organizational voice and on the communicative structure outlined by the Innovation Project Model. At first, this reflection was to be little more than an integral part of good stakeholder engagement strategy—you first map out key stakeholders and then you engage each stakeholder according to their position and perspective (Cornelissen, 2011). This can be seen in the way that many of the project teams produced different presentations for different stakeholders and in the way that they adjusted their terminologies according to whomever they spoke (#1 Thomas, project manager; #2 John, project manager). At that level, it is disproportionate to speak of an actual change of organization voice and more of an ongoing adaptation of communicative strategy following a sound stakeholder engagement approach. Following such a perspective, the project teams did little more than perceive and qualify the different positions and perspective of their key stakeholders in order to initiate as effective a communication strategy as possible. I will argue, however, that this process was more significant than that. It was the beginning of the change of organizational voice.

As the project teams were faced with an increasing number of internal and external stakeholders with different positions and orientations, they felt limited by their voice and by their terminology. Even though the design and vision at the core of the Innovation Culture Initiative was meant to sound, appear, and seem different than what was perceived to be the ‘monotonous’ voice of the core business, the experienced practice of constantly having to disrupt the conceptualization and
perspective of stakeholders seemed to be limiting rather than empowering. They defined innovation differently, they adhered to a different project management methodology, they utilized key terms such as knowledge and learning, they would not explicit address conventional value estimation, and they were often unable to clearly say what their projects were going to end with. It meant that the project teams felt at a disadvantage as soon as they began to communicate, because they had experienced the discursive struggle for meaning which would inevitably follow on each of these occasions whether it be a project status presentation, a workshop, a conference presentation, a memo, an article for the internal Globeshare, or an interview. They came to expect such a struggle as soon as they had to engage anyone outside of their own project team. This struggle eventually turned out to feel too disruptive for the project teams and, as was outlined in the previous chapter, they began to change their communicative approach.

By abandoning the uniqueness of their organizational voice and corresponding terminology, the project teams were able to engage their different stakeholders in whatever way they saw fit. They approached this task strategically and with incredible communicative skill — on occasions going as far as carefully mapping out the positioning, orientation, perspective, and expected mood of each individual of a particular steering committee in order to identify potential key allies and in order to custom design a communicative approach aligned with as many of those allies as possible (e.g. #9 Sophie, project manager; #4 Paul, project manager). To the project teams, this exercise seemed purely instrumental — it was perceived as a simple matter of adjusting approach according to communicative context. In other words, it was merely a sound stakeholder engagement strategy. On one hand, this certainly did enable the project teams to custom fit their organizational voice and communicative structure to match that of their stakeholders. On the other hand, however, it meant that by constantly having to adapt to different stakeholders, the project teams made that very same organizational voice and communicative structure appear different to different people, which made it inherently unstable. By adapting it to the extent that they did, they effectively reduced their own organizational voice from being a discursively struggling element of a polyphony to being a submissive element of a homophony. They left behind the communicative ideals and principles outlined by the Innovation Project Model, such as highlighting transparency, choosing the format of frequent and informal touch base-meetings, maintaining a strong focus on learning and exploration, and not being afraid to display valuable iterations and failures. This was, however, not just a superficial consequence of changing a communicative approach strategically — it began to shape the project teams’ own understanding of what they were working with. Integral to the notion of homophony is the submission by the dominant voice of the accompanying voice (Christensen et al., 2008). While the voice of the Innovation Culture Initiative began to yield to that of the core business, project teams began to see innovation, learning, and knowledge differently. Their constant engagements with numerous internal and external stakeholders had pressured them to ask
themselves: “what do we need innovation, learning, and knowledge to be in order to communicate more successfully?”.

They needed to see knowledge — the concept which made the entire innovation process stand out from the more conventional ones and around which the process was designed — as a ‘something’. They needed to show-case it, they needed to quantify it, they needed to measure its value, and they ultimately needed to supply the core business with it. That certain perspective, emphasized by structurally placing the Innovation Culture Initiative outside of, but adjacent to the core business (see section 2.3.2.) was founded on the assumption that the project teams ultimately had to ‘deliver something of value’ to the core business. They had to discover something, bring something to the table, transmit something, supply someone with something — it was fundamentally a way of understanding knowledge as a product. This change can be seen throughout the process-level analysis of the previous chapter, for instance in the change from “learning” to “learnings”, in the desire to present lists of tangible and deliverable insights of observations from the holistic and immersive exploration processes, in the outsourcing of the learning process, and in the skipping over iterative and recursive processes in order to reach a concrete concept faster. Ultimately, then, the communication of knowledge between the project teams and their stakeholders came to be constitutive of the way that the project teams understood what knowledge was. Communicating about knowledge transformed it into a ‘something’ — a tangible commodity, a stable product, an explicit resource — because it resonated better with the dominant voice of the core business.

6.2.2. Knowledge as product reduces communication to transmission

This need to define knowledge as a product eventually came to define the way that all affiliated actors of the Innovation Culture Initiative had to understand the communication of knowledge. If one assumes knowledge to be an explicit, concrete, and tangible product with the ability of existing independently of its knower, then the communication of that knowledge becomes fairly intuitive and straightforward — it is simply a matter of handing it over, or transmitting it, to someone else. It becomes completely aligned with the communicative dimension of knowledge transfer theory in which the communication of knowledge is reduced to a transfer of cognitive products from someone ‘with’ knowledge to someone ‘without’ knowledge (Lin et al., 2005; Liyanage et al., 2009; McGowan & Bozeman, 1982). Furthermore, it draws on the traditional understanding of knowledge asymmetries outlined by Jacobsen (2012) in assuming ‘knowledge deficits’, ‘lacks’ or ‘gaps’ which simply needs to be accommodated, supplied, bridge, or filled with knowledge. Using this approach of knowledge transfer theory means that one must also approach the communication of knowledge as a simple and as an entirely uninteresting dimension. While this aligns with the perception of more conventional project management approaches within Novo Nordisk (e.g. PMM or similar stage-gate
focused models), it completely neglects the importance of communication as a constitutive dimension of knowledge-intensive processes.

Regardless of whether or not the communicative dimension of knowledge-intensive processes is interesting to knowledge transfer theory, it remains interesting to knowledge communication theory — especially if the Innovation Culture Initiative indeed did adapt such a simplifying approach themselves. Even though I will refrain from reiterating the transmission-based approach to communication first introduced in chapter three, it is important to draw on its dynamic in order to reflect and discuss the consequences of adapting such an approach for the project teams. The pivotal question seems to be the following: “If knowledge is considered to be a tangible and explicit product with the ability of existing independently of its knower, and if the communication of such a product is therefore considered to be a simple transmission, how would the practice of communicating knowledge — enabled by such considerations — appear from the analytical perspective of knowledge communication theory?” In other words, if the project teams began to assume a transmission-based dynamic of knowledge transfer, how did they approach the process of communicating knowledge?

One particularly obvious observation is also the most immediate: by approaching the communication of knowledge as the transfer of a product, the notion of co-creation or co-construction between communicators is inherently impossible. When a ‘piece’ of knowledge is sent by someone and received by someone else, there is no ongoing interaction — there is no mutual negotiation of meaning — there is just a delivering of something. Seeing as how co-creation is considered to be a fundamental premise of knowledge communication theory (Eppler, 2006; Kastberg, 2007), one might argue that such an approach is fundamentally about something else than communicating knowledge. When the transmission-based approach does not, in fact, recognize any of the theoretical concepts of knowledge communication outlined in the conceptual framework developed by this project (see section 2.4), such an argument appears even more sound. Returning for a moment to the question posed earlier, if the transmission-based approach makes any communication of knowledge inherently impossible, then how does knowledge communication theory explain what actually goes on in the transmission-based approach?

Both the objective and the expectation was clear. The objective was to supply the core business with new knowledge discovered and developed by the Innovation Culture Initiative. The expectation of how this was to proceed was equally straightforward. As the project teams had discovered pieces of valuable knowledge within the domain of their innovation theme, and as they had developed the that knowledge into something tangible and valuable, they simply had to hand over that knowledge to a corresponding project team within the receiving line of business, who would then implement it and scale it. The knowledge produced during the exploration phase was to be fully described and then handed over in a straightforward sender-receiver transmission. This expectation aligns
perfectly with knowledge transfer theory, as stated previously, and even to a point where one might argue that there is no actual mention of any distinctive phase or stage of communication. Even using the term ‘communication’ may be a step too far. There is simply the handover of knowledge from the innovation project teams to the line of business project teams.

From the conceptual framework of knowledge communication theory, crucially, it is clear that knowledge cannot simply be transmitted according to these expectations. In the communicative scenario described above, something else entirely goes on. As the innovation project teams hand over reports, statistics, memos, photographs, testimonies, videos, presentations, articles, analyses, and all other artefacts containing important information about the project, they are essentially handing over information — not knowledge — and the distinction between these two concepts are important in this context. Returning for a moment to the logic of the tripartition of knowledge (section 2.3.1.1.), information is considered to be completely explicit and can therefore be subject to straightforward transmission (Bell, 1973; Davenport et al., 1998; Tsoukas, 2002). Information can be very rich and complex, and artefacts containing essential information about the particular innovation project are therefore incredibly important to hand over. It is, however, not knowledge. Knowledge only comes into play when people begin to appreciate the information handed over, and this is incidentally also where the final phase of the Innovation Project Model begins to become highly problematic in its design. As the innovation project teams handed over all of their artefacts containing all of the essential pieces of information on their respective projects, the receiving line of business began to appreciate it. It is important to note that they appreciated it from their own structural position, using their own perspective, applying their own terminology, drawing on their own experiences, and prioritizing it according to their own context. In other words, the information transmitted entered into a completely different context in which it was appreciated by completely different people with completely different perspectives ultimately resulting in a different understanding. Since knowledge is unique to its knower, and since we appreciate the world around us in different ways, it stands to reason that the information transmitted from the innovation project teams to the line of business project teams will not be appreciated and experienced by both teams in the same way. In this way, the individuals perceiving and understanding the information at hand do so according to the articulated rules and regulations of whichever social context they are in (Tsoukas, 2002). An innovation project team would approach a project differently than a project team within the core business. The expectation of handing over pieces of new knowledge is therefore inaccurate. What happened can more precisely be described as a transmission of important information and a lack of a communication of knowledge. This argument is supported by the numerous accounts from different project teams stating that they experienced frustration in connection to the hand over phase since the line of business ‘just did not seem to get it’ and since they did not feel able to fully give the line of business all of their knowledge (e.g. #7 Oliver, external consultant; #9 Sophie, project
Chapter 6: Discussing the dynamics of knowledge, communication, and organization

The objective and expectation of supplying the core business with knowledge products using a transmission-based approach rather resulted in a supplying of information which was inevitably perceived and interpreted differently than anticipated. There was no supply of knowledge, and there was no communication of knowledge, but rather a transmission of information completely dependent on context. The traditional conduit metaphor of people carrying buckets of water to each other so widespread within knowledge transfer theory is certainly brought to life here (Kincaid, 1979). It remains, however, an overly simplifying approach to knowledge and to the communication of knowledge.

What remains most salient from the discussion of the communicative dimension of the Innovation Culture Initiative above is perhaps that the changes catalyzed by the ongoing and complex stakeholder engagements so central to the project teams constituted a significant and substantial change to understanding of the pivotal concepts of innovation, learning, and knowledge. As such, communication constituted knowledge, and when the communicative dimension changed, so did the epistemological one. Knowledge was addressed as a cognitive product — an explicit and a tangible commodity with a certain value to the core business. Adapting such an epistemological perspective seemed to be the only way for the project teams to successfully communicate about innovation, learning, and knowledge to their numerous internal and external stakeholders without instigating them in a fundamental struggle for meaning. It was the perceived to be the only way to get things done and did, as such, come to constitute the perspective of the innovation project teams themselves. In their ambition to supply the core business with knowledge products, the Innovation Culture Initiative changed their communicative dimension to align and accompany the dominant organizational voice of that core business. This meant that the project teams had to adjust their expectation to what knowledge was and how it was to be transmitted during the final phase of the innovation process. When they consequently tried to hand over what they had come to regard as the knowledge products at the core of their projects, they instead provided a number of artefacts with information such as reports, statistics, memos, videos, etc., while subsequently becoming faced with the frustration of not experiencing an actual communication of knowledge. On the basis of this, the communicative dimension of innovation as a knowledge-intensive process is emphasized as essential.

It also seems plausible to argue that the change of organizational voice and communicative approach catalyzed a fundamental change of epistemology. The understanding of the most pivotal concept of the Innovation Culture Initiative was renegotiated and as a consequence, the entire innovation process fundamentally changed.
6.3. Changing social dimensions and communities of practice

As the organizational voice of the Innovation Culture Initiative changed from a unique and distinctive one designed to be part of a polyphony to a more conventional and recognizable one accompanying the voice of the core business as a part of a homophony, the epistemological perspective within the Innovation Culture Initiative also changed. While the original design of the innovation process, outlined by the Innovation Project Model, favored a constructivist epistemology aligned with the ideals and principles of knowledge communication theory, the shift in organizational voice meant that the actors associated with the Innovation Culture Initiative could no longer retain such a new and different way of understanding what knowledge and learning was all about. As became clear from the process-level analysis of the previous chapter, the project teams eventually began to define knowledge according to the epistemological perspective of orthodox cognivism — something which seemed far more aligned with the Novo Nordisk ‘way of doing things around here’.

With the change, knowledge was suddenly perceived as a tangible product which empowered the project teams to be far more concrete, explicit, and recognizable in their communication. The assumptions of how this new epistemological perspective affected the innovation process were significant and numerous. Knowledge could now be accessed and discovered within the domain of the innovation theme thereby indicating that the learning process functioned as somewhat of a ‘heureka moment’ — the project teams were to dig around for valuable knowledge until they all of a sudden locate it much like a treasure seeker digs for gold. After discovering the right piece of knowledge, project teams were to take it home with them in order to develop it into something explicitly and measurably valuable. As such, knowledge could be subject to conversion and could be shaped into a desired form. Such a form would usually be fully explicit and fully codified into different types of documentation. This indicates a perspective of knowledge as able to exist independently of knowers. It becomes a process of externalization — of taking knowledge from inside the head and putting it on paper. Finally, it assumes that knowledge, once externalized, can be transferred between people in a one to one perspective — that the knowledge transmitted by one is the exact same knowledge received by another. All of these assumptions share the same epistemological premise that knowledge is a stable product that can be subject to conversion, codification, and transfer. It also has the premise that the knowers are completely homogenous and rational, because the uniqueness of knowers is ignored. In other words, this epistemological perspective removes people as a significant variable and argues for an optimally functioning knowledge-intensive process (Felin & Hesterly, 2007). It is inherently a de-humanizing perspective.

6.3.1. Facing problems catalyzed by changing epistemologies

Even though the Innovation Culture Initiative assumed this new epistemological perspective in order to make their innovation process seem simpler, more recognizable, and more approachable in
the context of stakeholder communication, it directly affected their own understanding of knowledge and learning — the most fundamental concepts of their unique innovation design. What remains almost paradoxical is the substantial feelings of frustration and the substantial number of problems generated as they began to practice according to this new perspective. Rather than facing stakeholders frustrated with not recognizing or understanding their approach, design, or terminology, the project teams themselves became frustrated with adapting a new approach, design, and terminology which just did not match what they were actually experiencing. While it became easier to communicate with stakeholders, the communicative dimension no longer matched their practice. To the project teams, the innovation process was experienced in a completely different way.

Learning, or the construction of knowledge, was an ongoing process with no clear beginning or end. It was a process strongly characterized by iterations and recursivity — by mistakes and failing — and this seemed to be an unavoidable aspect of constructing knowledge. When trying to communicate knowledge, they found it extremely difficult, if not impossible, to do so always feeling that they knew more than they could express (Polanyi, 1966; Tsoukas, 2002). When they defaulted to speaking of ‘key insights’ or ‘key deliverables’, they often felt as though it was only a fraction of what they knew and of what was necessary to know about their domain. When the project were faced with producing a valuable business concept, they felt as though they were using their knowledge rather than converting it. It was not about transforming knowledge into something tangible, but rather about producing something tangible empowered by knowledge. The final hand over process seemed frustrating, because the project teams never felt fully able to write down what they knew (codification) and for that reason, the transmission of artefacts containing information just not seemed to be a complete hand over of the project.

It remains clear, then, that the epistemological perspective of the Innovation Culture Initiative was constituted communicatively by its organizational voice, and that even though this perspective changed in order to match the dominant voice of the core business, it did not match the experienced practice of the project teams. The shift in organizational voice, communicative structure, and epistemological perspective was ultimately catalyzed by a perception of an ‘us’ and a ‘them’ — of an Innovation Culture Initiative voice and a core business voice. It was not about different knowers knowing different things — it was not such an individual level which came to have any significance.

Reiterating the fundamental principle of knowledge communication theory that knowledge is personal and social at the same time (section 2.4), it seems interesting to discuss the interplay between these two dimensions in the specific empirical context of the Innovation Culture Initiative.

It quickly becomes apparent that the perception of a dominant organizational voice directly affected the personal knowledge of the project teams. Such a perception can either come from direct interaction with internal and external stakeholders or from an ‘imagined other’ — how the project
teams expect that dominant organizational voice to sound like. As such, the individual dimension of knowledge is constituted by the social dimension of knowledge as much as the opposite is the case. Approaching this as a strictly dualistic and opposite relationship is, therefore, not as fruitful as approaching it as a synergetic relationship. Knowledge can be seen as individual, because it can also be seen as social (see section 2.3.2.). In the context of the Innovation Culture Initiative this can clearly be seen from the fact that the individuals of each project team did not experience themselves as some kind of ‘isolated islands of personal knowledge’, but rather as personal knowers within a social context which to a large extent framed and determined their knowledge. For this reason, it seems relevant to speak of teams, groups, discourses, voices, cultures, or communities rather than merely of individuals. As introduced in chapter two, this social dimension of knowledge is discussed in different theoretical contexts with different conceptual labels (section 2.3.2.2.). Labels such as ‘shared knowledge systems’ (Engberg, 2009), ‘knowledge bases’ (Marcus, 1995), ‘discursive knowledge’ (Fage-Butler, 2011b), ‘occupational communities’ (Orr, 1996), and ‘communities of practice’ (Lave, 1991; E. Wenger, 2000) all highlight this interdependency between the personal and social dimensions of knowledge as well as how the social context always affects knowledge and knowers. Despite recognizing that knowledge always has individual and social dimensions, researchers of knowledge communication theory rarely address the social aspect explicitly. Engberg specially addresses the way that legal representatives negotiate the meaning of law text in social contexts, but even though this certainly must be said to approximate a discussion of the personal and social dimensions of knowledge, it is rarely done explicitly using the ideals and principles found in the conceptual framework of knowledge communication theory. There is therefore little precedence within the discipline of knowledge communication for exploring the interdependencies of these dimensions explicitly. Seeing as there can be little doubt as to the significance of these dimensions in the context of this project, I will expand on this discussion by including Lave and Wenger’s communities of practice theory, which I believe can contribute substantially to this critical reflection of how the personal knowledge of the project team members became subject to socially catalyzed epistemological change (Lave, 1991; E. Wenger, 2000). Even though such a theoretical expansion using communities of practice is not conventional, it is not unprecedented within the discipline of knowledge communication (e.g. Risku, Mayr, Windhager, & Smuc, 2011).

6.3.2. Seeing the Innovation Culture Initiative as a community of practice

Communities of practice theory aims at conceptualizing the way in which certain groups or communities construct and communicate knowledge within a shared social context. It was originally introduced as a new dimension of learning theory and anthropology by Lave and Wenger in 1991 and has since flourished in many different other disciplinary contexts (e.g. Brown & Duguid, 1991; Heeyoung & Ko, 2014; Paavola, Lipponen, & Hakkarainen, 2012). It fundamentally argues that
the process of learning is socially situated and determined (Pattinson & Preece, 2000). Even though knowledge is seen as ultimately personal, individuals will always construct and communicate that personal knowledge according to the social dimensions in which they feel situated. This means that any knowledge-intensive process will always have a strong alignment towards engaging, sharing, and negotiating as constitutive practices of social knowledge (Lave, 1991). Because of this focus on socially engaging processes, researchers of communities of practice theory often prefer to use ‘knowing’ instead of ‘knowledge’, since the verb tend to connotes a higher degree of action, doing, and practice than the more static noun (Iverson & McPhee, 2008). Community of practice theory is, however, not only interested in arguing for the importance of the social dimension of knowledge — like knowledge communication theory — but also in the more specific dynamics and aspects of how this dimension materializes itself empirically. Brown and Duguid’s definition from 1991 makes this focus particularly salient — they argue that knowers “acquire that particular community’s subjective viewpoint and learn to speak its language […] they are enculturated […] acquiring […] the embodied ability to behave as community members” (Brown & Duguid, 1991). In other words, communities of practice emerge as any given number of individuals find themselves in a comparable social context with others and as that social context eventually develops into a situating and determining aspect of knowledge construction and communication. Members of the communities of practice begin to share terminologies and vocabularies, they understand certain phenomena in much the same way, and they begin to approach problems with the same toolbox:

“As they spend time together, they typically share information, insight, and advice. They help each other solve problems. They discuss their situations, their aspirations, and their needs. They ponder common issues, explore ideas, and act as sounding boards. They may create tools, standards, generic design, manuals, and other documents — or they may simply develop a tacit understanding that they share. However they accumulate knowledge, they become informally bound by the value that they find in learning together. […] Over time, they develop a unique perspective on their topic as well as a body of common knowledge, practices, and approaches. They also develop personal relationships and established ways of interacting. They may even develop a common sense of identity. They become a community of practice” (Etienne Wenger, McDermott, & Snyder, 2002: 4-5)

This means that the personal knowledge of individuals within a community of practice is tied directly to the practice and terminology of a community and that community’s negotiated joint enterprise (Iverson & McPhee, 2002; E. Wenger, 2000). In this way, community of practice theory considers the social dimension of knowledge in much the same way as knowledge communication theory does. The social dimension is integral to the construction and communication of personal knowledge and for this reason, it is impossible to separate the two. Both theories also situate communication as an essential and constitutive aspect of knowledge. Just like knowledge communication theory assumes that knowers will always know more than they can tell because of
the tacit properties of knowledge (Polanyi, 1966), community of practice theory assumes that members of any given community of practice will never fully be able to articulate which tacit understandings constitute their community (Duguid & Brown, 2000). As such, personal knowledge constructed according to the social dimension of a specific community of practice is far more easily communicated to other members of the same community, because they share terminologies, vocabularies, understandings, tools, designs, and values. Since its creation in 1991, community of practice theory has been used to analyze a number of different knowledge-intensive communities (e.g. Kunda, 1992 and engineers; Orr, 1996 and photocopy sales reps).

The connection between community of practice theory and knowledge communication is certainly salient, but it becomes far more significant when contributing to the empirical dimension of this critical discussion of the Innovation Culture Initiative. While offering an plausible explanation of why the project teams within the Innovation Culture Initiative felt as though they were using a different organizational voice, communicative structure, and conceptual terminology than their internal and external stakeholders. It also offers a suggestion as to why the project teams experienced an increased level of frustration when their until then unique voice was abandoned in favor of a more conventional and accompanying one. When the introduction of a new terminology and a new communicative structure, the Innovation Culture Initiative could no longer function as a distinct community of practice. Until then, project teams had been constructing and communicating their knowledge according to the perspectives, terminologies, and values shared within their community of practice, but when that changed, they begun to feel a fundamental misalignment between what they knew and what they said. What remains most important, however, is that community of practice theory enables an understanding of the innovation process as a knowledge-intensive process situated and determined by the social context of the Innovation Culture Initiative. When that social context changed — as the unique organizational voice was abandoned in order to achieve homophony — the epistemology and communicative approach within the community of practice also changed. The personal knowledge of each innovator was contingent on its social dimension.

When viewed as a community of practice, the unique organizational voice, vocabulary, terminology, tools, and practices developed by the Innovation Culture Initiative — and particularly the project teams — established a social dimension which situated and determined the construction and communication of personal knowledge for each individual actor. This social dimension of knowledge was constituted by the organizational context of the Innovation Culture Initiative. When the context changed, so did the social dimension of knowledge and therefore also the community of practice. It effectively dissolved the shared understanding of innovation, knowledge, and learning which had been at the core of the innovation design and transformed it into a far more conventional,
recognizable, and easily approachable version of innovation, which was, however, almost identical to the already existing approaches found within the core business.

6.4. Synthesizing discussions

The Innovation Culture Initiative was established in order to develop and introduce a new and unique organizational voice into what was envisioned to be a polyphonic harmony within Novo Nordisk. By working with new type of innovation in a new way, innovation project teams were to develop the explorative capabilities of the company, which had otherwise been focused exclusively on exploitative efforts. This ambition of strategic ambidexterity resonated into the design of the innovation process at the core of the Innovation Culture Initiative. By placing knowledge as it pivoting point and learning, or knowledge construction, as its primary driving force, it represented a radically different perspective on what innovation was and on the value of working explicitly with knowledge-intensive processes. In order to achieve true ambidexterity or true polyphony, however, all organizational voices must actively engage each other and must be willing to approach each other in the approximation of coherence and harmony while retaining their unique characteristics. This was not the case with the voice of the Innovation Culture Initiative and that of the core business of Novo Nordisk. With its unique communicative structure, terminology, and understanding of innovation, the new voice of innovation was perceived by the numerous internal and external stakeholders connected to each innovation project team as too different and as too misaligned with the conventional practices within Novo Nordisk. The innovation process was perceived to be a very abstract and diffuse process without any clear value estimation, time table, or conventional project management methodology. Project teams were unable to guarantee a return on investment and were initially unable to fully articulate what their projects were really about. This perception rather quickly catalyzed a discursive shift. Project teams began to change their communicative structure, terminology, and vocabulary in order to adjust their stakeholder engagement strategies to better match the perspectives and expectations they were faced with. This change was, however, more significant than what can be labeled as a strategic adjustment of communicative approach — it represented a fundamental shift in the organizational voice of the Innovation Culture Initiative. As project teams began to align themselves completely with the more conventional innovation practices of the company, their voice began to lose its unique properties. Polyphony changed to homophony as the voice of the Innovation Culture Initiative sought to accompany the dominant voice of the core business. This communicative and discursive shift further catalyzed a complete change to the most fundamental conceptual understandings at the core of the innovation design. As terminologies and vocabularies changed, so did the epistemologies which were connected to them. The until then constructivist perspective on knowledge as personal, abstract, and tacit changed to a cognitivist perspective treating knowledge as tangible, codifiable, and explicit. This fundamental change to the
epistemological perspective was an intuitive extension of the communicative shift — the project teams had to understand knowledge as a tangible, cognitive product in order to align with their new voice. Knowledge was reduced to a simple product, while communication was reduced to a straightforward transmission between a sender with knowledge and a receiver without knowledge thus aligning perfectly with knowledge transfer theory. Even though this new epistemological perspective and new communicative structure at first felt more comfortable and more recognizable to both project teams and their stakeholders, it quickly generated a substantial level of frustration as the actors of the Innovation Culture Initiative no longer experienced an alignment between what they said and what they did. By changing their organizational voice, the shared social dimension which had situated and determined the construction and communication of the personal knowledge of each actor within the Innovation Culture Initiative was effectively dissolved and with that, any notion of a community of practice was also dissolved.

What remains most salient from this critical discussion of knowledge, communication, and organization is their interdependency. As one of these most critical dimensions of this specific empirical context changed, so did the others. For this reason, it is invalid to retain the idea of the three dimensions introduced during the introductory remarks of this chapter. That idea indicated that while knowledge and communication exist in an interdependent and dynamic relationship, organization is reduced to pure context or setting. I believe that the analysis of the former chapter and certainly the critical discussion of the current one strongly indicate a revision of that perspective. I will argue that all three dimensions, themes, or aspects are interdependent and that they exist in a mutually engaging and constantly negotiating dynamic. Proposing the presence of a strong connection between these three dimensions is in itself not new by any standard (e.g. Alvesson, 2004; Brown & Duguid, 2000; Garicano, 2012; Kastberg, 2011; Mcphee & Zaug, 2001). I will, however, argue that the specific setting of knowledge-focused innovation processes contextualizes these three dimensions as mutually constitutive and therefore interdependent. Every aspect of the knowledge-intensive process of innovation — be it construction, communication, conceptualization, or transfer — is completely contingent on the epistemology, communicative understanding, and organizational dynamics of its context. Because of this, the innovation project teams of the Innovation Culture Initiative experienced several turbulent changes to their work. Their understanding of knowledge changed from a constructivist epistemology to a conventional cognitivist one when the organizational voice of the core business became more dominant. The innovation project teams felt as though they needed knowledge to be a product which they could discover and unearth within their strategically determined innovation domain. Such knowledge products could easily be presented and estimated as valuable. As such, the communication of knowledge changed from a meaning-centered, transparent, and iterative transaction-based dynamic to a simple question of transmitting cognitive products from one with knowledge to one without it. These epistemological
and communicative alterations effectively changed the function of the Innovation Culture Initiative from being a department tasked with holistic exploration and the creation of new knowledge necessary for Novo Nordisk to sustain and expand its competitive advantage to being a supplier of knowledge products for the core business.
Chapter 7

Conclusions, assertions, and implications
Chapter 7: Conclusions, assertions, and implications

The ambition of this research project was to develop a conceptual framework of knowledge communication theories and to apply that framework analytically in order to understand the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative. It was catalyzed by three unique opportunities: 1) rare and unlimited access to the empirical setting of Novo Nordisk, a successful pharmaceutical company with an already strong and proven tradition of product-focused innovation, 2) a chance to appreciate and experience how a newly developed knowledge-intensive innovation process design was operationalized and practiced by six different project teams, and 3) an chance to synthesize relevant theoretical discussions and trajectories characterizing within and adjacent to otherwise eclectic knowledge communication research into a focused conceptual framework.

The research project manifested its ambition through the following research questions:

1. How can relevant theoretical concepts within the discipline of knowledge communication be used analytically to understand the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative?

2. How can an empirical study of the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative inform relevant theoretical concepts within the discipline of knowledge communication?

These questions had the underlying assumption that it would be possible to establish a mutually informing relationship between the theoretical and empirical dimensions of the project — the assumption that one could contribute to a more nuanced understanding of the other. With this focus, the project was launched in 2012 and concluded in 2015.

This final chapter of the thesis has the purpose of amalgamating the discussions and findings shaping the project. It is structured according to three larger sections. The first of the three, ‘A condensed reading of the thesis’, is a walkthrough of each of the constitutive elements of the project. The purpose of this first section is to provide an overview of the project’s ‘moving parts’ in order to enable an appreciation of their coherence and underlying logic. The final two sections aim to provide answers to the research questions above, while including implications for both practitioners of explorative innovation and for researchers of knowledge communication. These will conclude this thesis.

7.1. A condensed reading of the thesis

Each of the following subsections is aimed at providing a condensed reading of what have been the constitutive elements of this research project. From the introductory framing of the empirical
context to the process-level analysis, the sections are meant to make the coherent argument of the entire project seem as salient and transparent as possible.

7.1.1. The Innovation Culture Initiative of Novo Nordisk as empirical setting

The entire research project was catalyzed by Novo Nordisk’s decision to establish the Innovation Culture Initiative tasked with developing and operationalizing a new knowledge-intensive approach to a new type of explorative innovation within the company (document #7). The experiment was based on the assumption introduced by the knowledge-based view of the firm that modern companies could and should work explicitly with the construction and utilization of new and difficult-to-imitate knowledge in order to more effectively gain a more sustainable competitive advantage (Grant, 1996; Kogut & Zander, 1992). Even though Novo Nordisk already had a proven record of successful and valuable innovations, it had oriented those innovations towards incrementally or radically improving its product portfolio in order to fully exploit the opportunities of its current market position. Experiencing a push from the scientific community in particular towards developing a new approach to a new type of innovation — the theory of the knowledge-based view of the firm advocating for a more knowledge-intensive approach to innovation (Teece, 2007) and the theory of organizational ambidexterity arguing for the significant impact potential of explorative innovation (March, 1991; O’Reilly & Tushman, 2008) — Novo Nordisk acknowledged that such an experiment was to be attempted. With this objective of developing a capability for a different kind of innovation within the company, the Innovation Culture Initiative was established. At its core was the Innovation Project Model — an innovation design which enabled select project teams to approach innovation as a knowledge-intensive process by assuming a different understanding of innovation than that associated with the more dominant innovation streams of Novo Nordisk. In this new context, innovation was no longer to be characterized by product development, linear processes, militaristic discipline, zero-failure tolerance, or risk-aversity, but rather by immersive and holistic exploration, double-loop learning, continuous iteration, and stakeholder-focused co-creation. It was a fundamental understanding of innovation as a knowledge-intensive process consisting of the construction, communication, conceptualization, and transfer of knowledge.

While the Innovation Culture Initiative and its knowledge-intensive innovation design make the empirical setting interesting, it is the sudden and unexpected decision by Novo Nordisk to terminate the entire experiment in 2013 which makes it unique. Quoting ‘misalignment’ between the innovation project teams and the core business project teams as the primary reason for the termination, the decision introduces a dimension to the empirical setting which accents the analysis of the knowledge-intensive practices of the innovation project teams. From merely being a research project focused on the design and operationalization of a new approach to a new type of innovation,
the critical ‘misalignment’ re-contextualized the project into being the study of a ‘failure case’. It made the objective of the project seem more relevant since a new understanding of the knowledge-intensive innovation practices of the Innovation Culture Initiative might also offer insights into the circumstances of its termination.

7.1.2. Introducing, defining, and discussing knowledge communication

The objective of the theoretical chapter was to synthesize knowledge communication research into a conceptual framework, which would later be applied as the analytical perspective of the project. It was a matter of shaping the way that I was to appreciate and understand the knowledge-intensive innovation practices of the Innovation Culture Initiative, and because of this pivotal function, it was important to provide an exhaustive and structured overview of and insight into knowledge communication theory.

Prioritizing a balance between the important complexities of knowledge communication theory and the level of direct applicability needed for the purpose of analysis, I approached the conceptual synthesis from two positions.

Firstly, I examined knowledge communication as a research discipline. I wanted to contextualize the project scientifically and in order to explore whether there was disciplinary precedent for this type of project. By discussing salient definitions of knowledge communication (Engberg, 2010; Eppler, 2007; Kastberg, 2007; Reinhardt & Stattkus, 2002) as well as different perspectives on the institutionalization of the discipline (Eppler, 2012; Kastberg, 2010), I was able argue that the discipline should be characterized as young and emerging. The discipline looks at the relationships between knowledge and communication from different perspectives within different domains. It has been catalyzed into existence through both formative dichotomies (e.g. cognitivist vs. constructivist epistemologies) and theoretical strands converging from other related disciplines (e.g. the theory of constitutive communication from organizational communication). Knowledge communication research is characterized by divergence, dichotomy, and eclecticism and continues to provoke discussions between theoretical discourses and perspectives. By having no single dominating paradigm, knowledge communication research does not have any explicit terminology, and it does not have any default methodology. As such, it can be characterized as either a ‘pre-paradigmatic field’ (using the conventional taxonomy of Kuhn (2012)) or as an ‘eclectic and catalyzing agora’ (using the metaphor of Kastberg (2007)).

Secondly, I examined knowledge communication as a process. I wanted to establish an overview of the important properties and dynamics of communica ting knowledge and in order to achieve this, I began by discussing the epistemological and communicative perspectives on that process. The most immediate finding was the dominance of a very specific approach — that of knowledge transfer.
theory. Assuming an orthodox cognitivist epistemology, knowledge transfer theory approaches knowledge communication through a discourse of empowering simplification: in order for managers to work with knowledge, the complexity of knowledge must be reduced to a point where it appears to be a tangible, exogenous product. Learning becomes synonymous with access, and communication becomes synonymous with transmission — people ‘with’ knowledge delivering it to people ‘without’ it. Despite its apparent popularity with management-oriented disciplines like knowledge management, knowledge transfer theory has been heavily criticized for its reductionist agenda and referred to as little more than a “light-weight fad” (Duguid & Brown, 2000). It became clear that this way of understanding the process of communicating knowledge would not be a warranted one in the context of this project, and as such, I began the task of synthesizing an understanding which was unique to the very same discipline of knowledge communication that I had been exploring earlier.

The synthesis below is the result of the discussion of both formative dichotomies and theoretical trajectories within and adjacent to the discipline of knowledge communication.

1. Knowledge is unique to its knower and always has a tacit property
2. Knowledge cannot exist independently of knowers
3. Knowledge is personal and social at the same time
4. The appreciation that knowledge asymmetries catalyze communication of knowledge
5. Communication follows a transactional and meaning-centered dynamic
6. Communication is constitutive of knowledge

Despite striving to represent differently oriented theoretical perspectives in the discussion, the synthesis should be considered a manifestation of a certain approach to knowledge communication research — one significantly informed by the empirical dimension towards which it is oriented. As such, it is not representative of the entire discipline of knowledge communication. By perceiving knowledge and communication as two distinct yet interdependent concepts — complex yet approachable — the perspective developed above ultimately enabled an analytical approach in which I could appreciate the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative. It is a perspective which situates communicative practices as pivotal for any empirical appreciation of knowledge.

7.1.3. Methods for constructing and organizing data

With the analytical perspective synthesized, I needed a method with which I could study the empirical field of the project. Seeing as knowledge communication research did not have any default methodology, I was tasked with choosing the most appropriate one with the research objective of the project in mind.
Organizational ethnography was chosen for its orientation towards immersive exploration, and because it was a natural extension of the project’s pragmatist research design. Organizational ethnography enables the researcher to approximate, appreciate, and experience the everyday practices of a specific field as well the meaning-making interactions that constitute these practices. Unlike many other empirical approaches, it strives to minimize analytical distance as it situates the researcher in the middle of the field in question in order to experience firsthand its many different dimensions. As such, the most central characteristic of ethnography, and simultaneously its biggest challenge, is the balance between immediate, immersed participation and distanced, analytical observation with nuanced and holistic sense-making as the ultimate objective.

With organizational ethnography chosen as the overarching methodological framework, I needed a range of more specific methods with which to approach the two empirical processes of constructing and organizing data.

I constructed data using three distinct, but complementary methods designed to provide as much nuanced and complex information about as many dimensions of the Innovation Culture Initiative as possible. The first was participant observation aimed at situating me in the middle of the Innovation Culture Initiative in order to experience first-hand the practices of the field. The second was document collection oriented towards mapping the espoused values, ideals, and principles of the Innovation Culture Initiative. The third and final was interviews oriented towards creating closed spaces of reflection and discussion oriented towards both enacted and projected practices. By triangulating data from these three methods, I would be able to approximate a more nuanced and complex perspective on the knowledge-intensive practices at the core of the project.

Following the construction of data, I consequently organized that data using the method of template analysis. While the three methods for constructing data were oriented towards different dimensions of the field, the information provided by them enabled a holistic and multi-dimensional analysis. This sense-making process became structured according to the organizing ideals and principles of template analysis. This choice of analytical structure is not only aligned with the three methods of the data construction process, but once again with the overall ideals of the pragmatist research design. By using template analysis as an explorative and holistic method of organizing data, I was able to ensure a level of transparency required for it to meet the conventional academic requirements of robustness and validity.

7.1.4. Analyzing the innovation process as knowledge communication
The purpose of the process-level analysis was to apply the conceptual framework of knowledge communication theory as an analytical perspective on the innovation process of Novo Nordisk’s Innovation Culture Initiative as it was initially designed and consequently operationalized in order
to see which themes would appear particularly salient through such an analytical perspective. It allowed me to perceive the process outlined by the Innovation Project Model as a knowledge-intensive process and to structure it according to the dimensions of the analytical perspective — effectively changing the terminology, labels, and superficial structure of the model. By approaching the design and operationalization of the Innovation Project Model in this way, it made the knowledge-intensive focus of the entire Innovation Culture Initiative salient to a point where the alignment between how the project teams operationalized the model and how knowledge communication theory approaches such processes seems very strong. There is a strong and explicit orientation towards an initial knowledge construction through domain-specific interaction, towards a consequent conceptualization of said knowledge, and finally towards a transfer or handover of knowledge from the Innovation Culture Initiative to the core business. Approaching this innovation process as knowledge-intensive therefore seems evident. To the Innovation Culture Initiative, then, knowledge and learning were seen as key and the entire innovation process was designed around these.

7.2. Answering research question 1

*Research question 1: How can relevant theoretical concepts within the discipline of knowledge communication be used analytically to understand the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative?*

Developing a conceptual framework of knowledge communication theory and applying it to better understand the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative enabled two specific, analytical insights: 1) a way of understanding processes of innovation as processes of knowledge communication, and 2) a way of understanding the significant changes to the most fundamental dimensions of the innovation design through the lifetime of the Innovation Culture Initiative. This section will begin by expanding on these two insights before specifically addressing the contributions and implications generated by them.

7.2.1. Understanding innovation as knowledge communication

Through the lens of knowledge communication theory, the innovation processes of the project teams were perceived to be processes of constructing, communicating, conceptualizing, and transferring knowledge. By introducing this alternative terminology to that of the Innovation Project Model, the innovation process was approached as a ‘pure’ knowledge-intensive process. In other words, the perspective enabled an exclusive insight into how the project teams worked with knowledge in different ways at different points during their innovation process. More focused on a very specific dimension of the innovation process, the perspective made both the merits and challenges associated with the newly developed knowledge-intensive innovation design appear more salient.
Chapter 7: Conclusions, assertions, and implications

On one hand, the design of the Innovation Project Model introduced entirely new dimensions of knowledge into the innovation practices of Novo Nordisk, which had otherwise been focused on product development and kaizen optimization. The model outlined learning processes as holistic and immersive explorations, it assumed that the communication of knowledge was a matter of co-creation rather than of transmission, and it emphasized that the process of producing innovative business concepts from knowledge required continuous iterations, fact-finding processes, and strong stakeholder engagement strategies. Furthermore, it objected to the introduction of conventional KPIs, to a traditional communicative structure, and to any expectation of innovation as a linear and risk-averse endeavor. All of these assumptions and arguments were fundamentally motivated by an understanding of innovation as a knowledge-focused process. Based on the discussion of knowledge communication theory, I can confidently argue that these design principles align perfectly with those of the conceptual synthesis. As such, the innovation process design could be seen as an attempt to operationalize these theoretical principles.

On the other hand, however, the analysis also made salient several fundamental challenges associated with the structure and strategy of the Innovation Culture Initiative. By being structurally situated outside of the core business, the project teams were meant to facilitate an ‘outsourcing’ of learning on behalf of that core business. They were to protect the otherwise leaned core business from the abstract and noisy processes of explorative innovation by ‘doing the learning for them’. This created a relationship between the two based on supply and demand — an exchange of diffuse innovation themes and polished business concepts.

The application of the analytical perspective thereby enabled an understanding of a process design and an organizational structure based on fundamentally different approaches to knowledge-intensive innovation. The structure seems to adhere to the management-oriented discourse of knowledge management reminiscent of knowledge transfer theory assuming knowledge to be a commodity and effectively establishing a knowledge-based production and supply within the company. It is based on the idea of the project teams as adjacent experts providing explorative innovations to a core business otherwise focused on optimizing exploitation. The process design, however, seems to adhere to an entirely different theoretical discourse based on knowledge communication principles. I would argue that it was this fundamental discrepancy regarding the approach to innovation as a knowledge-intensive process which ultimately catalyzed the turbulent changes experienced within the Innovation Culture Initiative.
Chapter 7: Conclusions, assertions, and implications

7.2.2. Understanding the changes to the Innovation Culture Initiative

Even though some of the changes experienced by the project teams were apparent to all actors within and adjacent to the Innovation Culture Initiative, these changes appear as differently essential when approached through the analytical perspective of the project.

The epistemological and communicative change along with the consequent change of organizational voice were provoked as the project teams began to engage their stakeholders and began to communicate about their new approach to innovation. At this point, it became clear that the innovation process outlined by the Innovation Project Model was based on an entirely different set of assumptions than the strategic considerations leading to the establishment of the Innovation Culture Initiative. Most striking, perhaps, was the lack of measurable deliverables (KPIs), the lack of acceptance of projects as iterative, messy, and noisy, the difficulty to accurately predict end results, and the inability to fully articulate what they had learned. While this corresponds perfectly to Polanyi’s tacit knowledge (1966) and Tsoukas’ subsidiary particulars (2002) and as such matches the conceptual understanding of knowledge communication theory, it was experienced by the core business—and particularly by the project steering committees—as a significant and unfortunate contrast to the Novo Nordisk ‘way of doing things around here’. It was completely unlike the principles advocated by researchers of knowledge management and knowledge transfer theory, and was experienced as a striking discrepancy quickly becoming salient to every associated actor.

The frustration caused by the unique approach to knowledge-intensive innovation within the Innovation Culture Initiative ultimately provoked several changes. The project teams abandoned their unique organizational voice as well as their unique approach to knowledge-intensive innovation in favor of more conventional project management approaches. They chose to do so, because they had the experience with such conventional approaches, and because it matched the Novo Nordisk ‘way of doing things’. It was a discursive change from polyphony to homophony. While this change of organizational voice allowed the project teams to revert to old terminologies and perspectives on innovation which greatly facilitated a more recognizable communicative strategy, it did not seem to correspond with the actual practices. Changing the communicative strategy did not, as such, eliminate the fundamental discrepancy between process design and strategy, but merely allowed project teams to communicate in a manner the core business was accustomed to.

7.2.3. Conclusions, assertions, and implications for innovation practitioners

1. Approaching explorative innovation as an explicitly knowledge-intensive process was experienced by the innovation project teams as enabling truly explorative, iterative, holistic, and immersive approaches to innovation. It empowered them to understand innovation as
the construction, communication, conceptualization, and transfer of knowledge instead of applying a more conventional project management perspective.

2. The new knowledge-intensive approach to innovation outlined by the Innovation Project Model emphasized the need for a correspondingly new communicative approach necessary for a successful stakeholder engagement strategy. Since knowledge will always have a tacit dimension, and since it remains unique to the context in which it was constructed, communicating what you know is incredibly challenging.

3. Trying to face that communicative challenge with a conventional transmission-based approach advocated by knowledge transfer theory was not only unsuccessful, but in fact managed to create an entirely new discrepancy between ‘what was done’ and ‘what was said’. While approaching communication as linear transmission was certainly recognizable, it failed to provide project teams with a way of communicating on the basis of what they knew. In this way, the findings of this project challenges the validity of such reductionist approaches to knowledge and communication.

4. While the design of the new innovation process assumed a constructivist epistemology, the overall strategy and structure of the Innovation Culture Initiative assumed one aligned with orthodox cognitivism. As such, the process was oriented towards knowledge as inherently tacit and unique to its knower, while the structure was oriented towards knowledge as a tangible and exogenous commodity. This misalignment proved to be significant enough to catalyze fundamental changes to the operationalization of the design as well as ultimately to the termination of the entire experiment.

7.3. Answering research question 2

Research question 2: How can an empirical study of the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative inform relevant theoretical concepts within the discipline of knowledge communication?

The second research question assumed that the theoretical perspective and empirical field of the project existed in a mutually informing relation and as such that it would be contribute theoretically on the basis of the empirical findings. After having concluded an extensive field study of the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative, three such contributions seem particularly salient: 1) a conceptual synthesis of knowledge communication research necessary for the analytical application of the theoretical perspective, 2) the findings of an unprecedented empirical operationalization of the theoretical principles of knowledge communication theory as the design of the knowledge-intensive innovation processes of the Innovation Culture Initiative aligned perfectly with those principles, and 3) a strong indication that organizational dynamics can be pivotally constitutive to knowledge communication.
Chapter 7: Conclusions, assertions, and implications

7.3.1. Synthesizing knowledge communication research
Deciding to use knowledge communication theory to understand the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative turned out to be little more than a first step in the process towards producing a conceptual framework accurate and nuanced enough to apply analytically. In order to end with such an analytical perspective, I needed to establish an overview of my disciplinary context and to develop an understanding of relevant theoretical concepts through critical discussion. By doing a conceptual literature review and by discussing salient theoretical dichotomies and trajectories within and adjacent to the discipline of knowledge communication, I was able to establish an overview which was all-important in the context of this project. At no point during that literature review did I find precedent for synthesizing an otherwise interdisciplinary and eclectic research discipline, which situates the one present in this thesis as a contribution. Reiterating one of the principles inherent to the pragmatic research design underlying the entire project, such a contribution was never an explicit objective in itself. Instead, it was a necessary exercise in order to develop an analytical perspective with which to appreciate and experience the empirical field.

7.3.2. An unprecedented empirical operationalization
The Innovation Culture Initiative was a unique case because of a number of dimensions. One of these – and perhaps the most pivotal – is that the process design outlined by the Innovation Project Model was an ideal, but unintentional operationalization of the principles of knowledge communication theory. As such, the empirical study conducted by this project approximated a study of knowledge communication theory operationalized in the context of explorative, non-product oriented innovation processes, and thus it provides researchers within and adjacent to the discipline knowledge communication with important empirical information.

The study made clear that even though the theoretical concepts of knowledge communication can consistently be implemented into an innovation design, the concepts are not inherently normative and will as such generate a number of significant challenges when applied within a practical context. More specifically, two challenges seemed to be most salient: 1) an inability to clearly and transparently communicate knowledge and 2) an impossibly ambitious communicative structure which required frequent, informal, and lengthy meetings during which project teams could co-create with their steering committees. While these challenges may have been significant for the Innovation Culture Initiative, they are not considered as such for researcher of knowledge communication theory. Instead, the tacit dimension of knowledge and the approach to communication as transactive co-creation of meaning are almost always considered pivotal concepts of such a theoretical perspective.
Whether a conclusion from this observation would be an invitation for fellow researchers to amend knowledge communication theory in order to make it more directly applicable, or whether it would be to merely reiterate that this type of research does not lend itself to direct operationalization, the empirical findings remain clear. Despite providing researchers — and some practitioners — with a nuanced and complex perspective with which to appreciate and experience knowledge-intensive processes like the ones of the Innovation Culture Initiative, knowledge communication theory remains somewhat distant from practical application. The innovation design of the Innovation Culture Initiative, however, should provide such researchers and practitioners with important empirical input which will hopefully catalyze new theoretical discussions and shape existing trajectories. One example of such a discussion should be oriented towards the significance of organizational dynamics to processes of knowledge communication.

7.3.3. Towards a framework of organizational knowledge communication

The empirical setting of this project emphasized the significance of organizational dynamics to understanding knowledge communication. Despite already being introduced to knowledge communication research through the discussion of the social dimension inherent to constructivist epistemology, this dimension has until now been largely limited to more abstract epistemological discussions (e.g. the ‘self’ and the ‘other’ of section 3.3.2.). When processes of knowledge communication exist in an organizational setting like that of the Innovation Culture Initiative, however, they not only become significantly affected by it, they become constituted by it. As such, it becomes impossible to separate the personal and social dimensions of knowledge. This became so explicit that one may even argue that the changes to the epistemological perspective of the project teams were catalyzed by the organizational voice of the core business. Knowledge was suddenly perceived to be a tangible commodity, because the larger organizational context of the project teams approached it as such.

Even though one may argue that any notion of organizational knowledge communication is limited to approaching knowledge communication ‘in organizations’, I would disagree for some of the same reasons which applied to the discussion of ‘organizational ethnography’. In this context, organizational ethnography was also defined as ethnography ‘in organizations’, but while acknowledging that this organizational context is not meaningless. As such, it is not only an outline or a frame, but rather a significant dimension. Within this research project, that dimension proved to be as constitutive of the epistemological and communicative dimensions as they were of each other.

Within the context of this project, it was necessary to include theories from disciplines adjacent to knowledge communication in order to critically discuss the organizational dimension of the empirical
field. More specifically, these were the theory of organizational polyphony (Christensen et al., 2008) and the theory of communities of practice (Lave, 1991; E. Wenger, 2000). As they expanded the analytical perspective originally comprised of knowledge communication theory only, the critical discussion of the thesis became more nuanced and more accurate.

7.3.4. Conclusions, assertions, and implications for KC researchers

1. In order to enable the possibility of applying a theoretical perspective of knowledge communication analytically, the otherwise interdisciplinary and eclectic dichotomies and trajectories comprising the discipline need to be synthesized into a more coherent conceptual framework. Such a coherent and condensed framework is new to the discipline of knowledge communication and will hopefully catalyze further discussion.

2. By undertaking such a synthesizing exercise, knowledge communication theory has proven to enable the development of a highly nuanced analytical perspective allowing me as a researcher to appreciate and experience significant complexities which would otherwise have been beyond my scope. As such, the project has demonstrated that such a direct analytical application is not only possible, but also fruitful.

3. If one accepts that the innovation process design of the Innovation Culture Initiative can be considered an indirect and inadvertent empirical operationalization of knowledge communication theory, one should also accept the conclusion that such theory is neither normatively oriented nor practically applicable in the design of such innovation processes. The tacit dimension of knowledge and the ongoing, transactive dynamic of communication in particular do not lend themselves to the requirements of conventional organizational structure.

4. Knowledge communication theory has not yet been addressing organizational dynamics explicitly, so in order to approach such dynamics, it becomes necessary to apply other, complementary theoretical perspectives. Seeing as how a synthesized conceptual framework of knowledge communication theory has proven itself highly applicable as an analytical perspective, however, it seems obvious to pursue this theoretical trajectory associated with organizational dynamics further in order to expand and advance it.
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Appendices
Appendix 1: Summary in English

The purpose of this research project is to develop a conceptual framework of knowledge communication theories and to apply that framework analytically in order to provide an alternative understanding of the knowledge-intensive innovation practices of Novo Nordisk’s Innovation Culture Initiative (ICI). This purpose is manifested in the following research questions:

1. How can relevant theoretical concepts within the discipline of knowledge communication be used analytically to understand the knowledge-intensive innovation practices of Novo Nordisk’s ICI?
2. How can an empirical study of the knowledge-intensive innovation practices of Novo Nordisk’s ICI inform relevant theoretical concepts within the discipline of knowledge communication?

The project is situated within the research discipline of knowledge communication — a young and emerging discipline characterized by interdisciplinarity, eclecticism, and pragmatism. It is a discipline focused on the relationships between (constructivist) knowledge and (transaction-based) communication drawing on different theoretical perspectives oriented towards different empirical domains. The discipline is typically oriented towards interpersonal levels of analysis.

Structurally, the project is approached through four phases corresponding to the first four chapters of the thesis: 1) an introduction of Novo Nordisk, the ICI, and its knowledge-intensive innovation practices as the empirical field and object of study catalyzing the entire project, 2) a synthesis of knowledge communication theories into a conceptual framework in order to develop the theoretical perspective of the project with which to approach the object of study, 3) a choice of organizational ethnography as the methodological framework to facilitate an empirical approximation and appreciation by use of the two more specific processes of constructing data (through the methods of participant observation, document collection, and interviews) and organizing data (through the method of template analysis), and 4) an analysis of the knowledge-intensive innovation practices of the ICI project teams structured according to the four phases of the innovation process: knowledge construction, knowledge communication, knowledge conceptualization, and knowledge transfer.

The project concludes that approaching innovation processes as processes of knowledge communication enables unique insights into their communicative micro-foundations. It emphasizes the narrative of a particularly significant and constitutive discrepancy between innovation project teams with an innovation process design aligned with complexity-focused knowledge communication principles and a core business with a set of strategic expectations aligned with reductionist knowledge transfer principles. In short, it challenges the validity of reductionist approaches to knowledge-intensive innovation.
Appendix 2: Resumé på dansk

Formålet med dette forskningsprojekt er at udvikle et konceptuelt perspektiv af videnskommunikationsteorier og at anvende dette perspektiv analytisk for at kunne bidrage med en alternativ forståelse af de vidensintensive innovationspraksisser i Novo Nordisks Innovationskulturinitiativ (ICI). Dette formål udmøntes i følgende forskningsspørgsmål:

1. Hvordan kan relevante teoretiske begreber inden for disciplinen videnskommunikation bruges analytisk til at forstå de vidensintensive innovationspraksisser i Novo Nordisks ICI?
2. Hvordan kan en empirisk undersøgelse af de vidensintensive innovationspraksisser i Novo Nordisks ICI informere relevante teoretiske begreber inden for disciplinen videnskommunikation?


Projektet er struktureret ved hjælp af fire faser, der svarer til de første fire kapitler af afhandlingen: 1) en introduktion af Novo Nordisk, af ICI og af de vidensintensive innovationspraksisser som et det empiriske felt og forskningsobjekt, der katalyserede hele projektet, 2) en syntese af videnskommunikationsteorier som udgangspunkt for et teoretisk perspektiv til undersøgelse af forskningsobjektet, 3) et valg af organisationsetnografi som metodisk ramme for at facilitere en empirisk nærværd og forståelse ved at fokusere på datakonstruktion (ved hjælp af deltagerobservation, dokumentindsamling og interview) og dataorganisation (ved hjælp af 'template analysis'), og 4) en analyse af de vidensintensive innovationsprocesser, der praktiskeres af Innovationskulturinitiativets projektgrupper, struktureret efter innovationsprocessens fire faser: videnskonstruktion, videnskommunikation, videnskonceptualisering og vidensoverførsel.

Projektet kan konkludere at anskueliggørelsen af ICI innovationsprocesser som videnskommunikative processer muliggør unikke indsigter i deres kommunikative fundament. Det understreger en fortælling om en særligt betydningsfuld og konstitutiv diskrepans mellem innovationsprojektgrupper med et innovationsprocesdesign inspireret af kompleksitetssøgende videnskommunikationsprincipper og en kerneforretning med et sæt strategiske forventninger inspireret af reduktionistiske vidensoverførselsprincipper. Kort fortalt udfordrer det reduktionistiske forståelser for vidensintensiv innovation.
Appendix 3: Tables and models

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Appendix 4: List of empirical materials

Field journal entries

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Appendices

Interviews

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